

THE
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OF
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A MONTHLY RECORD OF THE MEDICAL AND AUXILIARY SCIENCES.

तदेव युक्तं भैषज्यं यदारोग्याय कल्पते ।
सचैव भिषजां श्रेष्ठो रोगेभ्यो यः प्रसोचयेत् ॥
चरकसंहिता ।

That alone is the right medicine which can remove disease :

He alone is the true physician who can restore health.

Charaka Sanhitā.

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CONTENTS OF Vol. XXVIII, 1909.

PAGE.

No. 1, January.

ANAESTHESIA. By Richard D. BLACKMORE, M.D.

EDITOR'S NOTES

Chemical Composition <i>versus</i> Constitution	14
Food and Water Supplies	15
An Indictment of the Modern Surgeon	15
Oatmeal in Diabetes Mellitus	15
Childbirth Customs	15
A Fatal Error	17
Medical Research	15
The Common Cold	18
The International Opium Commission	19
Camphor in Ceylon	20
Mussels and Enteric Fever	15
House-Flies and Disease	21
A Medical man's duty as witness	22

CLINICAL RECORD :—

Clinical notes. By A. E. Hawkes, M.D.	23
Epilepsy Clinical Case. By Agostino Mattoli, M. D.	24
Nausea of Pregnancy : How to cure it. By W. J. Hawkes, M. D., Los Angeles, Cal.	25
Nux Moschata Characteristics	26
Silica Marina in Constipation	27

GLEANINGS FROM CONTEMPORARY LITERATURE :—

Laura's Studies of Aconitine. By William F. Waugh, A.M., M.D., Chicago, Ill	28
The Senile heart and blood Vessels. By John L. Heffron, M.D.	37

ACKNOWLEDGMENTS

45

No. 2, February.

THE USE AND ABUSE OF LIGHT. By Rollin H. Stevens, M.D. ... 46

THE DETERMINATION OF SEX. By C. E. WALTON, M.D. ... 54

EDITOR'S NOTES :—

Qualification of a Medical Man	67
Another Aid to the Diagnosis of Pregnancy	15
Arsenicum in Burns	15
Milk and Tuberculosis	68
"Our Bleached Daily Bread"	15
Diaber. Dyspepsia	70
A New Supply of Lachesis	15
Dr. Burnett's Predictions fulfilled	15
Last year's Snake Victims	71
Olive oil in the diseases of the stomach	72

CLINICAL RECORD .—

Cases from my Practice. By Dr. Martens, Lueneburg	73
Cases of Masked Intermittent Fever. By Dr. Wirz, in Durlach	75

GLEANINGS FROM CONTEMPORARY LITERATURE :—

Original Articles. By Henry Goodwin Webster, M.D.	79
---	----

ACKNOWLEDGMENTS

90

No. 3, March.

THE SPHERE OF HOMOEOPATHY. By Oliver, S. Haines M. D.	...	97
LATE DR. HEM CHANDRA RAI CHAUDHURY	...	99
REVIEW :—	...	104
EDITOR'S NOTES :—		
Harm of night work	...	108
Banti's Disease	...	<i>ib</i>
Infantile Tuberculosis	...	<i>ib</i>
Pneumonia infancy	...	109
Malaria and Early Tuberculosis	...	<i>ib</i>
Some Pathogenic Bacteria	...	<i>ib</i>
Influenza and typhoid Fever	...	110
The Earliest Man	...	111
The Nipple as a Landmark	...	112
Rheumatism as a Cause of Appendicitis	...	113
Tuberculous Milk	...	114
Sir F. Treves on Radium	...	<i>ib</i>
Perforation After Gastric Ulcer	...	115
An Experience with Variolinum. By Dr. B. L. Gordon	...	<i>ib</i>
Our debt to the vegetable world	...	116
International Vital Statistics	...	117
CLINICAL RECORD :—		
Child-bed Fever and its Treatment. By R. del Mas, Ph.D., M.D.	...	118
Argentum Nitricum. By Dr. Spencer	...	121
A Case of Argentum Nitricum. By Dr. Samuel Ven den Bergh	...	123
GLEANINGS FROM CONTEMPORARY LITERATURE :—		
The Law of Similarity Exclusive in Therapeutic Science.	...	
By Edward Mahony, M.R.C.S., ENG., L.S.A., LOND.	...	125
ACKNOWLEDGMENTS	...	135

No 4, April.

THE MODERN HIPPOCRATES. BY A. JACOBI, M.D., LL.D.	...	136
EDITOR'S NOTES :—		
Tuberculosis Among School Teachers	...	157
The Early Recognition of Tuberculosis	...	<i>ib</i>
Remedies in Chlorosis	...	158
Extraordinary Results following the Administration of Crude Mercury	...	160
The Metallic Filament	...	<i>ib</i>
Mechanical Detection of Emotion	...	162
Earth Tides	...	163
Uro-Saccharometry in Practice	...	164
CLINICAL RECORD :—		
Clinical Cases. By Dr. M. Tyler	...	166
GLEANINGS FROM CONTEMPORARY LITERATURE :—		
Traumatic Perforations of the Uterus Inflicted from within the Cavity of this Organ. By Aime Paul Heineck, Chicago, Ill.	...	168
ACKNOWLEDGMENTS.	...	180

No. 5, May.

A CLINICAL PAPER ON INFANTILE WASTING. By Edmund Hughes, M.R.C.S. ENG., L.R.C.P., LOND.	...	181
EDITOR'S NOTES :—		
The Digestive Ferments in the Infant	...	196
Radium	...	197
X-ray cancer	...	<i>ib</i>

Overcrowding of the Profession	...	...	196
The causes of Overcrowding	...	...	<i>ib</i>
Cytological and Bacteriological Examination of Sputum	...	...	199
"One aim"	...	...	200
Cancer Cured by Kali bichromicum	...	...	<i>ib</i>
Our Bleached daily Bread	...	...	201
Medicine among the Hill Tribes of Sumatra	...	...	202
Metchnikoff	...	...	204
Leprosy	...	...	<i>ib</i>
CLINICAL RECORD :—			
Scrofulous Inflammation of the Glands. By Dr. Strohmeyer,			
Frankfort A. M.	...	...	206
Chronic Bronchial Catarrh. By Dr. Strohmeyer, Frankfort A.M.			207
Chronic Inflammation of the Fauces. By Dr. G. Sieffert, Paris			208
Abscesses on the Labiæ of the Pudendæ. By Dr. G. Sieffert, Paris			209
Psoriasis Linguae. By Dr. G. Sieffert, Paris	...	...	<i>ib</i>
GLEANINGS FROM CONTEMPORARY LITERATURE :—			
The Morphology and Variation of the Skull. By William			
Wright, M.B. Vict., D.Sc. Brim., F.R.C.S. Eng.	...	...	211
ACKNOWLEDGMENTS	...	...	225

No. 6, June.

A CLINICAL PAPER ON INFANTILE WASTING. By Edmund			
Hughes, M.R.C.S. ENG., L.R.C.P., LOND.	...	...	226
THE RATIONALITY OF HOMOEOPATHY. By J. F. P. Lewis			231
EDITOR'S NOTES :—			
A Fatal Allopathic Dose of Quinine	...	...	241
X-Rays Cause Cancer—and Cure Cancer	...	...	<i>ib</i>
The Milk in Wet Nurses	...	...	242
Homoeopathy and Overcrowding	...	...	<i>ib</i>
Heredity in Diabetes Mellitus	...	...	243
Early Diagnosis of Syphilis	...	...	<i>ib</i>
"Tea" Veniente Die	...	...	244
The Intellectual Achievements of the Blind	...	...	245
The Incubation period of Syphilis	...	...	246
The Gastric Secretion during Menstruation	...	...	247
Intestinal Massage in Heart Disease	...	...	248
Will Artificial Synthesis ever supply the World with food ?	...	...	250
Tobacco Poisoning in an Infant	...	...	251
CLINICAL RECORD :—			
A Case of Facial Paralysis. (Reported by Dr. J. Hervey			
Bodman.)	...	...	252
A Case of Asthma. By Lawrence M. Stanton, New York			254
Notes of a phytolacca Case. By Alfred J. Pearce	...	...	257
GLEANINGS FROM CONTEMPORARY LITERATURE :—			
The Morphology and Variation of the Skull. By William			
Wright, M.B. Vict., D.Sc. Birm., F.R.C.S. Eng.	...	...	258
Practical Dairy Sanitation. By Prof H. E. Cook, Canton N. Y.			255
ACKNOWLEDGMENTS	...	...	270

No. 7, July.

PHYSIOLOGICAL EFFECTS OF LIGHT ENERGY. By Herbert McIntosh			
A.M., M.D., Boston, Mass	...	...	271
THE TREATMENT OF ARTERIOSCLEROSIS AND HYPERTENSION. By			
William Benham Snow, M.D., New York	...	...	281

EDITOR'S NOTES . . .	
"Sleepers."	291
Malaria and Mosquitoes	ib
The Mosquito-Malaria Theory	ib
A Further Advance in the Etiology of Sleeping Sickness	294
The Treatment of Snake-bites	295
Syphilis in its Relation to Dentition	ib
A Crusade Against Flies	296
Congenital Malaria	297
The Action of Cocaine	299
CLINICAL RECORD :—	
Cases by Dr. C. E. Wheeler	300
Insomnia. By C. As-ern, Prior	303
A Rare Case of Hysterics	ib
GLEANINGS FROM CONTEMPORARY LITERATURE :—	
Traumatic Perforations of the Uterus Inflicted from within the Cavity of this Organ : By Aime Paul Heineck, Chicago, Ill	305
The Pollution of Streams by Domestic Sewage and Industrial Wastes, By Theodore Horton, C. E.	311
ACKNOWLEDGMENTS	315

No. 8, August.

FIBROSITIS (FIBROSIS): ITS SIGNIFICANCE, SEQUELÆ, AND RESOLUTION BY ELECTROLYTIC AND ACTINIC METHODS: A BIOLOGICAL STUDY. By Dr. Henry McCulloch, M.B., C.M., GLASS.	316
EDITOR'S NOTES :—	
The Achievements of Modern Medicine	328
Longevity and Sanitation	ib
Declining Birth-Rate in Australasia	329
Transmutation or Impurity	330
Flies as a Nuisance	331
Radio-activity and Carcinoma	332
The King in Birmingham	ib
The Shot-Gun Prescription	333
Thyroidin for Nocturnal Enuresis	ib
Radium in the Treatment of Filariasis	334
Rats and Plague Prevention in Queensland	335
The Fees of our Ancestors	336
German Tours for Medical men	337
Typewriting and Metabolism	338
Sterility of Ice	340
Medorrhium	ib
CLINICAL RECORD :—	
Some Clinical Cases. By Dr. Stonham	341
A Case of Varicosis. By Dr. H. Barlee	345
Aur. Met. in Mental Derangement. By H. C. Allen, M.D.	346
GLEANINGS FROM CONTEMPORARY LITERATURE :—	
The Crime of Compulsory Vaccination. By J. W. Hodge, M.D., Niagara Falls, N. Y.	348
ACKNOWLEDGMENTS	360

No. 9, September.

IS VACCINATION A MEDICAL QUESTION? By J. W. Hodge, M.D., Niagara Falls, N. Y.	362
EDITOR'S NOTES :—	
Musicotherapy	384

Destruction of Sweat Glands by Roentgen Rays	...	...	385
Two Rattle Snake Bite Cases	...	...	<i>ib</i>
Vegetable Cookery	...	...	<i>ib</i>
Antipyretics	...	...	386
A Vegetable Source of Iron	...	...	387
Playing with Saff	...	...	<i>ib</i>
Radium Emanations in Skin Diseases	...	...	388
Syphilis Before the Conquest of Peru	...	...	389
CLINICAL RECORD :—			
Two Cancer Cases. By De Agostino Mattoli, M.D.	...	...	551
A Viola Tricolor Case. By Dr. McCandlish	...	...	394
GLEANINGS FROM CONTEMPORARY LITERATURE :—			
The Marriage Problem and the Physician's part in its solution	...	...	395
By Orren B. Saunders, M.D.	...	...	395
ACKNOWLEDGMENTS	...	...	405

No. 10, October.

BRITISH HOMŒOPATHIC CONGRESS	...	...	406
EDITOR'S NOTES :—			
Treatment of Neurasthenia	...	...	427
Results of Bismuth Treatment	...	...	<i>ib</i>
Three Cases of Hysterical Loss of speech	...	...	428
Alcohol and Tuberculosis	...	...	429
The Germ Theory	...	...	430
Constipation with Infants	...	...	<i>ib</i>
The Resurrection of Homœopathy	...	...	431
The Opium Question	...	...	<i>ib</i>
The Revenge of Homœopathy	...	...	432
The Cumulative Effect of Serum	...	...	433
Lines to Hahnemann on the Anniversary of his birth, April 10, 1755-1909	...	...	434
Professor Pfluger	...	...	435
Bismuth Paste in Sinus Cases	...	...	436
CLINICAL RECORD :—			
Ignatia as a Rectal Anodyne. By Harvey Farrington, M. D., Chicago	...	...	437
GLEANINGS FROM CONTEMPORARY LITERATURE :—			
Medical Inspection of Industrial Plants. By C. T. Graham-Rogers, M.D.	...	...	441
ACKNOWLEDGEMENTS	...	...	450

No. 11, November.

BRITISH HOMŒOPATHIC CONGRESS	...	...	451
SYMPTOMATOLOGY AND COMPLICATIONS OF ACUTE CROUPOUS PNEUMONIA. By Howard P. Deady, M.D.			
	...	...	461
EDITOR'S NOTES :—			
Is Cancer an Infective Disease	...	...	472
Adulterated Drugs	...	...	473
Clinical Thermometers	...	...	474
GLEANINGS FROM CONTEMPORARY LITERATURE :—			
From Rationalism to Law. A step higher in Therapeutica or the Homœopathic Law of Nature and its Philosophy. By S. W. Lehman, M. D., Dixon, Ill	...	...	476
ACKNOWLEDGMENTS	...	...	495

No. 12, December.

PATROLOGIST'S VIEW OF HOMŒOPATHY. By W. H. Watters, A.M., Ph.D., M.D.	496
EDITOR'S NOTES:—	
Pomains Poisoning from Shrimps	512
Napoleon Bonaparte and his Doctor	1b
The White Slave Trade	1b
The Manufacture of Quinine	513
The Depopulation of France	1b
The French and the Germans	514
"The Day of small things"	515
The Virtues of the Ultra-Violet Rays	516
The Criterion of Colour	517
Synthetic Monstrosities	518
Nitric acid Test for Albumin	1b
Sunlight in a Test-Tube	520
The Brain of the late Professor Mendeleeff	521
Cosmic Influences and Health	522
Subjective Colours and Drugs	523
The Centenary of Oliver Wendell Holmes	524
CLINICAL RECORD.—	
Mercurius Corrosivus in Ostitis. By B. C. Woodbury, M.D., Portsmouth, N.H.	526
CLIPPINGS FROM CONTEMPORARY LITERATURE —	
Past and Present: A Note of Warning By the Senior Editor, British Homœopathic Review	530
ACKNOWLEDGMENTS	540

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ANAESTHESIA.

By RICHARD D BLACKMORE, M.D.

Definition

A term used in medicine to describe a state of insensibility to external impressions, either as a result of disease, or as induced artificially by the employment of certain substances known as anaesthetics.

Anaesthesia may be a symptom of, or associated with, diseases of the brain or spinal cord, or be a result of certain psychical states; but in this paper I shall deal with the artificial induction of the condition, which may, as occasion demands, be either local or general.

History :

A brief history of this marvellous achievement whereby thousands have been saved from suffering, the hands of the surgeon rendered more free to do his dangerous and salutary office, the preliminary examinations made more thorough and complete, thereby giving definite information should operation be necessary or advisable, seems to be in order.

Although it is owing to the researches of science of comparatively recent date that the employment of anaesthesia has come to occupy such a prominent position in medicine, still there is evidence to show that it is a practice of much antiquity. Homer

refers to the use of nepenthe. Herodotus to the practice of inhalation of vapors of a certain hemp. Dioscorides and Pliny allude to the use of Mandragora in surgical operations. A certain Chinese physician—Hoa-tho—living in the third century, gave his patients a preparation of hemp whereby they were rendered insensible during surgical operations. Mandragora was used by Hugo de Lucca, who practised in the thirteenth century. In the Medical Gazette, Vol. XII., p. 515, Dr. Sylvester, quoting from a work by Meissner published in 1782, mentions the case of Augustus, king of Poland, who underwent amputation while rendered insensible by a narcotic.

The practice, however, never became general, and physicians as a rule ignored the matter. Priestley's medical discoveries, and the better understanding of the properties of gases and vapors, led to the belief that many of them would be of medicinal benefit; and in 1800, Sir Humphrey Davy, while experimenting with nitrous oxide gas, discovered its anaesthetic qualities, and suggested its use in surgery in the following words: "As nitrous oxide, in its extensive operation, seems capable of destroying physical pain, it may probably be used with advantage in surgical operations in which no great effusion of blood takes place." His suggestion remained unheeded for nearly fifty years.

Inhalations of sulphuric ether for the relief of asthma, etc., had been employed by Dr. Pearson of Birmingham as early as 1785, and in 1805 Dr. Warren of Boston used this treatment in the later stages of pulmonary consumption. In 1818 Faraday showed that the inhalations of sulphuric ether produced anaesthetic effects similar to those of nitrous oxide, and this was also shown by Godman in 1822, Jackson in 1833, Wood and Buche in 1834.

These observations appear to have been treated as scientific curiosities, rather than the dawnings of a great truth which should mitigate pain, and relieve the work of the surgeon of a great source of embarrassment, until in December, 1844, Dr. Wells, a dentist of Hartford, Conn., underwent the operation of

extraction of a tooth while insensible from the inhalation of nitrous oxide gas. On September 30, 1846, Dr. Morton of Boston used sulphuric ether to produce insensibility in the extraction of teeth, later applying to Dr. Warren of the Massachusetts General Hospital for an opportunity of testing its application to major surgery. The first operation was performed at the Massachusetts General Hospital on October 16, 1846, and consisted of the removal of a tumor from the neck of a young man.

This marked a new era in surgery, subsequent trials only confirming its value.

The news reached England on December 17, 1846, and was at once taken up, first in dentistry, and later, on the 19th of January, 1847, Dr. Sir James Y. Simpson of Edinburgh introduced it into obstetrical work, and used it extensively until November of the same year, when he announced chloroform, suggested to him by a Liverpool chemist, a Mr. Waldie, and proposed it as a substitute for ether.

To the English minds he demonstrated the advantages of chloroform over ether, and to this day the former remains the favorite anaesthetic of our English cousins, while ether is more warmly considered in this country.

Substances used in the production of narcosis :

Of the various means used for the production of anaesthesia, chloroform and ether easily head the list. Other suitable agents, frequently used, are Nitrous oxide, the so-called A. C. E. mixture, Ethyl chloride, Cocaine, Encaine etc. I shall attempt in this paper a consideration of ether and chloroform, and perhaps certain combinations of them in varying proportions.

It is needless to go into their chemical composition ; any work on chemistry can do that more fully and correctly. The considerations to which I shall direct my attention are :

1. The indications and contra-indications for an anaesthetic
2. Conditions governing choice as between chloroform and ether.
3. Dangers.

4. Post-anaesthetic effects.

In their consideration, literature upon the subject by Waller, Heineek, Burton, Tumbull, the Encyclopedia Britannica, etc., has been studied, but I hope to formulate certain deductions from personal experimentation in the physiological laboratory upon nerves and also in the hospital upon patients while undergoing operation indications for an anaesthetic.

When anaesthetics are to be used depend upon a multiplicity of conditions, and it will be well to consider them briefly under various heads :

1. For Diagnosis.—In this field it is often of importance to have complete relaxation of muscular structures. Often in nervous conditions it may be used with advantage, thereby excluding hysteria for example; and, lastly, it is a great exposé of attempts at simulation.

2. Therapeutics.—A narcotic may be used as a therapeutic agent in cases of spasms, convulsions, neuralgia, colic, etc., to abort the spasm, and to allay pain.

3. In obstetrics narcotics are often used, without proceeding to the surgical degree of insensibility, in order to allay pain and to decrease nervousness and excitability. Circumstances requiring other than a partial anaesthesia are such operative measures as version, application of forceps, mutilation of the fetus, etc.

4. Surgery.—General anaesthesia is demanded when the nature or extent of the operation, or the condition of the tissues is to preclude the possibility or advisability of a local anaesthetic. *Contra-indications* may be touched upon in much the same manner as, for example, in obstetrics they would not be used against the patient's strenuous objection, in the absence of severe suffering in marked disease of the circulatory or respiratory tracts; and as between chloroform and ether, the former seems to be used by a majority of clinicians, because it acts quickly, is pleasant to take, is not inflammable (and when it is considered that the majority of obstetrical cases occur at night, this is of weight) and occupies less bulk. In surgery there are no absolute contra-indications for general anaesthesia. If the condition of the

patient permits the operation, it certainly permits general narcosis.

Conditions governing choice :

In the following conditions an anaesthetic is dangerous, because patients suffering from them are more prone to its accidents and dangers. Severe organic lesions of nervous, pulmonary and circulatory system ; in delirium tremens ; various neuroses, as epilepsy, hysteria, etc. ; aneurisms of the arch of the aorta, or of the innominate artery on account of the danger of rupture ; in surgical shock ; in cachexia from any cause. "These conditions bring such change in tissue nutrition and tissue vigor, as to render the action of ether and chloroform for the time being abnormal."

As to the mortality percentages of ether and chloroform, Gurtl of Berlin and Juillard of Geneva collected statistics as follows :—

Anaesthetic used.	Administrations.	Deaths.
Chloroform.	691.319	224 or 1 in 3.092
Ether.	341.058	23 or 1 in 14.828

These tables show a decided advantage as to the death rate, in favor of ether. There can be no doubt, however, that much of the disparity in these tables is (or was) due to incompetence on the part of the anaesthetist, and an incomplete knowledge of the action of the agent used.

A glance at the physiological effects of each of them may explain approximately why these things are so.

Ether : "The functions of the cerebrum are affected before those of the other portions of the nervous system. After a more profound inhalation, the anterior, or motor centers, soon fail to respond to mechanical irritation, yet the functions of the medulla oblongata are performed. If the inhalation of ether is still further carried on, according to Flourens, the sensory and finally the motor functions of the medulla are involved, and death occurs from a paralysis of the respiratory center."

Certain experiments were conducted by the writer during the full term at the hospital, upon patients under ether narcosis, the object being to collect data as to the phenomena observable in

a. majority of cases. Unfortunately they were interrupted by a certain contagion then prevalent, but a start was made which it is hoped may be continued. These experiments considered the respiratory actions. An apparatus was so arranged as to convey the respiratory motions to an arm designed to write upon a smoked cylinder revolving automatically. Enough was done to give a graphic record of the normal respiration before commencing the anaesthetic, the great interruption of the rhythm and extent of the respiratory movement during the stage of excitement, and their subsidence as relaxation became pronounced, not, however, showing a return to normal depth and fullness.

Chloroform : The effects seem to be divided into three stages.

1. "A peculiar sensation of fullness similar to the action of alcoholic stimulants, with a feeling of weight in the cerebrum; acceleration of the pulse, but no great increase in the heart's action; blunted sensibility and more or less tinnitus aurium. The first stage varies in length; it is generally short, but in intemperate persons may be prolonged.

2. "That of complete anaesthesia. Consciousness and sensibility are abolished, pulse slow and breathing regular; the entire muscular system relaxed. These two stages may run together.

3. "Usually ushered in by stertorous, noisy and 'catchy' breathing, with weak, irregular pulse, shallow and less frequent respiration, and dilated pupil, which is apt to be followed by collapse and death."

Much popular doubt existed as to the relative advantages and disadvantages between ether and chloroform, until Professor Waller, in a paper read before the British Medical Society, reported certain experiments whereby this eminent physiologist was able to clear away much of this doubt and establish why chloroform is more dangerous than ether, and to what extent.

It was my privilege to conduct certain experiments, modified from those of professor Waller, in our physiological laboratory, with various substances used in anaesthesia, and as they have an

important bearing upon the conditions governing choice I insert a description of them, and of the apparatus used, together with certain principles which are to be deduced from the work.

The apparatus consisted essentially of an ordinary nerve-muscle preparation enclosed in a moist chamber, and connected by its tendon with a writing arm designed to trace upon a smoked cylinder. The nerve was in contact with an electric current so arranged as to be opened and closed at definite intervals. The anaesthetic vapour was forced by a system of air-pressure and tubes into the moist chamber; the electric stimuli were applied at intervals of ten seconds.

Results: (In all these experiments, the fact must be considered that each experiment necessitated a new muscle, and of course the frogs were of varying strength of muscular development.)

Ether: The nerve showed gradual decrease of excitability, until a period was reached where there was no response. The period of non-excitability after air was allowed to circulate freely was relatively long, but after a time (4 min. 20 sec. after cessation of ether, 2 min. 10 sec. after the introduction of fresh air) the nerve showed signs of recovery; and, while the height of tracings subsequently obtained, either in this or other anaesthetics, were not as high as the initial tracings, the recovery was a substantial one, and after intervals of 5 minutes, each to avoid a fatigue curve, was susceptible of stimulation for over 20 minutes (the limit of the cylinder). At the middle of the period of observation there was a slight falling off in the height of the tracing, which later became higher, and as at the early period.

Chloroform: The nerve showed a gradual decrease of excitability until there was no response. Comparing this period with ether, there is no very material difference in the length of time necessary for the narcotic to produce its effect.

On the introduction of air, there was no response on the application of the current at the usual interval of 10 seconds, nor was there any during the life of the cylinder (20 minutes). The baseline was noticed to take an upward trend. A supplementary tra-

cing was taken, applying the electrodes directly to the muscle in order to demonstrate that the non-excitability lay in the *nerve* and *not* in the muscle.

A. C. E. mixture (alcohol 1, chloroform 2, ether 3 parts). The nerve showed at first a gradual, and later a sudden decrease of excitability. Compared with ether this period was longer. The period of recovery was also longer, and recovery itself was neither so absolute or long continued.

Chloroform and ether, equal parts.

The nerve showed decrease of excitability, at first slowly and later more rapidly, until complete inactivity was reached. The period of induction of anaesthesia was much shorter than with ether, chloroform or A. C. E. mixture, showing that it *might* be of use to produce speedy narcosis. The period of recovery was relatively long, and *ultimate* recovery was not at all satisfactory or long continued.

Chloroform and ether—one part chloroform to seven parts ether.

The nerve showed decrease of excitability at first slowly, more rapidly later, and finally seemed to collapse almost at once. This period compared with ether is short, and the period of recovery after the introduction of air was very short indeed; much the shortest of any of the substances used. The recovery itself was very satisfactory indeed, quite as much as was the case under ether.

A noticeable feature of those anaesthetics of which chloroform was the whole or a component part, was the gradual upward tendency of the tracings away from the base line. This was most noticeable in pure chloroform, least noticeable in chloroform and ether 1-7. Doubtless it has some significance, and is worthy of thought.

A summary of these results would read thus :

1. Pure chloroform is dangerous on account of the evident destruction of the nerve.
2. Chloroform and ether in equal parts is less so, but is not an ideal anaesthetic.

3. A. C. E. mixture is perhaps preferable to either the above.
4. Chloroform and ether (1-7) seems to be especially worthy of study and the best of all these agents.
5. Ether gives good recovery, but is not so rapid in action as chloroform and ether 1-7, nor is the recovery anything like as rapid in action, nor so continually good.

This portion of seven parts of ether to one part of chloroform was suggested by Prof. Waller's experiments, whereby he demonstrated that chloroform is seven times as powerful as ether. In addition to the consideration of the physiological action of the various anaesthetics, other considerations governing the selection may be :

Age : In children below seven years chloroform is undoubtedly the safer (considering chloroform and ether) on account of the great vascularity of their nervous system. Ether in these young cases causes an increase in the bronchial secretions which may asphyxiate the patient. In the aged "because these patients, as a class, either suffer from, or on the verge of, renal and of pulmonary degenerative changes," chloroform is the choice.

Climate : In warm climates use chloroform. The atmosphere causes a rapid action and evaporation, renders it more diffusible, and so lessens its noxious effects. Lawrie records 45,000 cases without a death. Ether is obtained and preserved with difficulty in warm climates.

Environment : In extraordinary circumstances, as in war, where the amount of work is likely to be great, the time short, and bulk a consideration, chloroform is apt to be chosen. Besides, ether is inflammable, chloroform is not, so that in operations by gas or lamp-light, ether is attended with dangers outside those bearing more particularly on the patient.

Physical condition of the patient : In atheroma of the blood vessels, use chloroform, because ether produces a more violent, prolonged stage of excitement, thereby increasing the liability to vascular rupture and its consequences.

In organic cardiac lesions, select ether, because chloroform causes depression of the tone of the heart muscle, relaxes the

cardiac walls, and impairs functional activity. Chloroform generally kills by syncope, and cardiac lesions by their nature predispose to this condition. A coexisting bronchial or pulmonary trouble would lead to the choice of chloroform. In renal affections use chloroform. An examination of fifty cases by Dr. Blake showed that ether either produced albumin, or increased its quantity, if already present. Hare and DaCosta advise chloroform in diabetes, because diabetic coma has followed administration of ether.

Any inflammation of the respiratory apparatus should lead to the choice of chloroform, as ether is a decided irritant to the air passages, and its baneful effects are mostly exercised upon that system. In collapse, as from loss of blood, use ether, but use it sparingly.

In alcoholics, use chloroform, if the conditions of the heart at all permit, as they are so steeped in stimulants as to demand an immense amount of ether.

In operations about the mouth, nose, throat, etc., where the administration of the anaesthetic is likely to be intermitted, chloroform is the choice, because the recovery from ether is more rapid.

In abdominal operations, other things permitting, chloroform should be chosen, as the respiration is quieter, the vascular engorgement much less, and the tendency to cough and strain after the operation is much less than with ether.

In surgery upon the rectum ether should be chosen, as the anal reflex is a late one to depart and deep narcosis is therefore needed; and deep ether narcosis is less dangerous than deep chloroform narcosis.

Posture of the patient: Too much condemnation cannot be pronounced upon the practice of giving an anaesthetic in a position other than the horizontal. The sitting or half-sitting and half-reclining posture has been productive of much of the fatality attributed to anaesthesia. Happily this is becoming more generally understood, and the use of more care in this regard, and the introduction to more general practice of such agents as nitrous

oxide, are doing much toward minimizing the dangers consequent upon the administration of any anaesthetic. Should the conditions of the operation necessitate the prone position, use ether, as under this the respiration is the thing to watch, which may be done easily, notwithstanding the fact of the prone position; moreover, this position may impede the expiration to some extent, and if chloroform be used it accumulates on this account.

Lastly, if the anaesthetist be inexperienced, ether is the choice, as its safety margin is much greater. Ether kills slowly and gives plenty of warning. Chloroform kills quickly and gives no warning whatever.

Whatever anaesthetic be chosen, always previous to its administration, obtain the confidence of the patient. Remember what may be an every-day occurrence to you may be to him the event of a lifetime. He is absolutely putting his life in your hands, and it must be your task to allay his fears and apprehensions, not alone upon humanitarian grounds, but also because the hyperexcitation of his nervous system is a disadvantage to the production of smooth narcosis.

Begin the administration gradually, whatever description of cone or mask be used. Mix plenty of air with the first few breaths. My experiments showed me that I could readily produce narcosis by pushing the anaesthetic at first, but that the subsequent condition of the nerve muscle preparation was less satisfactory than when slowly introduced. Caution the patient to breathe deeply, and be careful that he does not *forget to breathe*, thereby intensifying and prolonging the stage of excitement. As this stage comes on, the respiration becomes more deep and full involuntarily from the exertions put forth to escape; then is the time to "push" the anaesthetic. After the subsidence of voluntary motion and the abolition of the reflexes (remembering that the circular fibres of the ciliary muscle are supplied by a branch from the third cranial nerve, via the motor root of the lenticular ganglion) the amount of ether or chloroform may be much diminished, and it is astonishing how little may be used with efficacy. This economy of material has more than one

recommenda-tion ; omitting the mere matter of expense, the patient is more immediately under control, the danger point is always far off, and the post-anaesthetic dangers and discomforts are much lessened.

Dangers: Briefly stated, the dangers are—In ether, failure of respiration. In chloroform, failure of circulation.

Failure of respiration can be easily anticipated by noting the increasing turgor of the face, and by the vigilance of the anaesthetist. One thing to remember is that the epigastrium may rise and fall without respiration going on ; the diaphragm is a safer guide, or the ear applied near the patient's mouth. Another method is for the anaesthetist to breathe synchronously with the patient. This has been tried by myself with sufficiently good results to encourage its further continuance. In either form of anaesthesia, the temporal and facial arteries are within easy reach of the anaesthetist, and in chloroform narcosis should be constantly under his finger, so that if asked "How the pulse is now," he is not obliged to say, "It was all right a minute ago," but can, at once, count aloud the rate felt under his finger.

In chloroform anaesthesia especially, a danger sign is dilatation of the pupil. This should not incur. In this connection it has been noted that a glass eye was very carefully watched, with disaster to the patient.

In all cases of impending danger (and they never should get beyond this stage) remove the narcotic, and allow the free admixture of atmospheric air.

Post-anaesthetic effects :

The chief of these are nausea and vomiting. These are what all patients dread. In the administration of chloroform they are much less pronounced than with ether ; but in the latter much may be done by care in avoiding an overdose. It is astonishing, however, that the inhalation of acetic acid in some form is not more generally resorted to. Dr. Percy quotes 140 cases to whom it had been administered, none of which had nausea or vomiting. In the course of my experiments at the hospital it was given with a like favorable result.

Aside from the comfort to the patient, such a result must be of benefit, especially in incisions involving the abdominal parieties. The literature I have been able to consult agrees with this deduction, and it is worthy of more general employment. A good method of administration is to provide a mask as for chloroform, and allow the inhalation of a few drops sprinkled upon it. In the cases above touched upon, glacial acetic acid was used; possibly a milder dilution might be of equal benefit. The inhalations were given previous to recovery from the narcotic.

I cannot close this paper without calling attention to the mixture proposed by Prof. Waller, namely, that of ether and chloroform in the proportions of seven parts of ether to one part of chloroform, as being a safe, easy and desirable anaesthetic. He seemed to think it to be of value as combining the good effects of both, and lessening the evil effects of each. My own experiments point in the same direction, and I beg leave to remind my readers of the favorable result of such a mixture as applied to a nerve under electric stimulation.

What we wish and desire is an anaesthetic as safe as human knowledge can make it, and as free from the dreaded post-anaesthetic effects as possible. We are not looking for something which may allow the anaesthetist to fold his arms and watch the operation; he should be abundantly engaged in watching his patient, but if we can remove the danger point to a farther position even than it at present occupies, we are advancing science and benefiting humanity.

EDITOR'S NOTES.

Chemical Composition versus Constitution.

WHENCE, then, does this difference in the behaviour of starches as foods arise. I cannot be in mere *composition*, so that we must look for the explanation in the *constitution* of the starch molecule, that is, in the way in which the various parts of the molecule are linked up.—The *British Homœopathic Review*, January, 1909.

Food and Water Supplies.

A Government of India circular dealing with the provision and maintenance of pure water-supplies at railway stations has been issued by the Railway Board to all railway authorities, who have been requested to circulate it widely amongst responsible officials. Orders have also been issued with the concurrence of the Railway Board for the sanitary inspection of railway refreshment rooms and their surroundings, as far as food and water-supplies are concerned, at all railway stations where it is considered necessary in connexion with the health of the troops. A box for storing groceries in barrack kitchens has been designed and brought to the notice of commanding officers with a view to its being introduced regimentally.—The *Lancet*, January 30, 1909.

An Indictment of the Modern Surgeon.

A most scathing indictment of the modern craze for operations, as it obtains in surgical practice both in hospitals and in private, appeared in the *Daily Express* for December 3. From the homœopathic point of view it is a true statement, and the case could not have been better stated. Had this article been written by one of ourselves it would have called forth a howl of indignation and protest. Perhaps the gravest charge is that made in these words: "The public is to blame for the temptation of the surgeon. A surgeon, needy or greedy, who has the chance to operate, hardly can avoid taking it. The more operations, the greater his income—the greater the income, the greater the fame, and the man. Experience teaches that to operate and to kill often means a higher gain in patients than when sound advice against operations is given." These words are quoted by the writer as those of "a widely experienced and highly respected physician," and the whole article claims to have been 'taken down from his lips.—The *British Homœopathic Review*, January, 1909.

Oatmeal in Diabetes Mellitus.

THERE seems to be good ground for supposing that oatmeal, though rich in carbohydrate, can not only be well tolerated by some diabetics, who cannot tolerate wheat-flour starch at all, but actually to be of great benefit to the patient. Von Noorden, in 1902, first pointed out this fact. Mosso had previously shown that some diabetics can take potatoes in abundance, although unable to eat wheat-flour.

Herrick supports von Noorden's claims for the oatmeal diet in diabetes. In the milder forms of the disease there were no bad effects, but the benefits seemed slight. In moderately severe cases it seems to be specially useful in establishing a tolerance for carbohydrates, and in warding off impending coma. Herrick found it to exert a very favourable influence in the diabetes of children, if employed early. We wonder whether diabetes was less common in Scotland a generation ago, than in the sister countries? We say "a generation ago," because we greatly fear that since that time Scotland has become Anglicized, porridge being largely replaced by "bacon and eggs," and oatcakes by beefsteaks.

One fact stands out clearly, and that is, that even in diabetics the principle of *individualization* must be adopted and rigidly followed. Even here it is folly to prescribe for the *disease* and neglect the patient.—The *British Homœopathic Review*, January 1909.

Childbirth Customs.

According to an ancient Jewish tradition quoted by Sir John Pettus in his "Volatiles from the History of Adam and Eve" (1674,) our first parents had 30 sons and 30 daughters. Old theologians were often at a loss to explain how the firstborn of these was successfully brought into the world, seeing that neither father nor mother had any experience of midwifery. Astruc, the famous medical writer, in an "answer to a casuistical letter on the conduct of Adam and Eve at the birth of their first child," accuses his adversary of irreverence in wishing to know what was done with Cain's umbilical cord. Doubtless, according to Astruc, the knowledge of midwifery came by inspiration. A modern writer on a similar subject, Dr. De Vere Stapoole, in his brilliant book "The blue Lagoon," supposes that instinct comes to the aid of the entirely ignorant mother. Folklore, however, is constantly showing that all knowledge, such as that of

the obstetric art or that of cookery, has arisen by an infinitely gradual process. All mammals have doubtless always severed the navel-string for the simple reason that the newly born must be freed from the placenta or that the mother must be freed from the child before the extrusion of the after-birth.—Many primitive savages, however, do not cut the navel-string off short. Among the War-ramuga tribe of Central Australia it is allowed to drop off and is then tied round the child's neck to keep him quiet, being afterwards hidden by the child's mother's brother who is his tribal guardian. In the Bibinga tribe it is an aunt who severs the navel-string with a stone implement, afterwards ligaturing it with fur-string. The cord and after-birth are unceremoniously buried in the ground. In the Unmatjera tribe the navel is regarded as the door through which the spirit of an ancestor passes into the uterus of a pregnant woman in order to be born again in the person of her child. The above facts are taken from Messrs, Spencer and Gillen's well-known book on the "Northern Tribes of Central Australia." We can find parallels to them even in England, where old-fashioned midwives always treated, or still treat, the placenta in such a manner as to suggest savage tradition. They usually made haste to burn it, for if buried, said they, "it would be dug up by dogs." The phrase was, or is, invariable and suggests a savage belief rather than an actual risk. In a medical chap-book sold in London in 1791, we find it seriously stated that "if a navel string of a child, after it is cut, do chance to touch ground before it be burned, the same child will not be able to keep or hold his or her water, neither night nor day, a thing very true and known." The navel in Scripture is spoken of as a seat of strength. "His force is in the navel of his belly," says the Book of Job in reference to behemoth, and Proverbs speak of piety being "health" to the navel and marrow. Ezekiel addresses Jerusalem "under the similitude of a wretched infant." exposed at birth to perish in the desert. "when thou wast born, thy navel was not cut." says he, "neither wast thou washed in water to supple thee." And again, "Thy father was an Amorite and thy mother an Hittite," which passage apparently implies that these people exposed some of their children at birth.—The *Lancet*, January 30, 1909.

A Fatal Error.

A young woman met a tragic death in Sydney recently in very painful circumstances. She was suffering from earache and went into a druggist's shop to obtain a remedy. The proprietor of this establishment was ill in bed but his wife proceeded upstairs and asked him what she was to give. He told her to tell his son to dispense 10 grains of quinine. She did so and pointed to a bottle which she thought contained quinine. The boy did as requested and the patient left with the drug. Shortly after he discovered that he had dispensed from a wrong bottle and had given strychnine. The druggist's wife then went to the patient's house and finding that she had taken the powder gave an emetic of salt and water. The unfortunate young woman died shortly after. A verdict was recorded that the death was accidental. Neither the druggist's wife nor his son had any knowledge of dispensing.—The *Lancet*, January 16, 1909.

Medical research.

The anonymous donor, according to the best authorities, is always to be commended, and the most recent example of him is particularly brilliant. The Medical School of the London Hospital has just received a sum of £20,000 which has been placed in the hands of the trustees of the school by an anonymous donor. The trustees are to invest the money to the best advantage and to pay the income yearly into the hands of three administrators selected by the donor, these administrators to spend the money in the advancement of medical research and the promotion of higher education in medicine. The administrators are the able and energetic chairman of the hospital, the Honourable Sydney Holland, and two members of the acting staff of the hospital. The money is definitely to be allocated for the purposes of research and not for teaching candidates for examination. We have pleaded many times in our columns that those who are blessed with this world's goods should devote some of their superfluous income for the furtherance of scientific research. Research of any kind nowadays costs money, for those engaged in the research must, at all events, have a living wage, and owing to the refinement of methods of inquiry the apparatus necessary for modern research is expensive. It is outside the mark to say that Faraday, Scheele, Priestley, Dalton, and Pasteur arrived at their results with simple apparatus. It is perfectly true that they did,

but medical research nowadays touches nearly every country in the world and it may even be necessary for the researchers to travel in foreign parts, though we imagine that the final work will have to be done within the walls of the London Hospital. It is for this reason that we welcome the establishment of an income for men who are both able and willing to devote their time and their talents to original work. The choice, we learn, is wisely not confined to men who have been educated at the London Hospital but the administrators may select qualified medical men from any part of the Empire. We are sure that we are but voicing the thanks of the whole of the medical profession when we pay our tribute to the anonymous donor of the fund in question. All research adds to the sum of human knowledge, although the results may be of no direct value. But the men so engaged should receive as rich a reward as he who attains some obvious success. The work entailed is the same in either case.—The *Lancet*, January 23, 1909.

The Common Cold.

DR. R. W. ALLEN has been making an exhaustive series of observations on the bacteriology and treatment of the common cold. He finds that, speaking generally, a common cold is due to infection by one of the following five micro-organisms: the *Bacillus influenzae*, the *B. septus*, the bacillus of Friedländer, the *Micrococcus catarrhalis*, and the *M. paratetrigenus*. But sometimes a mixed infection occurs of two or more of the above. Any one of these micro-organisms may be found in the nasal mucus of a healthy person, where it lies latent ready to take on activity if the patient's resistance is suddenly lowered by a chill or other depressing influence. Or the patient may be infected directly from without by inhaling the germ-laden air of crowded rooms, &c. The common cold is eminently infectious.

The clinical symptoms vary with the infecting agent. Thus, when the bacillus of Friedländer is the cause, the case is characterized by profuse nasal flux and liability to secondary involvement of the accessory sinuses and the Eustachian tubes, but not by cough, which is sure to be the leading symptom of an attack due to the *M. catarrhalis* or *M. tetragenus*, which are apt to invade the trachea and bronchi and set up bronchitis. The *B. septus* causes the mildest form of attack, the cold that gets well of itself, and never invades the bronchi. When the first symptoms affect the fauces and pharynx either the *B. septus* or the *M. catarrhalis* is the infecting

agent. The temperature is high as a rule only in the case of the *B. influenzae*, and then the other systems, such as the nervous, gastric, or circulatory, may be involved.

Dr. Allen treated a number of cases with their appropriate vaccines with much success, abating acute colds and curing chronic ones. The vaccines also had an immunizing effect of some months' duration, and he recommends those who are peculiarly liable to catch cold to undergo systematic immunization every four to six months.—The *British Homœopathic Review*, January, 1909.

The International Opium Commission.

We learn from a circular which has been issued by the Society for the Suppression of the Opium Trade that the International Opium Commission will meet at Shanghai on Feb. 1st next. In our issue last week in an article on the Presence of Morphine in Anti-opium "Cures" we pointed out that this international conference had been convened on the initiative of the Government of the United States. The following countries will also be represented at the conference—viz., Germany, China, France, Great Britain, Japan, the Netherlands, Portugal, Russia, Turkey, Persia, and Siam. To the foreign ministers of each of these countries a circular letter has been sent by the above society in which are contained a summary of the present position as regards the sale of opium and the cultivation of the poppy respectively and a concise statement of the views of the British anti-opium societies. The report concludes:—

We hope that the Governments which participate in the International Commission at Shanghai will not hesitate to take the necessary steps to put an end as quickly as possible to the production and sale of opium, except for strictly medicinal purposes. The traffic which supplies the non-medical use of this drug is condemned by medical science, and Japan has resolutely excluded it from her soil. It is reprobated by the moral judgment of the best elements in the Chinese Government and people. Western civilisation cannot but sympathise profoundly with China in her supreme effort to free herself from this enervating and demoralising scourge. The European nations having colonies or protectorates in the East cannot evade the duty of keeping pace with China. We trust that they

will not content themselves with this, but regard themselves as bound in honour to set the example of speedy and effective prohibition.—The *Lancet*, January 9, 1909.

Camphor in Ceylon.

The United States Vice-Consul at Colombo says that an early appreciable contribution to the world's supply of camphor is promised as the result of recent planting operations in Ceylon. In 1907 the camphor acreage of the island was increased from 142 to 1106 and the indications are that the new acreage of 1908 will be even greater. Camphor planting, he continues, has been stimulated by the high price of the drug and by the successful results of experimental planting. While camphor will not grow at sea-level in Ceylon, it finds congenial conditions in the mountainous parts of the island and thrives finely at elevations of from 2500 to 8000 feet. The situation is so favourable to its profitable production that enthusiastic planters entertain the belief that Ceylon in a few years will produce camphor in a quantity greater than the world's present demand. It is estimated that the planting of between 15,000 and 20,000 acres in Ceylon would develop a production of 8,000,000 pounds, which, according to most authorities, is the quantity of camphor demanded annually at present. The rapid growth of the twigs and the cheapness of land and labour are the factors depended upon by planters to give Ceylon an advantage over other camphor-producing countries. The figures given by planters to represent the cost of a pound of Ceylon camphor are much below the figure representing the reputed cost of synthetic camphor produced in the United States from turpentine oil.—The *Lancet*, January 9, 1909.

Mussels and Enteric Fever.

WITH regard to recent remarks on the polluted condition of the shores of Lancashire and North Wales, the report of Dr. J. Marsh, medical officer of health of Atherton, near Manchester, is timely. He states that in a somewhat serious outbreak of enteric fever that recently occurred there it was found in 13 cases "that the sufferer had partaken of mussels." Dr. Marsh thinks that "greater powers should be given to the county and local authorities to deal with any such food that is found to carry any disease or is likely

to cause disease." He very justly thinks it hard that persons should contract enteric fever from eating shell-fish which comes from a river contaminated with sewage, "and yet even the county authorities have not control over that river should it happen to be tidal." The patients who had eaten mussels had the disease very severely and there were four deaths, or rather more than 25 per cent. of the cases attacked.—The *Lancet* January 23, 1909.

House-Flies and Disease.

Dr. H. E. Armstrong, medical officer of health of New-castle-on-Tyne, has sent us a small pamphlet entitled "House-flies and Disease and the Duty of Sanitary Authorities in Relation Thereto." That the house-fly is a nuisance there can be no doubt, that it can carry disease is certain, but, on the other hand, that the diffusion of summer diarrhoea is mainly due to flies is doubtful. Dr. Armstrong is, however, quite right in his contention that flies, in towns at any rate, should be exterminated and perhaps the best way to exterminate them is to stop their generation. This may be done by the careful removal of stable manure, by the doing away with privies, middens, and open refuse bins, and by relegating stables and cowhouses to the out-skirts of the towns. All these remedies are held up by Dr. Armstrong as desirable, but while we quite agree with him we are afraid that the relegation of stables to the outskirts of towns is impossible in most cases and in London it is certainly so. As to Dr. Armstrong's proposals for the prompt removal of refuse we are in thorough accord with them, as also with his suggestions to keepers of milk shops, restaurants, and fried fish shops to prevent or to minimise the congregation of flies on their premises. Even if they do not carry disease the idea of a fly which has just let some piece of decomposing material falling into milk or crawling over butter is revolting. Dr. Armstrong suggests the passing by municipal authorities of stringent bye-laws and a statute to secure their universal administration. This is as it should be, and we are in agreement with his proposal that the whole matter should be referred to the Local Government Board.—The *Lancet*, January 9, 1909.

A Medical man's duty as witness.

In the course of a prosecution in Tromsö of a person accused of spreading venereal disease the medical man by whom the accused stated that he had been treated was summoned as a witness. The accused consented to the practitioner giving evidence; but the latter refused to give any evidence as in his opinion his duty as a medical man and his right to plead professional secrecy prevented his doing so. He argued that his books contained several names identical with that of the accused, but that he did not remember the accused, could therefore not identify him, and in these circumstances were he to make a statement about a patient he might confuse one patient with another and thus betray that other patient's confidence. He refused altogether to state whether he had treated the accused or not. The court, dealing with this point, found that a medical man's exemption from giving evidence on confidential matters does not justify him in withholding evidence when the patient has consented to such evidence being given. In these circumstances the status of a witness is the same for medical men as for others. But if the practitioner is unable to identify the person concerned his evidence must be limited to a statement of this fact, without his being forced to give any further explanation. In other words, the medical man is bound to give an explanation, though with the same limitations applying to all witnesses—i. e., he need not commit himself to statements the accuracy of which he is not positively certain of. The medical man brought the point before the Court of Appeal, the decision of which agreed with the judgment quoted and the reasons given therefor.—The *Lancet*, January 9, 1909.

CLINICAL RECORD.

Foreign.

CLINICAL NOTES.

BY A. E. HAWKES, M. D.

Medical Officer, Hahnemann Hospital, Liverpool.

M. I., AGED, 46, first complained of irritability of the bladder, and much pudendal itching without any rash, about June, 1908. She endured these symptoms without any attempt at relief for two months, and then presented herself at the hospital out-patient department. After ineffectually trying *canth.* 3 and then *apis* 3, on June 30 the urine was examined, and sugar was discovered therein. *Acid. phos.* ix, gt. ii., *ter die*, constituted the prescription, and this medicine was continued for three weeks without benefit.

On July 21, the patient complained of unusual thirst, and *arsen.* 2 was prescribed, and the remedy was continued alone from the date above mentioned until November 23. Long before this course of medication had come to an end the sugar had gone, and repeated testings during the last six weeks, have demonstrated its absence.

Diabetes, characterized by intense itching without rash, accompanied by leucorrhœa and great thirst, were the chief points of the case. Of course, the patient's diet was modified as to sugar and white bread. She found great relief to the thirst by eating lettuce.

The following case of diabetic gangrene may be recorded. Through the kindness of her medical attendant I was asked to see an old patient of mine at a distance. The doctor does not belong to the British Homœopathic Society, but I could not gather that the patient had suffered on that account, as *uranium nit.* had been carefully administered. At that time—early in August—the lady was being attended to by a surgical friend, who on seeing the gangrenous toe, and on noticing the blush extending half-way along the dorsum of the foot, was beginning to plan a somewhat extensive amputation. He dressed the toe with dry dressing, and readily administered *secale* 1st dil. at my request. The blush soon subsided, and after some weeks the toe dropped off at the second phalanx. Although the toe was one of the smaller ones, it was a relief to the patient that no operation had to be done. It may be remarked that the same thing threatened two years ago, but it was avoided by medicinal treatment. The urine still contains sugar.—*The British Homœopathic Review*, January, 1909.

EPILEPSY-CLINICAL CASE.

By AGOSTINO MATTOLI, M. D.

Rome, Italy.

Mr. E. X., an American, 22 years of age, on March 14, 1908, came to my office complaining of headache, general weakness and nervousness.

From the history of the case I found that he had been suffering with epileptic fits for the last ten years. He looked pale, thin and miserable, was very irritable, had twitching of the face: pulse, tense and bounding, was 120; temperature, 103° F., tongue coated white.

He had just returned from a drive in the country and had been living rather high, eating heartily, drinking some champagne and smoking cigarettes.

I put him at once to bed, ordered a trained nurse to watch him carefully and prescribed aconite 3x every hour and milk diet.

The next morning early I was called up to go at once to see the patient; he had had epileptic attacks all night, about every half hour and was in bad condition. I found him very pale and weak, with blue circles about the eyes, sweating very profusely, the perspiration having a peculiar foetid odor, garlic-like, temperature 102°.5, the pulse small 130, respirations 28. The nurse reported that the fits had been followed by stupor and preceded by twitchings of the face, especially about the lips, the eyes were rolled up and the head bent backward. During the attacks he had grinding of the teeth, froth at the mouth, loss of a small quantity of urine. The attacks had been more violent during the night, followed each time with profuse offensive sweating and by a short nap.

Though urine and blood examination showed nothing abnormal the patient was evidently in a very serious condition and fearing the status epilepticus, and because I felt keenly the responsibility toward his absent father who was cabling me every day and sometimes twice a day from America, I called in consultation the best specialist of nervous diseases in Rome, and meanwhile ordered a high enema of water and salt, and after a careful study of all his symptoms gave him *artemisia vulgaris* 3x every two hours. When the specialist came later, he confirmed my diagnosis and said repeatedly that the case was a serious one. He suggested giving the patient strong doses of bromides at once. I told him about the homœopathic medicine I had prescribed a few hours before, and as the patient had

not had an attack since I intended to continue with my remedy, and he said, "Well, let us try it."

On the next day we found the patient much improved, no more attacks, and the specialist admitted the great change and asked for the name of the drug to try it in his practice. He did not appreciate the fact that our medicines are for "the patient" and not for the disease.

The patient improved every day and the medicine was given at longer intervals. He left the hospital on May 1st, had gained several pounds in weight, lost his irritability and had had after the first administration of *artemisia vulgaris* only one slight epileptic attack on April 7th, for which there was a sudden emotional cause. Unfortunately, he had returned to his home and I have not the opportunity to watch the future of the case.—The *North American Journal of Hœomopathy*, December, 1908.

NAUSEA OF PREGNANCY : HOW TO CURE IT.

BY W. J. HAWKES, M. D., Los Angeles, Cal.

A young wife, aged about twenty-six years, pregnant for the first time. The symptoms in her case were: Excessive salivation; the saliva ran out of her mouth during sleep so as to wet the pillow over quite a large surface. The nausea was always worse at night; in fact was, with rare exceptions, present only at night. There was a metallic taste in the mouth; she was obliged to keep her bed from early evening until late morning. When I first saw her she was near the end of her second month; her sickness had begun soon after she had passed the first menstrual period. Merc. sol. was the means of producing a complete cure within a week. The symptoms which decided the choice of this remedy in this case were: The excessive salivation, aggravation at night and a metallic taste in the mouth.

A lady of about 32 years of age, about five weeks pregnant. When her husband consulted me about his wife, he expressed great sorrow that she was pregnant, because, he said, she had already miscarried several times on account of the terrible and persistent nausea which invariably accompanied the condition. She could not retain anything in her stomach, and became so weak in consequence as to become completely prostrated, and finally to abort. Her physician—a good homeopath—failed utterly, after faithfully trying to correct the difficulty. She had aborted the last time about the close of the

fifth month. That was four years ago. She has one living child, aged about seven years, which is unusually well and strong. The husband said there was no use in her trying to go through with it, as she had already tried and failed so often, and he could not bear to see her undergo so much fruitless suffering. He asked me to "help her out of it," meaning that I should produce a miscarriage. I, of course, refused, believing as I do, that there is a conservative remedy for every such case, and that, if we duly acquaint ourselves with the indices of our law the remedy will be clearly pointed out.

I found the patient thin, weak and prostrated. She had never, at best, been strong. She had great thirst; but cold water, which was the only drink she craved, distressed her stomach so she dared not drink it. She was extremely nervous and restless, especially at night, so that, although so weak, she could not remain in bed long at a time. She also had considerable saliva, but not nearly so much as the case previously reported. There was a dark and very offensive discharge from the vagina. This had been a constant symptom on previous like occasions, and her husband said by that sign he knew she would miscarry. Arsenicum wrought a complete change in a short time, and she is now about her household duties, well and strong, and gaining flesh, with no nausea to trouble her. I should have mentioned that she had also a severe headache, which, though greatly ameliorated, has not yet been altogether removed. The characteristic symptoms in this case were: Great prostration at the beginning; the craving for cold water distressed her stomach, and which she could not retain, and the nervous restlessness especially at night.—*The Medical Advance*, January, 1909.

NUX MOSCHATA CHARACTERISTICS.

There are three leading characteristics of *nux moschata* which, when present in a case of disease, point to its selection in preference to other remedies. These are excessive drowsiness, especially after eating, due to a numbing influence on the nervous system rather than to vascular or circulatory changes, excessive dryness of the mouth without thirst, the tongue, lips, and throat are all dry, and pain with flatulent distension of the stomach and abdomen, especially after food. As regards the first characteristic, *nux moschata* may be compared with *antim. tart.* and *opium*; "as regards

the second, apis, pulsatilla and lachesis, and as regards the third, kali bichromium, nux vomica and anacardium.—The *Journal of the British Homœopathic Society*, January, 1909.

SILICA MARINA IN CONSTIPATION.

Dr. E. Cronin Lowe reports five cases of chronic constipation in patients, four of whom were accustomed to take strong aperients and suffered from backache, tendency to hæmorrhoids and other accompaniments of such a condition. The drug was given in the 3x trit., administered at night or night and morning, and the patients allowed to continue their purgatives at less frequent intervals. The effect of the silica marina was gradual but permanent, as after a few weeks the purgatives became unnecessary, and comfortable daily evacuations took place. The fifth case was that of a child, aged 3, who had very rare stools (once in seven days), hard, broken and light coloured. Various remedies had been given without effect, but silica marina 3x every night cured the case in ten weeks.—The *Journal of the British Homœopathic Society*, January, 1909.

Gleanings from Contemporary Literature.

LAURA'S STUDIES OF ACONITINE.

An Exhaustive Discussion of the Sources, Potency, Pharmacologic Action, Toxicology and Therapeutic Uses of this most potent and well-nigh indispensable remedy.

BY WILLIAM F. WAUGH, A. M., M. D., CHICAGO, ILL.

Professor Laura opens his discussion of aconitine with an emphatic and reiterated protest against the use of aconite, and of the nondosimetric or spurious aconitines; and also against the use of massive doses of the true aconitine. The false alkaloids, he believes, contain an exceedingly toxic acrid principle to which their poisonous properties may be ascribed. He pronounces the English aconitine ten times more toxic than the German, while the Hottot aconitine is five times more toxic than the English.

HOW TO SECURE RESULTS FROM ACONITINE.

To obtain the results that justify the dosimetrist in placing aconitine at the head of all drugs, it must invariably be administered in small doses at regular intervals, proportional to the idiosyncrasy of the patient and the nature, the violence, the obstinancy and the resistance of the disease; besides, all medicaments must be chemically pure. Dosimetric therapy rests on these two rules.

Before Burggraeve's day Husemann spoke of the difficulty of distinguishing between the related species of aconite gathered in the Alps, whose mixture formed the product found in pharmacies, and added: "This confusion of species readily explains the results following its use in ignorant hands." The root gathered before the plant blooms is infinitely more active than that gathered in autumn. The strength varies with the Alpine origin of the plant; and Schroff found the cultivated variety less than the wild.

The remedial and the toxic principles are present in varying proportions; all of which, Laura, sarcastically observes, shows how uniform and certain are the pharmacopeial preparations of aconite!

In some species the flowers and leaves are inert, the root very poisonous; others depend on the place where they are grown, as one variety is very toxic in the north of India but harmless in other provinces, where it is used as a food. The Lapps sustain life on the wolfbane, *aconitum lycocotum*, whose roots equal in toxic energy those of *aconitum ferox* and surpass in violence all other species.

ACONITINE AND OTHER ACONITE PREPARATIONS.

Besides aconitine and the acrid toxin, aconite contains several active principles, ill defined, which produce effects other than those of aconitine and in so far modify its action to an unknown degree and in an unknown

manner. A few drops of the tincture have induced poisoning. (Skinner.) Pereira reported accidents following one milligram of English aconitine, such as have never followed the pure dosimetric granules, used every day by thousands of physicians and at both extremes of life. Schroff declares that while there is identity of action in some respects between aconitine and the extract of aconite, in other respects their action is altogether different. The galenics he found to cause a very intense phlogosis of the digestive apparatus, inducing eructations, heartburn and vomiting, none of which follow pure aconitine, any more than does the very extensive and typical formication described by Cantani. These Laura attributes exclusively to the acrid toxin found in the galenics.

THE SIGNS AND SYMPTOMS OF ACONITE POISONING.

Aconite poisoning is characterized by profound debility, a remarkable enfeeblement of the cerebrospinal power, more or less profound troubles of the circulation and respiration, weakening and slowing of the heart beats, relaxation of vascular tension; intense coldness of the skin, diaphoresis, diuresis, lipothymia, syncope, asphyxia by pulmonary enfeeblement, great diminution of the general forces, mydriasis; in extreme cases death is often preceded by convulsions, not to mention the gastro-intestinal phenomena and the altered general cutaneous sensibility. The pulse after a brief excitation becomes weak and irregular.

Toxic doses paralyze all the cardiac tissues, at first the nervous ganglia, then the nerve-trunks, and finally the musclefibers, at the same time destroying the conducting power of the afferent nerves from the cord. It also influences the psychomotor centers of the encephalon and cord, suppressing the action of the sensory and motor nerves having their roots, causing spasm and anesthesia in the region of their distribution, ending with suffocation. Thus, while agreeing with Ringer that aconite is the most valuable of medicaments, Laura adds that it also offers the most dangers; and he then proceeds to demonstrate the innocuity of true aconitine.

The discovery of this principle was a notable event. Not only was the physician thereby delivered from the inconvenience, the uncertainties and the perils of the ordinary pharmaceutic preparations, but he was also free from the uneasiness and the errors resulting from the administration of aconite, of which reports by its partisans were so contradictory, making these preparations appear uncertain, unstable, readily alterable, and giving a picture of the most humiliating anarchy. Dosimetry, bringing art out of chaos, has restored us to the right road.

ADVANTAGE OF THE SMALL REPEATED DOSE.

That which especially renders the rule of small and oft-repeated doses imperative is the resistance of the human organism when in the state of illness. Disease arouses such a resistance. While all remedies put in rapport with the human organism under all circumstances act in the same manner and develop their particular activities, it is no less certain

that this action is manifested by results differing as they operate upon a healthy organism or a diseased one, in the latter case restoring an equilibrium that already exists in the former.

Experiments on animals and on healthy men have their value, but the action of medicaments can only be determined in a scientific and certain manner by clinical observation and experiment. The remedial application of drugs finds its only sure foundation in therapeutic administration. In sickness new conditions are presented that necessarily vitiate conclusions drawn from experiments made under others. Agents surely injurious to the well man may solace in sick, doses perilous to the former may cure the latter.

Never forget that sickness modifies our general susceptibility against hygienic and moral agencies, and vastly more yet against the drugs. The most dangerous may be tolerated remarkably, the feeblest may demonstrate an exaggerated impressibility. So children may bear large doses of quinine, and hysterics may be acted upon violently by the smallest doses; while twenty or more granules of aconitine given singly to a healthy man may manifestly depress the cardiopulmonary centers, etc., the same or larger doses are well tolerated by an organism wasting with fever, and this the more as the fever is higher. Whatever may be the origin of the nature of the fever which aconitine is called upon to vanquish or to moderate, its sedating action on the great organic system is considerable and sure, it serves as a counterpoise to the morbid exaltation of the great nervous and circulatory factors which it restores to equilibrium.

THE FOLLY OF THE FIXED DOSE.

Furthermore, dosimetry, with its fractional and successive doses, notes and measures the effects of its agents and never permits them to cause accident such as too often follows the ordinary therapeutics. The dosimetrist allows himself to be guided by his clinical observations in the choice of remedies and in their dosage. We repudiate an absolute posology, abstract and determined *a priori* as a veritable absurdity, physiologic and therapeutic, and we claim as a necessity that every morbid condition must be treated by man's appropriate and adapted to each condition itself; that the remedy must be given with a precise object, calculated in advance, according with the patient and the disease, to secure the desired physiotherapeutic effect. Without this one makes a false passage and misses the cure or obtains it only imperfectly and late—the patient suffers, the physician wins little credit, the dignity of our art is wounded.

For example: The physician called to treat a pyrexia finds the indication for aconitine—*nature* of medicament. He cogitates the method of administration—*dose* of medicament; this attributed according to the activity, the violence, the intensity of the febrile process, together (with other consideration derived from the nature of the malady, its localization, complications, the danger to the existence or the function of an organ,

an apparatus, a partial system of the general economy, the particularities resulting from age, sex, constitution, idiosyncrasy, morbid antecedents of the patient, and so forth.

The dose may be fixed at one granule every fifteen minutes, less frequently as the fever subsides; or two, three or more granules at once, at closer intervals, never forgetting to watch the symptoms and note the action of the drug, regulating the doses thereby, suspending or adding others, as the case may demand.

HOW ACONITINE ACTS WHEN DOSIMETRICALLY GIVEN.

The action of aconitine thus employed is sedative and moderating. When chewed or swallowed with but little water, it causes a sense of tingling in the tongue and palate, with more or less constriction of the isthmus and pharynx—symptoms not present when the granules are swallowed whole or dissolved in larger quantities of water or milk. To adults, to the aged, and to large children give the granules dissolved in a little water; to very young children give in an exactly measured quantity of milk.

Aconitine exercises a very efficacious sedation over the vasomotor centers. With healthy men small doses often act as cardiovascular excitants, an action slight, evanescent, quickly subdued by antagonistic remedies: the temperature is yet depressed persistently, the pulse softened and slowed, respiration rendered easier and deeper, diuresis and diaphoresis are favored, and calm, tranquil slumber is induced. The fall of temperature keeps pace with the relaxation of arterial tension. Toxic doses paralyze the respiration and then the heart.

THE INDICATIONS FOR ACONITINE AND COMBINATIONS WITH OTHER REMEDIES.

Aconitine, that calmant *par excellence* and most active regulator of the great cerebral and circulatory centers, is also the most powerful antipyretic, and should be preferred in the treatment of febrile phenomena, essential or symptomatic, over those agents termed antithermics, from the promptness, sureness and duration of its action, the simplicity of its administration and the facility with which all patients take the granules, an advantage accruing to the entire dosimetric therapeutics.

Aconitine is a heroic remedy in continued fevers, when administered with the cares already mentioned. Fever is always a fact that demands the attention of the physician. It is always a danger, a disastrous fire.

Aconitine may be employed alone or associated with veratrine, quinine, strychnine, as may be indicated. With veratrine it is indicated in all cases of excessive fever, with sthenic and phlogistic symptoms predominating, in young robust subjects, and in obstinate pyrexias. Quinine is indispensable in remittents, strychnine whenever the patient is depressed and cerebrospinal and cardiopulmonary tone below par, threatening collapse—in which case phosphoric acid and caffeine should be added.

Employed properly aconitine is an efficacious antipyretic in the most rebellious cases of typhoid fever, even rendering the baths less urgent or unnecessary; it lessens, directs and regulates, finally conquering, the febrile movement.

In eruptive fevers, with high temperature, the excessive heat (always a menace to life) causes grave structural lesions in the nerve and cardio-pulmonary centers and serious blood changes. Aconitine combats these and also opposes the exanthem by its antipyretic power, its diaphoretic action, lessening the excessive tension of the cutaneous vessels, lowering temperature promptly, and regulating the vasomotor nerves; thus favoring crisis, the eruption occurring sooner and over a greater surface, and the evolution of the malady being accelerated. But there is no reason for excluding the simultaneous employment of other remedies, when indicated. Such association is not only logical and scientific, but daily experience with it displays excellent results.

ACONITINE IN THE ERUPTIVE FEVERS, CONGESTION, INFLAMMATION.

The success of aconitine in the eruptives is the more remarkable since everybody knows that an incomplete or tardy eruption endangers the patient's life by threatening visceral complications, without mention of the irreparable consequences. When treatment has been neglected and the cure is incomplete, health will long be absent, and the patient, dyscrasic, rachitic, marasmic, lead a deplorable existence and suffer ills without end.

Aconitine is also very useful in active hyperemias, irritation, congestions, those marking the debut of acute maladies and the secondary hyperemias that accompany dangerous visceral inflammations. It is equally indicated in true and essential plethoras, with or without local inflammations, and here success is won by perseverance in the use of this powerful modifier of nerve-function and of sanguine crisis.

One of the most formal indications for aconitine is the inflammatory process, especially in its initial stage, vital and dynamic, before the circulation in the affected part has been impaired and structural changes have occurred irreparably. This indication is found in the mucous affections of the vast respiratory tract, in pneumonia, in the neuropathics of the respiratory organs and in irritations and inflammations of the endocardium. It has a potent sedative effect in exaggerated cardiovascular action or irritative cardiac spasm, frequently manifested in eruptive fevers and all pyrexias with very high temperatures. The same holds as to irritations and inflammations of the nerve-centers, with exaggerated irritability; in headaches, disquiet and agitation, insomnia, delirium, by which the state of the encephalon is shown. It may even be utilized in the most acute crisis of mental disorder.

DIURETIC, DIAPHORETIC AND NERVE SEDATIVE.

As a diuretic and diaphoretic aconitine is serviceable in all affections when the urinary and cutaneous secretions are suspended—not without

great danger to the patient—conditions frequently met with in practice. It is useful also in rheumatismal maladies and in the paroxysms of pyretic and tonic gout.

Aconitine has an important place in the treatment of nervous affections. These, especially when hereditary or engrafted on a dyscrasia, give no respite and often resist treatment; we may then confidently have recourse to aconitine. Very quickly it relieves hyperemic neuralgias, mainly those due to general congestion, or local, of the encephalon, the spinal cord, or some dependent on these two, and it combats the element of pain when this augments the congestion of the affected nerve and the region supplied by it. It can also be used in all neuropathies of centric origin and having their source in a spasmodic ischemia of a vascular nervous tract, direct or reflex; but here we add atropine, to relax the spasm more speedily and to relieve the aemia depending on this vascular spasm; which also causes the most acute sufferings and manifests itself in the motor-sphere by contractures, spasms, or convulsions, local or diffuse. These give way to hyoscyamine, the king of antispasmodics. Similar service is rendered in hyperemic neuralgias of centric origin, in which intestinal derivatives should be added.

Aconitine as a dynamic and vital modifier is useful in neuroses accompanied by general debility with anemia, here adding the arsenates of quinine, strychnine and iron, and the general tonics that may be desirable. In neuropathies symptomatic of dyscrasias there should be joined to the aconitine the whole series of hygienic and therapeutic means indicated for each diathesis—iron in anemia and chlorosis, arsenic in paludal dyscrasias, mercury in syphilis, sodium in scrofula and exaggerated lymphatism, and so forth.

IT IS USEFUL IN JOINT-PAIN AND NEURALGIAS.

The arthropathies also demand aconitine, aided by frictions with this alkaloid in petrolatum, covering the part with cotton. If the neuralgic pain is piercing, cicutine may be added with advantage; and in these cases, frequently met clinically, this is a precious dynamic modifier. In intermittent neuralgias with marked exacerbations we add quinine hydroferrocyanide; and for anemia or the paludal cachexia, quinine arsenate. Much of our success will depend upon good hygienic regimen and the reconstituent alimentation—insisting on pure air, especially rural, moral consolation and repose of mind.

Aconitine has good and prompt success also in the cerebrospinal hyperesthesias, especially of children, where cerebral exaltation mounts to delirium under the influence of fever. In insomnias caused by cerebral hyperesthesia aconitine secures a sleep calm and recuperative, the patient awaking rested and hopeful of cure—and no physician will deny the benefits of hope.

Laura employs aconitine, with quick results, in gastralgias and euteral gias, especially if rheumatismal. It claims spasmodic phenomena, direct or reflex, dependent on irritation or congestion of any part whatsoever, or on

local hyperemias of the nerve-centers. Burggraave utilized it in clonic convulsions—epilepsy, chorea. Van Renterghem advised this remedy in delirium and infantile convulsions, the symptoms due to local hyperemia of the nerve-centers. Burggraave also recommended it in chronic cases—asthenic catarrhs, chronic rheumatism, arthritic pains, chronic neuralgias, congestive amenorrhœa, alone or with other indicated remedies. As a sedative Laura employed it with very great success in the irritative and exalted erethism of the insane, adding hyoscyamine for persistent and rebellious insomnia. Laborde succeeded with aconitine in acute articular rheumatism and in protopathic facial neuralgias.

ROARING OF EARS—CEREBRAL HYPEREMIA.

One symptom most tenacious and disagreeable is roaring in the ears, often without appreciable pathologic condition of the auditory apparatus or of the nerve-centers; no known cause being assignable, it is placed among the neuroses. But this is completely cured by the persistent use of aconitine, when there is no contra-indication and no recognizable material cause that is incurable and persistent.

In numerous cerebral arterial hyperemias, acute or subacute, we may give aconitine with advantage; and it is even useful in the chronic fevers. It has given good results in acute and subacute dropsies, especially with fever, through the free diuresis induced; digitalin and scillitin being added.

Burggraave recommended aconitine to be given before major surgical operations, and in accouchements where trouble was expected, to prevent accidents. By this means calmness was secured and fear prevented. The success thus achieved by the Belgian surgeon has been confirmed by others.

FIT THE DOSE TO THE NEEDS.

Professor Laura insists upon the accurate fitting of the dose to the needs. He protests against the idea of maximum and minimum doses. Our rule is to fit the quality of the medicine to the *nature* of the disease, the quality of the medication to the *entity* of the malady or its resistance. In brief, we give "*dose enough*."

When fever runs very high and the vital organs are in peril we give one or many granules, repeating every fifteen minutes; lessening the number of granules and increasing the intervals as the force of the attack gives way, as calm is re-established, the cardiovascular system sedated, the skin becomes softer and moist, the temperature falls to about 100° to 102° F., the urine freer and the suffering evidently diminished. In febrile and inflammatory maladies when the fever is not above 102.2° F., one granule at each dose will suffice. The same suggestions serve in neuropathies, cerebral hyperesthesias, etc. When there is neither fever, inflammation or an acute crisis, and we seek simply a relaxing influence over the great organic systems and the blood, too poor to allow healthy functioning, give aconitine at long intervals—two to three hours—one granule at each dose. In hyperesthetic insomnias give on retiring two

or three granules, with morphine as many, and one of digitalin, to secure peaceable and durable sleep.

To adults aconitine may be given in water, soup or diluted wine. Do not break up the granule in the mouth or else a disagreeable sensation will result. For infants under two years dissolve the granules in milk, one in two teaspoonfuls, and give as desired.

Never, under any circumstances, administer aconitine hypodermically !

A GENERAL RULE FOR ACONITINE.

Stop the use of aconitine in acute fevers when you have obtained a durable defervescence ; in painful maladies when there is sedation ; in chronic cases when the pulse falls to the normal point, with the sensation of cold ; when you note enfeebling, even slight, of the cardiac rhythm, dilation of the pupils, diaphoresis, diuresis ; when, in one word, the lowering of vital energy is a symptom more or less evident of hypothermia.

Aconitine is eliminated in part by the bowel, and to avoid cumulation the use of a daily saline laxative is advisable.

In the above presentation we have closely followed Prof. Laura, giving literally the views and usually the language of the great Italian clinician. In the main his conclusions are those of other observers, including ourselves. Laura seems, however, to have been dominated largely by the dread of aconitine as a dangerous poison, expressed by the older therapeutists and still felt by those who have not rendered themselves familiar with this alkaloid.

However, danger lies only in rashness, ignorance and uncertainty ; it can never pertain to the intelligent use of any remedy of certain and unvarying nature. If we give exactly enough tincture of aconite to do the work, and then have our prescription refilled with a tincture much stronger, we shall assuredly be convinced that aconite is a dangerous remedy. This can never be the case with aconitine in standard granules.

Prof. Laura's contention that the toxic properties of aconite reside in another, acrid, principle, and not in aconitine, can only be accepted by confining this term to the *amorphous* aconitine used in the dosimetric granules and looking on the much more powerful *crystalline* aconitine as the objectionable principle he mentions.

My own observations have failed to detect any appreciable difference in the action of the two aconitines, other than the difference in strength. Preference is given by the manufacturers to the *amorphous* form because it is supplied by the best chemists in uniform strength, whereas the *crystalline* aconitines vary exceedingly. That the use of *amorphous* aconitine is safe is shown by the fact that not a solitary accident has ever been reported from the fifty millions of these granules consumed by the American medical profession during the past fifteen years.

THE STRENGTH OF AMORPHOUS ACONITINE.

Considerable misapprehension exists in regard to the strength of *amorphous* aconitine, based probably on the decided results following the use

of a few granules. Van Renterghem's very careful experiments with amorphous aconitine showed the average maximum daily dose for an adult to be about 5-6 of a grain, or 100 of the standard granules. This is very far above the maximum likely to be exhibited in any case. The benefits derivable from aconitine are inseparable from the very small doses and any attempt to push the remedy to the limits of toleration, as we do with mercury in syphilis, will result in failure to obtain the desired benefits.

The advocacy of aconitine in so wide a range of cases may strike the reader as extravagant, and deserves consideration. It will be noted that while the number of maladies for which aconitine is used is vast, the *pathologic conditions in which it is indicated* are few and simple.

In fact it is because these conditions occur so generally in so many affections, the large majority of them met in the clinical field, that aconitine has become such a constant reliance to us. It is a favorite tool, so often applicable that it is never long out of our hands. *Vasomotor disequilibrium, fever and neuropathic pains* are almost *invariable elements* in whatever maladies we are called upon to treat.

It is notable that whenever the attention of any observant and thoughtful clinician has been directed to the use of any drug for the regulation of vasomotor perturbations, he finds the field of that drug expanding endlessly.

For example, take the papers of Livingston on ergot, the "favorite" use of strychnine, of digitalis, of bromides, of veratrum, of gelsemine, of passiflora, etc., by numerous physicians. When one has recognized the efficacy of any vasomotor modifier he will find innumerable opportunities to utilize it.

Laura does well to place aconitine at the head of the list as the most valuable, the most frequently applicable remedy in modern therapeutics. His estimate is not extravagant, but just and fully verified by clinical experience.—The *Medical Counselor*, December, 1908.

THE SENILE HEART AND BLOOD VESSELS.

BY JOHN L. HEFFRON, M. D.

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METCHNIKOFF, in the preface to his recent work, "The Prolongation of Life," says: "If the ideas which have come out of my work bring about some modification in the onset of old age, the advantage can be gained only by those who are still young, and who will be at the pains to follow the new knowledge." But youth has no interest in old age. In youth the present is all absorbing and is either so satisfying as to suggest no future need, or so cruel as to deaden interest in the possibility of long years to come. Those who have passed through the period of youth and have learned valuable lessons by hard experience may shout their warnings to the youths of their time until they are hoarse and all to little effect. Metchnikoff himself acknowledges that it was "by noticing in his own case the phenomena of precocious old age" that he was led to "turn to the study of the causes of it." To those who have passed through the period of storm and stress and still conscious of power there is a personal interest in the phenomena of advancing age. For the physician it is necessary to know what effect long life, with its varying conditions, produces in the various component tissues of man that he may care intelligently for the aged who look to him for advice.

The study of the changes that take place in the organs of circulation with advancing years has always been recognized as of the greatest importance, and in recent years an unusual amount of intelligent work has been given to the subject by many of our most brilliant scientists. The last word has not been said and it will require much investigation before the effect of simply living a normal life of long duration can be separated from that of the many adventitious factors which have engaged our study.

That degenerative changes in the arteries are commonly observed in men past fifty is a matter of universal observation. It can never be lost sight of in our examination of patients in this period of life, as it is often the fundamental fact upon which a multitude of disease phenomena rest.

The possible causes of such a condition should be studied. The investigations into the influence of heredity upon the physical make-up of man have demonstrated to us that the degree of resistance of the tissues is determined at birth and is his endowment from a long line of ancestors. This degree of natural resistance may be somewhat increased or greatly diminished by the individual. This is so true of the arterial system that the old adage of the French that "a man is as old as his arteries" has become common amongst all people. Probably we seldom see, even in a very old man, such arteries as it is conceivable nature intended should permeate man's body and which could exist except for the many unfavorable conditions which have always determined the fate of the human race. If one has been born of the right sort of ancestors and has started life

with a set of arterial tubes of the very best make, it would be possible for a medical statistician to tell him how much of a chance he has of retaining them until that ideal ending called "natural death" should close his career.

From the moment of birth we are exposed to influences that write their records on the walls of our arteries. The very fact that the coats of the arteries have practically no rest from their labors and that physical exercise increases their work is the prime factor that under the best of circumstances will eventually cause degeneration.

The acute infectious diseases of childhood, scarlet fever, measles, diphtheria, influenza, and pneumonia, frequently leave behind them foci of arterial degeneration. Thayer reports that in forty per cent. of persons between ten and fifty who had had typhoid fever the radial arteries were palpable, while in a series of the same number who had not had typhoid (he does not state that they had not had other infectious diseases) the percentage was 17.5. In tuberculosis of more than a year's duration it is common to find evidences of arterial degeneration. Laborious occupations are common causes of arteriosclerosis. The most marked cases which have come under my observation have been in those who have had heavy work to do for many years. The nervous strain under which the American business man of to-day does his work is an active factor in producing arteriosclerosis. The influence of poisons generated within the body is conceded to be productive of this condition. In this connection it must be said that the almost universal habit of over-eating with its entailment of high arterial pressure, over elimination and incomplete metabolism is next to the infectious diseases in importance as a causative factor in arterial degeneration. The degeneration of the ductless glands, particularly of the thyroid and the suprarenal bodies is recognized as one of the causes of atheroma.* The latest report of Adler on experimental arteriosclerosis questions this conclusion. While numerous experimenters have reported the production of atheroma in the aortas of rabbits by the intravenous injection of adrenalin, he repeats the work and, with others, finds that similar results are shown after the use of very many substances, several of which were vasodilators, and goes on to show that in rabbits not subjects of such experiments atheroma of the aorta is found in practically the same proportion of cases. Furthermore he demonstrates that no such effect can be produced by the same experimental work performed on other laboratory animals. Metchnikoff reports many instances in which the ablation of the thyroid gland has produced no ascertainable effect on the blood-vessels. This experimental work may therefore be considered not confirmatory.

Syphilis produces in the arteries a change which can generally be recognized as specific, and, while it results in a condition of the arteries which is the same so far as the weakening of its walls is concerned, the pathological condition is not identical to that found in the non-specific ar-

teriosclerosis. The effect of poisons ingested, particularly of alcohol and lead, has always been considered of chief importance in the production of arteriosclerosis. Such an effect from alcohol is vigorously denied by many experimenters. Possibly we do not yet know the exact facts in this connection. However, he would be brave to-day who would say that the use of spirituous beverages in large amounts is not one of the causes of precocious old age in its effect on the structure of arteries and of the organs of elimination and on the brain. There are many diseases which are always associated with high arterial tension and resulting thickening in the arterial coats. In nephritis, diabetes, and gout these changes are so apparent as hardly to need more than mention. Any condition which produces high arterial tension which is persistent will eventually be followed by changes in the arterial walls. To resist the increased pressure the walls of blood vessels must be thickened, and while the process may be considered to be conservative, still nature's unaided patchwork is not usually skilful and weak places are developed and damage is done. Metchnikoff's theory of the changes in old age is interesting. He assigns it as due to the destruction of the higher cells by phagocytes. The osteoclasts are phagocytes and are active in the solution of the lime salts in the bones, which, entering the circulation, are deposited in the walls of arteries and in other tissues of those of advancing years. The stimulus which excites the phagocytes to this activity, hostile to the best interest of man, he thinks is the product of bacteria, and he has pursued the enemy and located him in the large intestine. It is a fact that the skeleton becomes lighter and that lime salts are deposited in other tissues, showing a redistribution of the bone salts. We may expect that this theory will be proved or be laid away in the lumber room at an early date.

The changes which are exhibited in the arteries as a result of the wear of years plus the many agencies which the average man rarely escapes are characterized by, first, an increase in the thickness of the walls due to thickening of the intima and more or less hypertrophy of the other coats, and, later, by degeneration of the changed tissues by a process of necrosis or of fatty degeneration and calcification commonly supervenes. While the change is a general one, it frequently varies in degree in different organs. It is not uncommon to find an extreme degree of the process in cerebral vessels while those of the trunk may be nearly normal. The changes which take place in the minute blood-vessels and in the capillaries are still under discussion. It seems reasonable to suppose that early changes should be exhibited in the capillaries, the circulation through which, is of such supreme importance, but that is not yet established. It is easy to understand how the first part of the aorta is so frequently the seat of atheroma. The great force which it must sustain as the blood is pumped through it and the dilatation to which it is subjected in the back flow, keep this vessel under constant strain and the wear is greatest here. The cusps of the aortic valve are really parts of the aorta, and

these early lose the delicacy of their structure and the precision with which they work and for the same reasons.

The effects of this changed condition of blood-vessels are various and often the cause of the greatest suffering of the aged. The heart undergoes hypertrophy to overcome the increased resistance of the blood-vessels. The myocardium frequently is the seat of degenerative processes which weaken it and results in a dilatation and interference with the circulation. In the stage of hypertrophy added strain from work or from over-eating, or from violent emotions, is sufficient to snap a weakened vessel, and hemorrhages, most frequently of a cerebral blood-vessel, take place. The sclerosis of the coronary arteries occasions the most severe pain which is experienced. Sclerosis of the coronaries alone is seldom found except in victims of syphilis. This observation will aid in determining a course of treatment. The respiratory system suffers from the changed condition and edema of the lungs and dyspnea are amongst the common results of exercise in these subjects. The chronic bronchial catarrh of the aged is made easily possible by the changed condition of the circulation. The kidneys are almost never sound and may give considerable evidence of impairment. A report from Guy's Hospital indicates that sound kidneys are never seen at autopsy in men over fifty.

Thrombosis may form in any of the vessels the coats of which are roughened and if the myocardium is degenerated and valves are sclerosed emboli may be carried into distant vessels. The results of such a process are not infrequently the cause of the most agonizing pain. This will soon produce a diminution of power of the parts below the obstruction. If the thrombosis is of slow development the onset of symptoms of paralysis and of pain and of other changed sensations will appear gradually and increase until the symptoms are at their height. The aged are seldom free from some painful sensations somewhere in their bodies. Muscles may ache, joints creak, hollow organs gripe, arteries cramp and convulsive disorders come on, all due to defects in the circulation.

While so many of the multitude of symptoms presented by the aged can be accurately traced to the changed condition of the circulation, still it is an error often made to ignore the possibility of any other cause. We have learned that it is often fatal to the patient to neglect a careful examination and an accurate diagnosis in each individual case in the midst of an epidemic. Because arteriosclerosis is behind so many of the ills of the aged, one should not neglect to examine the organs in which some decided pathological process, not at all due to the condition of the blood-vessels, might be developing.

In the examination of the blood-vessels we depend upon the eye and the sense of touch. The finger taught to palpate accurately will rarely fail to estimate correctly the condition of a blood-vessel. To be able to separate by touch the artery from surrounding tissues is not to diagnose arteriosclerosis. To feel the rounded vessel below a single finger which cuts off the circulation is not enough to establish the case. The collateral

circulation must be remembered. When we palpate an empty artery we must know that it is empty by compression at both proximal and distal ends. The Rivo-Rocci instrument for measurement of the pulse tension is a valuable aid to the finger. If one practice palpation and compare his results with those registered by the mercury in the tube of this instrument, he can soon learn to palpate accurately and to locate the source of the error which makes the result of his palpation different from that of the instrument.

The heart of the aged is valid so long as it can do a good day's work without embarrassment to itself or to the other organs. It is never the exquisitely beautiful machine that the normal heart of a boy at twenty is. The overwork has increased its bulk and it may be too impetuous in its manner. The stain becomes too much, and it is enfeebled and responds laggingly and irregularly to the command for work. The delicacy of the valves is lost, the tissues are thickened, lime salts are deposited about the basis of the valves and sometimes in the valves themselves and they are no longer fitted to close the auriculo-ventricular openings completely. The weakened heart becomes unable to expend the extra power to overcome the mechanical difficulty, and dyspnea, pulmonary edema, distension of the liver, and dropsy with hydrothorax gradually develop. We must estimate the condition of the heart by the sort of work it does. If the circulation is adequately accomplished, it makes very little difference how much fuss the heart makes about doing it. It may make a noise loud enough to be heard without effort and be so irregular that no law of irregularity can be laid down, but lacking symptoms of imperfect circulation it is to be let alone to do its work in its own way. On my grandfather's farm a great many men were chopping wood. One man never failed to emit a groan or an audible expiratory sound with each blow. But he chopped wood and more than kept up his end. It's the greatest mistake to think that a heart needs treatment because it presents a murmur or is irregular. The validity of the circulation is to be first investigated, and if it is right it makes little difference what signs the heart may give upon examination.

In discussing the treatment of the senile heart and arteries one need not occupy a great deal of time, and yet I know of no field in which the good judgment of the physician is put to greater tests or his skill more sorely taxed. Life is sweeter the more you have had of it as a rule. It is the adolescents who prize the gift of life lightly. No old man would tell his sweetheart that he would die for her, but he would be very likely to swear he would live for her. And while he lived he would be entitled to live in as much comfort as was possible.

The thing which has made precocious old age in this country is the intensity of the tasks which have been set for us. Intestinal putrefaction may have aided, but buttermilk will not take the place of rest for the weary. The buttermilk habit is a good habit to inculcate in the young, that they may not suffer from bacterial poisons, but it won't do to offer

it to the old as a curative remedy. Rest, rest of body and of mind, is the first therapeutic resource, but it must not be inculcated as an absolute necessity, though modified rest is a necessity. Hope must not be extinguished and your aged patient will be found more easily amenable to suggestion than the young. It must be understood that when a heart muscle is weak and tired it must have rest in order to recuperate. Then give your patient that problem, illustrating how many beats he may save his heart in twenty-four hours by physiological rest. The body in bed and the mind rebelling and keeping up high tension by its excitability is a bad combination. The patient must know the meaning of the word repose and practice it and he must realize that power for good will come of it. When cases are not so extreme, and in cases where the heart is doing good work against the difficulties of a beginning arteriosclerosis, it is not desirable to advise complete rest. Get the patient to modify his work, to lighten the burden, to curb his ambition, if he have any left, and teach him specifically how to do it. Encourage him to exercise in ways that will dilate the peripheral vessels and so diminish arterial pressure. Have him take up golf, gardening, walking, croquet, bicycle riding on the level, all in moderation, and let him learn the beneficence of out-door work if he has never known it. When voluntary exercise is impossible massage and Swedish movements are invaluable. In fact, nothing contributes more to the well-being of the aged than massage given by a trained hand. Teach him the truths about diet. The second most important therapeutic measure, if not the first, is the reform of the table. Give him Chittenden's "The Nutrition of Man" and Thompson's "Food and its Relation to Age and Activity" to read, and encourage him from day to day to diminish his over-generous diet. Meat soups and extracts and teas and broths ought especially to be forbidden. A little meat once a day won't harm, but a bowl of meat extract with the waste product of some other animal introduces just what the old man has difficulty in eliminating. Certain fruits are beneficial. If Van Noorden is correct, the only fruits that do not contain a benzoic ester that recombines into hippurates are apples, pears and grapes. These fruits are usually very acceptable and are certainly a valuable part of the dietary. Alcohol and all alcoholic drinks should be entirely omitted. In men who have been accustomed for a long time to use wine or beer, perhaps it is better to diminish gradually, but the sooner it is gotten rid of the better. Coffee and tea cannot be taken strong or in large quantities without increasing blood pressure and producing wakefulness. Coffee for breakfast, not strong, perhaps is allowable, and may be the old man can take tea at midday, but later he is better without it. The same is true of tobacco. A smoke in the morning or after a mid-day dinner will not be a bad concession, but tobacco in the latter part of the day or in the evening for the aged is apt to make the heart pump with unnecessary force, to become irregular and so to prevent and disturb

sleep. The patient must not take too much fluid. The water idea is being overdone. Some old people are taking much more water than they should, while many are drinking too little. Besides the fluid usually taken at meals, not more than four glasses more should be drunk, and one of these should be on rising and another on retiring. Moderation in exercise and in diet are the essentials. The aged afflicted with arteriosclerosis should never be chilled. His body clothes should be of wool or of silk. Inside these he may wear a thin meshed cotton garment if he chooses. He must never take a cold bath. He should take a hot bath every night at bed time. He should sleep in pure air and it is not desirable that it be too cool. How to get this desideratum in our climate is a difficult problem. If one can have the fresh out door air come in over hot water radiators and can provide for the escape of used-up air by ventilators, including the use of the scuttle he has the best the present system can offer. The aged usually do not sleep so soundly nor so long as in youth. There is not the same physiological necessity for repair, but he should be encouraged to retire early and to remain in bed until a late breakfast hour anyway, and to take such other periods of complete or modified rest as his condition warrants.

The drug treatment of this condition is often of very great importance. For the underlying pathological condition but one drug has stood the test of time, and that is iodide of potassium. It may be given in thirty to forty-five grains a day, preferably in milk between meals and at bed time. But this remedy should not be begun until a certain degree of equilibrium has been established. In the beginning of failure of the heart it is necessary to diminish the work it is called upon to do. For this purpose a brisk saline cathartic will do more than unload the bowels. If given in a concentrated solution until watery stools are obtained it will eliminate so much fluid that the volume of the blood will be lessened and thereby the amount of work for the heart will be diminished. At the same time we can use remedies which will affect the vasodilators and so diminish the resistance in the smaller vessels. For this purpose the nitrites are invaluable. If the one per cent. solution of nitroglycerin be used, it must be remembered that its effect is evanescent and to maintain its effect the dose of one or two drops must be repeated at intervals frequent enough to accomplish the purpose for which it is given. The nitrite of soda in one or more grains at a dose has the same effect and maintains its action longer. Usually there is an accompanying acidosis and an alkali is indicated. The nitrite of soda may be given with the soda salt or the potassium salt, which will be selected according to the condition of other organs. In cases of great myocardial weakness it is often necessary to administer a remedy to stimulate to activity that part of the heart which is capable of work. Strychnin is most generally useful and with it may be combined strophanthus or spartein. There are cases in which the use of some preparation of digitalis is invaluable. If the digestion is at fault, and it usually is, digitalis

will serve a better purpose than the cruder preparation of that drug. At the same time some vasodilator should be administered unless there is low pulse tension, as there is in the last stages of arteriosclerosis from any cause.

For the pains that make existence miserable at times local applications of dry heat are often effective. Warm poultices are sometimes grateful, though not so quickly remedial as more intense dry heat. The alkaloids of opium are unexcelled to relieve pain in the aged and are safe in proper doses. In the aged there is not the same objection to the use of morphin as holds with younger people but if codein will serve it should be preferred. Perhaps there is no condition which requires better judgment on the part of the physician than that of the circulatory disturbances of the aged. It is of infinitely more importance to see that the products of metabolism are properly excreted and that the ingested food has a proper relation to the needs of the body in quantity and to the impaired condition of the digestive organs in quality and in mode of preparation than it is to multiply pharmaceutical remedies.

It is not for us to judge if it be moral to prolong a feeble old life. Many an aged person whose sufferings have been relieved by his physician will bless him for the added lease of life and for the surcease from pain. The many who manifest the phenomena of precocious old age can be restored to a certain degree of usefulness. With all, the physician should insist upon the importance of frequent inventories of their physical condition that threatened evils may be avoided and the patient be permitted to enjoy a serene if not a green old age. *New York State Journal of Medicine*, November 1908.

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[No. 2.

THE USE AND ABUSE OF LIGHT.

By ROLLIN H. STEVENS, M.D.

What is light? There is so much confusion and misconception in the literature concerning this valuable therapeutic agent that it seems necessary to define the term "light" at the outset of an essay on the subject. The difference between candle light and sunlight, or an arc electric light, is, I believe, in the minds of many only one of quantity. Indeed we are accustomed to measuring light in units of candle power, and the quality or composition of the light is barely considered by the physician who would employ light therapeutically. For the sake of illustration we might compare light to mercury. We have various combinations of mercury with decidedly different properties. The mercuric chloride in which one atom of mercury unites with two of chlorine is vastly different from the mercurous chloride where two atoms of mercury unite with two of chlorine. Similar differences are found between the iodides of mercury. And so there is a vast difference in the light, composed as it is of combinations of waves of ether, of varying length and frequency of vibration. If a given number of rays from the red and ultra red end of the spectrum be united with a given number of rays from the blue violet and ultra violet end of the spectrum, a light with certain definite properties is formed just as in the case of the union of one atom of mercury with two of chlorine to form

mercuric chloride. Then, if twice the number of rays from the red and ultra red end of the spectrum unite with the same number as before from the violet end of the spectrum, another quality of light is formed, which we might compare to the mercurous chloride with its two atoms of mercury and two of chlorine. If most of the ultra red rays are filtered out or likewise the ultra violets, the red, the blue, or the violet, or combinations of these, the property of the light is varied accordingly. Sunlight is rich in the blue, violet and ultra violet rays, but the shorter waves of the latter are filtered out by the atmosphere, whose filtering power is similar to that of glass. The arc electric light is similar to sunlight, though it is varied very much according to the voltage and amperage, and the composition of the carbons, but it is richer in ultra violet rays than the sunlight as we receive it especially in the low altitudes. Incandescent light has but few ultra violet rays, the glass filtering them out, and its richness in the other rays of the spectrum—principally the red end—depends upon the power of the lamp—the size of the carbon filament and glass bulb, and the amount of current. Iron electrode electric lights are relatively rich in ultra violet rays, as well as blue and violet, but poor in the other rays of the spectrum, while the actual quantity of the ultra violet rays will be less than in certain special carbon electrode arc lights. Most of the rays of a high tension condenser spark light are ultra violet and violet, but the whole number of light rays in such a light is comparatively small.

Then we must remember that the intensity of light varies inversely as the square of the distance. This applies to the X light as well as to other ethereal vibrations which are visible to the unaided eye. This law will apply to reflected light as well as to direct light, so that a large reflector on a light does not mean greater intensity of light on the body which absorbs the light. In the study of plant physiology, we have learned another law which we must bear in mind in studying light therapy. It is that it is only the light which is absorbed by bodies which acts upon those bodies, and the influence of light is in direct

proportion to the light absorbed. In animals the blood absorbs more light than all the other animal tissues. Various media filter out or absorb certain rays of light. Dark pigment in the skin would absorb most of the shorter frequencies of light—the violet and ultra violet. Hence the blood of the negro would absorb less of those shorter frequencies than would the blood of the white man. Water and quartz crystal absorb many of the heat rays and allow the ultra violet to pass ultra red and red rays. Glass, on the other hand, allows these rays to pass freely and filters out the ultra violet of shorter wave length. Glass of different colors filters out the rays of opposite colors.

One law of physics, determined by a study of the effect of light on plant physiology, is surely applicable to and must be borne in mind in studying the effects of light upon animal physiology or pathology, namely, that it is only the light which is absorbed by bodies which acts upon those bodies, and that the influence of light is in direct proportion to the light absorbed. The blood absorbs more light than any other animal tissue. So all these factors must be carefully considered before we can pronounce upon the value of light in the animal economy.

Much research work has been done during the past few years on the effects of light on vegetable and animal protoplasm, and especially upon the former, which after all differs but little if at all from the latter, so that what applies to one will in all probability apply to the other. A moderate amount of light is essential to growth and development of both animal and vegetable protoplasm, but an excess is destructive or fatal to either. The phenomenon of respiration in plants is strongly augmented by the so-called chemical rays of sunlight. Respiration, the inhalation of O and the exhalation of CO₂, however, continues as well in the night as in the day, but the nutrition of the plant cannot continue without the influence of the light, a few rare cases excepted. The air provides the essential carbon for food, but the chlorophyl is essential to decompose it. The elements of chlorophyl can be developed in the dark, but the chlorophyl itself will not be developed until the plant is exposed to light. The chloro-

phyl function is energetically produced in the blue violet end of the spectrum. Green rays have the same effect as darkness, and red rays produce it in moderate amount. Grains of chlorophyl in blue light are very deeply colored, large size, while those raised in green light are pale and small, and those developed in red light always exhibit intermediary characteristics. The number of stomates in the leaves are equally greater in the blue light than in the red, and in the red than in the green. All the radiations of light, however, are not absorbed by the chlorophyl granules, a part being absorbed by the protoplasm and cellular juice to furnish the heat necessary for life. The rays also play an important role in modifying the form and growth of the plant. They are retarders of growth. A plant grown in the semi-darkness has a very much lengthened, pale, weak stem, which is unable to support the leaves. This is due, not to the formation of new cells, but to the hypertrophy of the cells already existing, a phenomenon of degeneration. Thus the inhibitive function of light assures the plant solidity and equal distribution of cells.

The lower forms of plant life, such as bacteria, which are devoid of chlorophyl easily succumb to the light, and must live pretty much in the dark. The spores of bacilli show different degrees of resistance to light and heat according to the species and the culture media on which they grow. Cocci which apparently have no spores are more readily killed by light and heat than the spore producing bacilli.

In experiments on the lower forms of animal life the same stimulation of protoplasm, particularly by the so-called chemical rays, is noted as in vegetable life. Earth worms and beetles avoid the white or blue light, and they seek rest in the dark or in the green or red light. In the development of the young we find that the chemical rays help the process very much.

Acute Effects.—In moderate doses of diffused light, such as blue and violet rays such as sunlight, life and energy are stimulated. Blood vessels are dilated, circulation augmented, red blood corpuscles increased, and the metabolism and sweat secretion

promoted. The oxygen carrying capacity of the blood is improved, likewise the excretion of carbon dioxide. The nervous system is mildly stimulated, resulting in a feeling of well-being. Erythema may be produced.

If larger doses of light, rich in these same rays, are given, particularly if it is concentrated, the erythema in a few hours gives way to an acute inflammation with intense redness and swelling, and later formation of vesicles, accompanied by itching and burning. In a week or ten days the skin is healed and pigmentation is left. If a large portion of the body has been exposed, including the face, coryza, swelling of eyelids, cough, slight rise of temperature, increased pulse rate, headache more or less severe, prostration, etc., may occur.

Chronic Effects.—if the skin, particularly of a blonde person, is continually exposed to the rays of the sun a great deal for years, as the case in farmers at middle life or beyond, keratoses, or hard horny excrescences or crusts gradually form on the face, ears and backs of the hands. The skin beneath is irritated and inflamed, the crusts and excrescences become larger and larger, and finally epitheliomatous growths may develop in their places. In the young the acute fatal malignant disease known as xeroderma pigmentosa sometimes develops. It appears first as freckles upon the parts of the skin exposed to the sun's rays. In a short time multiple malignant growths develop in the pigmented spots. Pellagra, the summer prurigo of Hutchinson, and some summer eczemas on exposed surfaces, are supposed to be the result of the blue violet and ultra violet rays of the sun. In the tropics it is claimed that nervous breakdowns are of frequent occurrence among the white soldiers and residents who do not protect themselves from the injurious rays. Suicides, murder and crime are said to be more frequent in the summer. We are all familiar with the condition of sunstroke, which it is claimed is many times due to the effect of the chemical rays on the blood and nervous system—a breaking down of protoplasm. This and perhaps some of the other affections I have mentioned may also be caused by heat—the ultra red rays, and perhaps also by

absorption of toxins, against which, however, the resistance of the system may be weakened by the overdose of light or heat.

The action of the green rays appears to be neutral, the rays on either end of the spectrum apparently being the destructive ones. The ultra red and red rays, which contain much more heat, in mild doses produce erythema and often at first a slight itching or tingling of the skin. This is temporary and much less persistent than the erythema produced by the ultra violet rays in moderate doses. In large doses, however, we find actual destruction of tissue as exemplified in the various forms of burns. The X rays in moderate doses produce an edythema, oft times very temporary, immediately after an exposure. A few days later, however, a more persistent dilatation of blood vessels, accompanied by some itching and burning, occurs. This passes away in a few days and leaves a deep pigmentation.

In larger doses greater destruction of tissue may take place, and a deep inflammation with the formation of vesicles or pustules accompanied by much soreness and pain, will be noticed. This again will subside in a few days, leaving pigmentation, but may also result several months later in the development of permanently dilated capillaries or telangiectasis. In the still more severe X ray effects we have ulcer formation of greater or less extent, which are very slow to heal. Those pioneers, who exposed their hands and faces a great deal to the X rays before its dangers were realized, have first noticed a cracking and splitting of the nails, erythematous and inflammatory patches with scaling, and finally the development of keratoses, horny excrescences, and small ulcers similar to those found in the exposed portions of the skin of farmers. Epitheliomatour growths have developed in them after a few years, and many have lasted their lives as a result.

Now according to the law of homœopathy these various conditions produced by the agency of what we might call the "active principles" of the various forms of light should be curable by agencies producing similar conditions. And what has been our

experience? We are all very familiar with the great benefit to be derived from the ultra red rays of heat in many of the acute inflammations, so that I need not comment on them. A high candle power incandescent lamp with properly constructed reflectors, which directs the beams of light in mass on certain areas, I have found to be of great value in many inflammatory dermatoses, such as eczemas, rosacea, plantar keratoderma, furuncles, etc., also in some forms of pruritus. The light from such a lamp, and the one I have been using is known as the Rogers Therapeutic Lamp, contains but few ultra violet rays, the ones most irritating to the skin. There are so few, and they only the longer wave lengths, that they may be considered of but little consequence. The heat rays are in great quantity, and I think are largely responsible for the results, though the infra red rays alone have not the same therapeutic value.

In the chronic irritations of the skin tending to malignancy and caused by the ultra violet rays we have almost a specific in the X rays even after the development of epithelioma. This is a beautiful demonstration of the homœopathic principle, since the chronic X ray dermatitis with its epitheliomatous development resembles so closely, only much greater in degree as a rule, than that of the chronic dermatitis with epithelioma formation due to the sun's rays. I know of no cases where the X ray dermatitis so incurable has been treated by the solar rays, but I should expect such treatment to be most beneficial. In this case I should expect the Finsen Light or some modification of it to be of the most value. At any rate the light should be that from a powerful electric arc rich in ultra violet rays.

And now to conclude let me refer briefly to the negative side of phototherapy. The late Prof. Finsen's red light treatment of small-pox is familiar to all of you. There has been some controversy on the subject, and many small-pox therapists have discarded the treatment as of no value. This, in my opinion, is hasty. Many reliable observers have testified to the efficiency of the treatment when properly carried out. Finsen observed that it was always the exposed parts of the body—the

face—which suffered most from pitting as a result of small-pox—a very significant fact in its relation to the harmful effects of the ultra violet rays. The use of masks of opaque substances to cover the face has prevented this trouble to a large extent, another significant fact. The experimental deduction that vaccination may be made much less severe by rigidly excluding the light is also another argument. The skin which is already inflamed may be very susceptible to inflammation producing agents—what we call in homoeopathy the characteristic aggravation, which we have found to be so peculiar to many of our remedies. We can conceive of certain conditions of the skin which would be in a condition of lowered resistance where they would be especially susceptible to a particular inflammatory producing agent. The argument is very much in favor of Prof. Finsen's theory, and it should be more thoroughly tried out in this country. In the treatment all white light must be as rigidly excluded as is done in the dark photographic room, the red light or a candle only being necessary to see by.

There is no doubt that many of the neuroses are due to too much sunlight. Especially is this likely to be the case in blondes who have but little pigment to protect their protoplasm from the harmful chemical rays of the sun. Such people, especially in the summer time, should take precautions to protect themselves from too much sunlight. A little is necessary, but too much is dangerous. White clothing is opaque to the shorter frequencies of light, and reflects the light better than the dark, while it does not absorb so much heat. At night, however, when there is no sun, but it is hot, dark clothing is better because dark bodies radiate the heat faster. The protection of farmers and others who are exposed to the heat a great deal is a serious and difficult matter. Cancer is on the increase, and farmers furnish a large proportion of the cases, many of them being due to the direct effects of sunlight on the face and hands. A full beard for the farmer is most desirable for his protection. It is a significant fact that light increases the growth of hair. It would seem as though this might be an effort on the part of

nature to provide some covering for the exposed surfaces. Women are not exposed so much, their duties confining them to house, so they do not require the protection. The pigment, of course, we all know gives much protection, and yet there appears to be a close relation between pigment and cancer, which I shall not have the time to explain here. Excessive production of pigment is associated with many malignant conditions.

The study of the subject of light, its use and abuse is a most important one, and enough has already been learned to make us cautious. Let us remember that it is a most useful agent which we cannot live without any more than we can without many of the poisonous substances of which our bodies are composed, but let us also remember that it can be abused, and that there is such a thing as having too much sunlight.

THE DETERMINATION OF SEX.

By C. E. WALTON, M.D.

Cincinnati, O.

While this subject may not personally interest some old men, and a few bachelors, it is one that caused no little stir when, sometime ago, the newspapers announced that a physician in Germany had discovered the means of procreating a boy at will.

This raising of a function, which had hitherto been looked upon by many as a pastime, to the dignity of an occupation, possesses a novelty which seems to demand something more than a passing notice, and attention is invited to the consideration of the subject both from a physiological and a philosophical standpoint.

The announcement of this discovery by Dr. Schenk has been followed by the employment, on the part of some of the European nobility, whose interest in primogeniture is well established, of the doctor's services in securing the desired result. When we reflect that his efforts would always come within one of the expectancy, we are led to think that the

doctor had, for the time being, a decided "cinch" upon the aristocratic patronage which was offered.

Had he failed in any instance, he could generally count on the co-operation of his patient for a second experiment. Whether he could secure more than two experiments in any one family was a matter in which we are not particularly concerned and interested solely the contracting parties.

"Male and female created He them," and the propagation has continued from the initial creation, in such a ratio that the parity of the sexes has been pretty uniformly maintained. That this is the result of design, and illustrates the demonstration of a controlling law it is not unreasonable to suppose. Whether this law has become known, and can now be employed at will is a question.

The general details of generation are well established, and are so well known that their mere mention will suffice. The ovule furnished by the female, and the spermatazoon furnished by the male, are the prime factors. Their union under favorable circumstances, leads to that activity on the part of the ovum which terminates in the production of a child. In the earliest embryonic forms it is impossible to discover sexual distinction, but before the third month of gestation is completed the elemental forms of the reproductive organs are distinctly recognised. Sexual bias, therefore, occurs in the earliest stages of gestation and is dependent on the influence of the spermatazoon, and the capabilities of the ovum. That these are subject to external influences is not improbable.

If the function of the spermatazoon is that only of initial impulse, then the induced cell activity in the ovum is the differentiating factor in development. In other words the spermatazoon "pushes the button" and the ovum does the rest.

Before stating Schenk's theory, it may be of interest, and profit, to hastily recount some of the various views of earlier investigators.

Galen and Hippocrates held the opinion that the right testicle and left ovary produced females. This theory was overthrown

by DeGraf, who castrated dogs and bitches on one side, and succeedèd in having both sexes born. Modern laparotomists have confirmed the results of these experiments in the human female, and find that either sex is produced from either ovary.

Hippocrates also held that to produce a male, the generative material must be of a stronger quality. The future destiny of the male rendered it necessary that it should be constructed on a stouter foundation. He must be capable of a stronger development, and must, therefore, be a product of stronger elements alike on the father's and mother's side.

According to Aristotle, the woman supplied the primary material for the development of the future individual, It was the function of the man to give the impulse, in consequence of which the future individual came into being.

The influence of the will has been thought to influence the determination of sex, but instances are common enough where, not only the will of the mother, but the combined will of both parents, have been thwarted by the production of the opposite sex desired. If the will could modify sex, it also ought to be able to prevent the production of either sex, but no instance is on record where the most vigorous exercise of the will has either produced hermaphrodites, or sterility, in the presence of a completed copulation.

In Henson's valuable work on generation a number of instances are adduced which make it clear that the nutrition of the parents, apart from any question of race, is capable of exercising an influence upon the sex of the children. In plants which produce separate male and female blossoms the male blossoms are more numerous when the temperature is relatively high, whilst in shady places and damp soils a greater number of female individuals will be observed.

Bee raisers have demonstrated the influence of food in the modification of sexual development. They feed for a queen, for males, or for drones. This result confirms the view that whatever affects the separate sexual individual may favor the production of one sex or the other.

The relative ages of the parents has been advocated as influencing the male or female output. If the man is the older, more boys will be born. According to Sadler, 121.4 boys to 100 girls. If the parents are of the same age, more girls will be born, 94.8 boys to 100 girls. If the woman is older, more girls result; 86.5 boys to 100 girls. No reliable deduction can be based on these statistics, for other careful compilers have arrived at very different results.

Wall declares that two quite young parents will produce more boys, and, if the man is distinctly older, more girls are born, just the reverse of Sadler's claim.

Another investigator states that women who bear their first child between 20 and 21 produce more girls than boys.

Another claims that mothers who have their first child between thirty and forty produce an excess of males.

According to Darwin, the old husband of a young wife, or the old wife of a young husband, will make an effort to perpetuate the sex which will likely die soonest. No wonder Tristram Shandy was born, for his father would scarcely strive to perpetuate the sex of one who at such an inopportune moment could ask him "if he had wound the clock."

Folk-lore is not silent on the subject before us. "In Servia, if a man has a stye on his eye-lid he comes to the conclusion that his aunt is pregnant; if on the upper lid a male is expected; if on the lower, a female."

One of the ancient themes, which illustrates what we might call in this day a "hand-me-down" opinion, held that when the male and female procreative element became mixed there was a struggle for supercedence, and the more numerous won the victory and produced its own sex. This is about as satisfactory as the method of determining the sex of young birds soon after birth. Throw a worm into the cage, if the bird is a male, *he* will eat it; if a female *she* will eat it.

Reasoning from the fact that certain species of birds lay in a single month one male egg and one female egg, it has been thought that the human ovary contains an equal number of male

and female ova, and that one month a male ovum is developed, and the next month a female ovum. This would render the prognostication and determination of sex a very simple matter after the birth of the first child, the mathematical computation involved being one of the easiest problems for mental arithmetic.

The seasons, the climate, and other local circumstances have been held to affect the sex of the embryo. More boys seem to be born in the North, more girls in the South.

Felkin and Vilson adduce the following instance from the south of Egypt: The Wangandas, a warlike race, kill the men and the old women of their conquered foes. The children, girls and young women they lead into captivity. On one occasion 480 of the women gave birth to children on their march. Of the new-born 79 were boys, 403 girls. This incident led the author to pay further attention to the subject on the east coast of Africa and the Soudan. Everywhere he found the anticipation of an excess of girls supported and confirmed. In fact, his investigations of the phenomenon led him to formulate and advocate the law that better nourished and superior parent tends to produce the opposite sex." The conquered women were in an inferior position, worse nourished, and practically exhausted. "Amongst other neighboring races, where they live peacefully and domestically, a *small* excess of girls appeared.

A theory spoken of as *cross heredity of sex* has been supported by many authors. According to this theory parents who are not in a condition to propagate their own sex were capable of producing the opposite sex. A stronger man would produce a girl; a stronger woman, a boy.

The greater sexual excitability during the act of generation has been thought to determine the sex, but, such a basis upon which to postulate a theory is not substantial. Testimony bearing on this point is often unreliable and might be too controversial for practical deduction.

One observer with a somewhat chemical bias, asserts that the quality of the generative products depends upon the quality of nitrogen in the ovum or semen. If the ovum contains a large

proportion of nitrogen a girl is produced ; if the semen contains a great quantity of nitrogen, a boy will result. As chemical tests to determine the properties of nitrogen are not of easy and universal application, the scientific value of this theory is practically nil.

Mons. Thury, Professor at Geneva, in a book published at Leipsic in 1863, promulgated a law for the production of sex at will in animals. Impregnation at the beginning of rutting would produce a female, at the end of rutting, a male. This theory had for its basic element the idea that the least ripe ovum would produce a female, and that the ripest, or oldest, a more developed ovum, would produce a male.

Stock raisers have put this law to the test sufficiently to demonstrate that the results do not justify the extra trouble which this law imposes, and they now follow the advice of the New York councilman for the production of gondolas : "Get a male and female, and let nature take its course."

In order to test Thury's results as applied to the human subject, Schroeder obtained the assistance of young women, who were in a position to give him positive and accurate information respecting the time at which they became pregnant. The woman could name the day on which they had had sexual intercourse, and knew the date of the last menses. From careful calculation of the interval between these dates, it was possible to ascertain approximately at what stage impregnation of the ovum took place, the degree of ripeness of the impregnated ovum could also be inferred from the space of time that had elapsed since the last menstruation, and the sex of the fetus was noted. Schroeder found that on an average of twenty-six cases in which boys were born, the conception had taken place 10.08 days after menstruation; on an average of twenty-nine cases in which girls were born, 9.76 days after. Thury's theory was certainly not confirmed by this result.

• As to the effect of external influences upon the determination of sex the following clippings may of some interest :

Special Despatch to the Press.

New York, Dec. 28th 1898.—If you are asking the Frau Stork to bring you a little girl baby you are apt to be disappointed. Boys will rule in the birth records from now until April, not only in one section, but throughout the entire country, unless the conclusions of anthropological scientists are awry.

Vital statistics of November and December show a great disproportion in the sex of infants born in that period, and the wise doctors, who know all things, smile and say, "War."

The month of April is placed as the time for the disproportion in births to cease. War was declared in April of 1898, and the martial spirit then aroused was kept active until victory was assured and complete, when Santiago was taken in July.

The view taken by those who have studied the psychical aspect of the subject and their conclusions, is borne out by the comparative reasoning which the statistics of the principal cities of the Union give.

In New York the ratio of increase in male over female births in the month of December of the present year over the same month last year, is nearly eight per cent. In Atlanta the week just ended shows fifteen boys born to every eleven girls, as compared with eleven boys to twelve girls a year ago. Boston shows nearly the same proportion, and so does Philadelphia. Cleveland has been too busy with the grip epidemic to go into birth statistics, but the consensus of medical opinion is that more boys are coming into the world than girls. Providence, R. I., is a boy baby town for December, and so is Springfield, Mass., Cincinnati, and all other large cities west of the Ohio River.

Opinions of Physicians

Dr. William J. O'Sullivan, who is an accepted authority in the line of anthropological research is of the opinion that the parental influence theory of Schenk in the regulation of sex is tenable, although he holds, with all other physicians, that sex is not changeable after a certain period by any mental influence.

The Ancients believed in it, said Dr. O'Sullivan, and expectant mothers, who desired male children, as all wives of warriors did, addressed supplications to the statue of Mars.

Parental influence has been a subject of discussion in the medical profession for years. The child not infrequently is affected physically by some mental influence brought to bear on the mother.

In support of this, the books are full of instances, but there are no records of thought force on the part of either father or mother resulting in the birth of child of one sex or the other. It may be that the martial spirit, or the spirit of peace, produces the destructor, or the regenerator.

Dr. John Vincent Sweeney, of Greenwich and Liberty Streets, who for years has enjoyed a large obstetrical practice in the lower part of the city, says his own personal experience in the last two months shows an increase of boy babies over girl babies.

Robust Parents, Robust Children.

Robust parents beget robust children said Dr. Sweeney, and men of great resolution, and with the destructive faculty well developed, are usually the fathers of boys who strongly resemble them physically and mentally.

Take a community that has lived for a generation at peace and under such conditions that the natural protector is not constantly on the alert against attack by an enemy, and the faculties of combativeness and destructiveness become inert.

Let a mother become imbued with the spirit of patriotism, which would be commonly reflected from the husband, in time of national stress, and the impress on the unborn child would be marked. Virility begets virility. Nature rarely contradicts itself by investing a female child with the attributes of the male.

Females Born During Peace.

In time of great distress or grief, or when there is apprehension of danger or misfortune, it has been observed that a

greater per cent of the births are of females. The war spirit may, and probably does, produce the opposite result.

Dr. Charles Curtis Page, obstetrician and gynecologist, who has an office in the same building with Dr. Sweeney, has observed the phenomena with considerable interest. He has attended more cases this month in which boys were born than in any previous month in his practice.

The theory that the war spirit has had and will have something to do with determining the sex of children born between now and next Summer is an assumption that cannot successfully be controverted.

Before statistics which seem to support the above opinions can have any scientific weight, it must be shown that a large majority of the parents were actually imbued with the warlike spirit, and, on the other hand, that the progeny of those who were opposed to the war were predominantly female. I fancy that it will be a long time before such statistics will be forthcoming.

Independent of all theories as to the determination of sex it has been shown by Oesterlin from the statistics of births representing the population of half Europe that in nearly 60,000,000 births there were 106.3 boys to every 100 girls. According to Kisch the genealogies of the Court Calendars gave 107.7 boys to 100 girls. The fact seems to be established that under the ordinary working of the law governing procreation, more males are born than females. If any design is to be inferred from this fact it is likely based on the greater exposure of males to the vicissitudes of life, hence the necessity for supplying a small surplus. While the above has no bearing on the immediate cause of sex determination, it is a matter of interesting information and furnishes a resting place for those who look no further for a determining cause than nature's fiat.

Much attention has been paid to the influence of food upon sex production, but the results have not been uniform. Wilkins laid down the principle that food must influence the embryo,

the better nourishment favoring the female, the worse, the male. Dusing found this to be true of horses. But Wappaens says that in Sweden it has no effect upon the prevalence of one or the other sex. While, according to Fiquet, female calves are born if the cow is poorly fed.

Such a diversity of conclusions surely points to the need of more careful study and much wider observation.

Dr. Schenk has arrived at his conclusion only after most elaborate study, and the production of what he claims to be positive results. He gave special consideration to the excretion of sugar in the urine. With a particularly sensitive test he finds that normal urine contains sugar, and this, too, in the absence of any diseased condition of the system. The majority of sugar tests have been applied in the investigation of urine from males alone. He applied his tests to the investigation of female urine, and finds about the same proportion of sugar, but as women have less body weight than men, even the relative amount of sugar is consequently greater, and represents, therefore, a much less oxidation of the injected food, and indicates a much greater loss of heat produced by combustion. This loss, while not detrimental to the organism as a whole, is not a matter of indifference as regards her ripening ovum. In the case of those women who had a perfect combustion, and showed no sugar, he found sugar temporarily shortly before and shortly after menstruation, although no diet change had been made. When the metabolic process is perfect, and consequently normal, sugar is entirely absent from the urine, this condition is indispensable to the ripening of the ovum, which is most highly developed in the cases where no recognizable trace of sugar is found.

Where sugar is found, "we shall have not only a less ripe ovum, but very likely also a less well-nourished ovum. An ovum of this sort has not so fully attained to all the characteristics and powers inherent in its protoplasm, and, in consequence, though fitted to develop into the future embryo, will be arranged for the growth of a female. Not only will female

organs of generation be developed from it, but also the elements of the future individual will be feminine."

On the contrary, where no sugar is found, the cell products of the ovum will develop themselves into a male individual. It follows from this that the result depends upon the selection of a diet suited to the mother's organism, whether or not she will produce a male, and the influence of this diet, to be effective, must be applied not only to the fertilized ovum, but to the mother, for a considerable time before and after the fertilization of the ovum.

This, then, is Schenk's theory, and the problem resolves itself into such a food treatment of the mother as to eliminate the presence of sugar from the urine.

The application of this treatment by Schenk has been many times successful, whether his success can be secured by others remains to be seen. Perhaps Schenk has discovered only a part of the law of determination and has magnified the importance of the ovum. Other observers may do as much for the neglected spermatozoon and develop the necessity of raising it to the highest potentiality. If it be true that a poorly nourished ovum produces only females, I think most of us would rather be a boy from a stall-fed spermatozoon than a girl from a poverty-fed ovum.

Scientists hold to the axiom that everything is under the reign of law, but the grand exception is generation, if we are willing to admit as proof the prevailing opinion that more babies are the result of accident than design. Accident then becomes the law, and law is the accident.

If Schenk's theory is correct we cannot but look with additional alarm upon the operations of the Sugar Trust which have resulted in a decline in the price of sugar. - This means greater consumption, and hence more females. If this continues it is not beyond the possibilities that the time may come when this great nation, so proud of its traditional morality, shall be driven into the outstretching arms of the Mormon Church. This must be the inevitable result unless it curtails the production

or cheapening of sugar, or finds for its women some other field of energy than the gratification of the desire to exercise the material instinct.

If the Schenck theory is true, a widespread dissemination of this truth should not be encouraged, as it will add to the already existing difficulties of courtship, the additional burden of furnishing with each engagement a registered bottle of urine, or a certified analysis of the same. A prudent suitor would not be satisfied with the usual osculatory privileges as an evidence of good faith, but would also demand positive proof of the capacity for male or female production. This proof would have to be established by the most incontestible evidence, for one can readily imagine that under certain circumstances a designing mother would as readily yield to the temptation of substitution as does the avaricious druggist, who does not have the specified article, but some of his own make, which will answer every purpose. Such proof would prevent much confusion which might otherwise arise and inject itself into the numerous allegations of a subsequent suit for divorce.

The latest theory concerning the determination of sex is that advanced by Dr. Thomas E. Reed, of Middletown, Ohio.

Realizing the dual potentiality of the ovum, i.e., its ability to develop at one time a male, and at another a female, he surmised that the result of its action will depend on the time of its impregnation as measured by its relationship to the fluxion of the tides. He started with the assumption that copulation during the height of the incoming tide would insure the production of a male; during the acme of the outgoing tide, a female.

Now the test of a working hypothesis is its ability to work. For a number of years Dr. Reed has conducted his investigations, and has determined by observation that both human beings and animals respond to the application of his theory. No instance of a failure has occurred where the conditions have been faithfully fulfilled. All that is necessary is a tide-table, a brief mathematical computation, and a reasonable amount

of self-denial, to insure the propagation of either sex. The doctor announces his conclusions without dogmatism, and they appeal strongly to the scientific mind which knows no dogma.

We have in this thing a working basis for the formation of Boy Trusts and Girl Trusts. Which sex will ultimately predominate will then depend upon the size of the trusts and their relative activity.

So far as the public is concerned, the Schenk theory and the Reed theory are still in the experimental stage. Should their suggestions for the production of males fail, it will still be permissible to resort to the primitive method under the guidance of the advice contained in the familiar distich,

“If at first you don’t succeed,
Try, try again.”

EDITOR'S NOTES.

Qualification of a Medical Man.

The man of one book is dangerous, especially if he be a physician; the man of a hundred books may be useful; but the medical man becomes better the more medical journals he reads.—The *Homœopathic Recorder*, February 15, 1909.

Another Aid to the Diagnosis of Pregnancy.

Another sign of pregnancy has been recently called to the attention of the medical profession by Hertzell, consisting of a growth of fine downy lanugo hair over the entire body, and a general stimulation of the hair follicles, leading to a rapid growth on all the hairy part of the body. The "why" of this phenomenon has yet to be determined.—The *North American Journal of Homœopathy*, February, 1909.

Arsenicum in Burns.

This drug was considered as a specific in burns by that master in materia medica, Boenninghausen, and in Volume I of his interesting "Causeries Cliniques," the elder Dr. Gallavardin, by a comparison between the various degrees of burns and the action of arsenic upon the healthy human body, proved that the medication corresponded admirably to all degrees of the lesion and to its different periods. Clinical usage confirms the pathogenic indications. Arsenicum is the great producer and healer of the sensation of "burning", which is found in all parts of its pathogenesis. The sensations of internal and external burning, as from live coals. Erythemas, phlyctenulæ, ulcerations, eschars, with burning pain. General prostration with anguish and anxiety, as found in burns of some degree of gravity. Gastro-intestinal inflammation. Albuminuria, a frequent complication of deep and extensive burns. Such a group of symptoms will call for arsenic.—Dr. H. Duprat.—The *North American Journal of Homœopathy*, February, 1909.

Milk and Tuberculosis.

The somewhat heated discussion concerning the relationship of bovine and human tuberculosis which took place at the recent International Tuberculosis Congress in Washington, is so fresh in the minds of our readers that the report which has just been made from the Government Experiment Station at Bethesda, Maryland, concerning the death of several children from tuberculosis, unquestionably originating from the use of milk obtained from tuberculous cattle will prove particularly interesting. According to the report :

“Several children of the employees of the experiment station died and under such circumstances that autopsies were deemed advisable. These developed that the cause of death was tuberculosis of the glands of the neck and the intestines. *The children had been fed on the milk of cows kept upon the Government farm.* The cows were killed, and the autopsies upon their carcasses and the bodies of the children revealed absolutely the identity of the disease from which each suffered.”

Naturally, perhaps, in the case of the children, the tuberculous process involved the intestinal tract and the lymphatic glands rather than the lungs. The report of the cases was made by a sub-committee of the Committee on Agriculture, and it will doubtless greatly increase the strenuous efforts already being made to stamp out tuberculosis in cattle. These unfortunate cases will doubtless help to emphasize the correctness of the prevalent American opinion that bovine tuberculosis is communicable to the human race.—*The New England Medical Gazette*, February, 1909.

“Our Bleached Daily Bread.”

We return to the subject, which we dealt with in an annotation in our issue last week, since according to the results of a recent investigation the matter is more serious than we had believed. In the *Chemical News* of March 19th a paper on “Chemically Treated Flours,” by Mr. E. F. Ladd and Mr. H. L. White, is published which formed a special bulletin communicated from the Government Agricultural Experiment Station at North Dakota to the Secretary of Agriculture at Washington. According to these investigators there are produced in flour as the results of artificial bleaching by nitrous acid toxic bodies related most probably to diazo-compounds

which, generally speaking, are exceedingly poisonous. Evidence was also clear that the gluten or protein of the flour had been acted on. Extracts made from unbleached flour and given to rabbits did not affect them unfavourably, which extracts similarly prepared from commercially bleached flour caused their death within a few hours. Aqueous extracts of bleached flour caused immediate collapse and death even after the extracts were neutralised with sodium bicarbonate. It is assumed that the death of the rabbits was due to the presence of toxic material other than that of nitrites. In view of these results we were justified in writing as we did that "such tampering with 'the staff of life' should be made illegal." We gather that the Agricultural Department at Washington has, through its secretary, expressed the opinion that flour bleached by nitrogen peroxide is an adulterated product under the Food and Drugs Act of June 30th, 1906, but the legislature there does not undertake to prevent the practice applied to flours intended for export unless the method of treatment is in conflict with the laws of the foreign country to which the articles is intended to be shipped. Our advice to the public to abandon the fallacious notion that the whiteness of a bread is a mark of its quality needs in the face of the results just quoted to be put in the form of a serious warning. A few years ago surgeons were looking round for some explanation as to the progressive causation of appendicitis, and the idea gained ground in the minds of several authorities on the subject that the introduction of new milling processes had added mechanical impurities to the bread in the shape perhaps of steel particles, or perhaps modern milling methods had rendered the gluten hard and indigestible enough to serve as irritants in the intestinal tract. We may, with some reason, consider whether, if bread is at all a factor in the case, its treatment with nitrous fumes is not calculated to supply a better theory than steel particles. It is, at any rate, a significant fact that in the experiments referred to it was found on post-mortem examination that the walls of the stomach of each rabbit were either perforated or showed degeneration or congestion.—*The Lancet*, March 27, 1909.

Diaber. Dyspepsia.

Sawyer holds that there is a distinct relationship between disorders of the stomach and diabetes mellitus. From the stomach, or at least in association with gastric digestion, is exerted a powerful influence upon the clinical course of diabetes, expressing itself in many cases in a heightening of the errors of metabolism, which we recognize in the increased elimination of sugar and urea, with the clinical symptoms of thirst, hunger, polyuria, muscular weakness and emaciation. Of 19 recorded cases, 14 gave evident histories of previous dyspeptic troubles, 1 of alcoholism without dyspepsia, 3 of slight indigestion, and only 2 stated a complete freedom from dyspeptic disturbances. Sawyer believes that much may be accomplished for the comfort and relief of many diabetics by direct attention to the gastric condition. The use of alkaline water such as vichy and carlsbad probably have their beneficial effect brought about in this way also.—*The North American Journal of Homœopathy*, February, 1909.

A New Supply of Lachesis.

We wish to draw special attention to the notices sent us by the enterprising and up-to-date homœopathic chemists, Messrs. Boericke and Runyon, New York. They have taken a great deal of trouble, and been at much expense, in order to procure a fresh supply of *lachesis* for homœopathic practitioners. Hitherto there has been some little doubt as to the exact snake used by Hering; most of us have believed it was the *lance-headed viper*, but some think it was the *bush-master*. In any case, now that a supply of the virus of both snakes is in the hands of Messrs. Boericke and Runyon, each may be tried in turn. *Lachesis* is a remedy of inestimable value, and one that cannot be replaced by any other; and we hope that this fresh supply will lead to a deeper study of its uses. The sincere thanks of the whole homœopathic profession are due to Messrs. Boericke and Runyon for their action in this matter.—*The British Homœopathic Review*, February, 1909.

Dr. Burnett's Predictions fulfilled.

In the second edition of his book, "The Cure of Consumption by its own Virus," the late Dr. Compton Burnett wrote in 1891, "Koch and his world-famed remedy have come and gone. But they will return again anon and . . . remain, only the dose

will get smaller and smaller until the long-condemned homœopathic dilutions will acquire the rights of citizenship in the Universities of the world." Dr. Lathom, writing in the *Lancet* recently stated that in some patients as little as $\frac{1}{100000000}$ gramme of tuberculin will cause a rise of temperature, and that the proper dose should in some cases be less; this is equivalent to our seventh decimal dilution. Commenting on this in an editorial, the *Hahnemann Monthly* points out how completely Dr. Burnett's prophecies have been fulfilled. But by what a disastrous and circuitous route has the allopathic investigator arrived at the proper dose for this remedy, whilst "a single individual, guided by the principles of homœopathy, was able to state conclusions that the old school were only able to reach after seventeen years of experiments and failures, involving the sacrifice of hundreds of human lives. . . . And what, let us ask, must be the feelings of some of our old school friends, who have so long made merry over the idea of a homœopath placing one drop of *aconite* in a glass of water and expecting therapeutic results therefrom, and who now see one of their own authorities, after careful scientific investigation, recommending that tuberculous patients be treated by dissolving one drop of *tuberculin* in a bucketful of water (a gallon and a half, approximately), and a few drops administered at a dose every two or three days?" Lastly, the efficiency of administration by the mouth is established and proved by Dr. Latham, so that we have (a) the therapeutic value of *tuberculin* in infinitesimal doses, and (b) its efficacy when, given by the mouth, accepted by the modern scientist, as Dr Burnett predicted would be the case eighteen years ago.—The *British Homœopathic Review*, February, 1909.

Last year's Snake Victims.

The *Times of India* gives the "snake" statistics for 1907. The total mortality amongst human beings caused by snake-bite fell from 22,811 in 1906 to 21,418 in 1907. So low a figure has not been reached since 1897. The decrease is noticeable mainly in Bengal and Eastern Bengal and Assam, where the figures fell from 8,862 and 2730 in 1906 to 8,276 and 1,900 respectively in 1907. The most important increases occurred in Madras and Burma, where the figures rose from 1,527 and 1,149 in 1906 to 1,977 and 1,348 respectively. The highest mortality in Bengal occurred, as usual, in the Patna division, the number of deaths

being 3,393 as compared with 3,636 in 1906. The decrease in Eastern Bengal and Assam is attributed to the floods having been lower. The central Provinces figure (996) is the lowest returned in any one of the last seven years. The Lauder Brunton treatment of snake-bite by incision and application of permanganate of potash and the distribution of lancets continues. It is too early yet to pronounce with any certainty as to the result of the experiment, but a number of favourable reports have been received. Eight cases are reported from the United Provinces of the successful use of Dr. Calmette's anti-venene. In two of these cases the permanganate of potash treatment was also employed.—The *Homœopathic World*, January 1, 1909.

Olive oil in the diseases of the stomach.

The following is an abstract of a paper by Dr. L. Rutimeyer that appeared in the *Correspondenz-Blatt fuer Schweizer Aertze* :

“In some cases of hypersecretion and hyperacidity, with or without neurasthenia, the secretion was reduced when 30 gm. butter or 100 gm. warmed oil was taken, fasting in the morning. In another case of threatening post-operative spasm of the pylorus, with extreme dilatation of the stomach, 100 gm. of oil poured into the stomach each morning, with lavage of the stomach twice a day, promptly cured the spasm. In one case a merchant of 41 presented signs of chronic ulcer and spasm of the pylorus with excessive secretion and intense pains; only partial and transient benefit was obtained during two years of various measures. The old troubles returned at every excessive effort or excitement or dietetic error, and finally an operation was proposed. A systematic course of oil was instituted as a last resort, with brilliant success. The patient rinsed out his stomach every morning and then took 100 gm. of oil, and in two weeks the pains and spasms had vanished. The man gained rapidly in weight and was soon able to eat any ordinary food. During the five years since he still occasionally takes a little oil after some gross dietetic error, and it promptly relieves any slight disturbance. The most striking benefit of the oil treatment is in its influence on the subjective disturbance. The oil banishes the pain and restores the earning capacity, even although the objective findings may occasionally persist unmodified.”—The *Homœopathic Recorder*, January 15, 1909.

CLINICAL RECORD.

Foreign.-

CASES FROM MY PRACTICE.

BY DR. MARTENS, LUENEBURG.

Chronic Catarrh.

I. Shoemaker, N., thirty-six years of age, small of stature, feeble from birth. In his fifth year he had itch, which was suppressed in the usual manner with ointments. From his seventh year on he had always suffered every time he took cold, from bronchial cramps. In spite of the physicians these cramps kept recurring up to his fifteenth year, and at longer intervals up to his twentieth year. In this year, owing to a violent cold, he was taken with inflammation of the tonsils and catarrh of the fauces. The physicians used for some time internal and external remedies; there was at times an improvement, but no full cure. Next year he was seized with a more violent attack. The glands of the neck were much swollen; he could not swallow anything. After the application of warm and hot compresses for several days small abscesses on the tonsils opened, when he felt relieved, all but great weakness. But these catarrhs of the tonsils and of the fauces frequently recurred; they always left behind them an irritated state of the larynx and of the bronchia, which compelled him to cough, by which a thick yellow mucus and also at times some blood were expectorated. In spite of the treatment by physicians he became continually weaker and worse. In this state, now thirty-three years of age, he came under my treatment. On examination I found: An emaciated man of pale complexion with hoarse voice; loud speaking was impossible except by extreme exertion; loss of appetite; frequent thirst; stools slightly constipated; frequently feverish in the evenings; the pulse small and irregular. The objective examination by means of the laryngeal speculum showed a slight inflammation of the mucous membrane and a discoloration, mostly grayish white; the vocal cords have a dirty grayish-red appearance. Subjectively he has a sensation of scratching, burning and cutting in the larynx, and in the bronchia; these sensations are aggravated by pressure on the larynx by speaking and by coughing.

When coughing there is an expectoration of yellow, puriform fetid mucus, at times streaked with blood. In spite of the dubious and bad prognosis, trusting to the specific remedies of Homeopathy, I undertook the treatment, and began with *Sulphur* as the antipsoric. Of course, I expected a lengthy case. As there was no alteration from four weeks' use of *Sulphur* 10, I gave *Arsenicum album* 30. In a week after this there appeared an improvement, as the feverish state in the evening diminished, and the painful symptoms in the larynx and the bronchia from coughing diminished. After using *Arsenicum* I passed from it to *Hepar sulph. calc.* in the decimal trituration, from which I had before obtained good results in diseases of the larynx, especially as *Hepar* has supersensitiveness when the diseased parts are touched. The result was favorable; in a few days there was a diminution of the cough and of the hoarseness. The expectoration became grayish-white; the pains diminished more and more, the sleep improved, also the appetite, so that the state in general was manifestly improved. The treatment with *Hepar* was continued for two months. I had hoped that *Hepar* would quite remove the local trouble. On a further examination I now gave *Nitric acid*, in high potency, as an antipsoric at intervals of three to four days. The cough as well as the expectoration now diminished, as well as the subjective symptoms in the larynx and the bronchia. After using this remedy, there was no more irritation in the larynx or the bronchia, except during prolonged speaking, and when breathing in the cold air. The mucus expectorated now was clear and white. The general condition was improved, and also the strength. As *Nitric acid* had not removed the last symptoms of the disease, I tried *Phosphorus*, *Carbo veg.* and *Causticum*. I tried *Iodium*, which has a pronounced relation to the organs of the throat, and this did not prove in vain. For *Iodium* in the 10 decimal potency used for five or six weeks, two or three drops given three times a day, removed the last local symptom. The general weakness which was still present somewhat was removed by *China* in a low potency. Since his cure he has now for two years enjoyed such good health that he has been able to resume his business and to support his family.

II. The son of a farmer, twenty-four years of age, tall and thin, has now for five or six years been suffering from a chronic catarrh of the lungs. He was first treated with domestic remedies, later by a physician. But as there was no improvement, he determined at the advice of a teacher to call in my aid. When

examining him he told me that he had caught the itch from one of the laborers, which had been removed in the hospital within two days. There was a sensation of tension of the whole of the chest, also of dyspnœa. There was cough, worse every time after meals, as also after lying down in the evening, when he gets warm. The expectoration when coughing is yellowish-white, often of bluish color; the mucus is tough and stringy, the appetite is poor; the stool slightly constipated. The strength is moderate; for some time he has noticed a steady though only slight diminution of weight. Supposing that the suppressed itch was at the bottom of his morbid state, I gave him at first *Sulphur* 3 D. three times a day, as much as would lie on the point of a small knife. By this the two symptoms mentioned above, the tension over the chest and the dyspnœa were improved, but otherwise his state remained the same. Owing to the weakness of his stomach and his constipation I gave him, after three weeks of *Sulphur*, every day, four doses of *Nux vomica* 3 D. In three days this caused an improvement of the appetite and of the constipation. The cough also improved, though only a little. I now did not hesitate, in order to remove it entirely, to give him *Kali bichrom.*, after which the cough and expectoration disappeared in four weeks. This remedy has the tough stringy, often bluish expectoration as also aggravation after eating and by warmth.—The *Homœopathic Recorder*, February 15, 1909.

CASES OF MASKED INTERMITTENT FEVER.

By DR. WIRZ, IN DURLACH.

I. So I was called to see a woman in An who had most violent pains in the stomach. *Pulsatilla* in alternation with *Dioscorea* 3, presently gave some relief. But after a few days I found the pains in the stomach somewhat improved, but on the right side there appeared the symptoms of a dry pleurisy, the liver was inflamed and there was jaundice. I prescribed *Kali carb.* 30 and *Carduus marianus* in the tincture to be taken two or three times a day in water. At the next visit I found that the pleurisy had disappeared, as also the inflammation of the liver and the jaundice, but the pains in the stomach continued with the old violence, and she complained of thirst and burning in the stomach.

There was evidently an ulcer in the stomach, from which the patient had now suffered for years, but the peculiar symptom was that every evening about nine o'clock the pains reached an unusual degree of violence, while in the pauses between they almost vanished. The patient at the same time had a pronounced hydrogenoid constitution; for years her symptoms had been worse during wet weather, and the patient was very much emaciated and worn down. She had been treated in various ways without effect. The intermittent, unusually violent, pains in the stomach reappearing at the same hour always in the evening, led me to think of masked intermittent fever, which founded on the above described constitution, ultimated itself in these paroxysms of pain; but the unusual fact in the case was that it appeared conjoined with ulceration of the stomach. I might here add, that when attacks appear in conjunction with intermittent fever, they always appear with unusual violence. I gave her *Arsenic* 4 D. every two hours, five drops, and *Aranea diadema* 2 D. twice a day, five drops. Later when there was a decided improvement I gave her *Chinin sulph.* 1, with the direction that she should take as much as would lie on the point of a knife, for two hours, always before an attack. Soon I found the patient sitting up out of bed, and in a few weeks this woman who had been so severely sick, and of whom hardly any one believed that she could recover, was quite well. I had chosen *Arsenicum* owing to the severe burning pain and the violent thirst, and also because it is the best remedy in ulceration of the stomach, and is also a great remedy in intermittent fever. *Aranea diadema* was given to improve the constitution; it is also indicated in intermittent fever, and has the following marked Symptoms: *Colicky pains with rolling and gurgling in the abdomen, the hands go to sleep as also the legs, the symptoms recurring always at the same hour, violent convulsive pains in the stomach, with anxiety and depression in the chest.* In Southern Germany a spider caught in the cellar and administered in cooked prunes, without the patient being aware of it, is a popular remedy in intermittent fever. At times cures are thereby effected of cases in which no other remedy has proved effective. With the patient the left lobe of the liver was particularly inflamed, and I found that Dr. Burnett assigns the left lobe of the liver in particular as the field of action to *Chelone glabra*. In Puhlmann I found that this remedy is frequently given by eclectic physicians in America in malarial cachexy. Surely a striking agreement in the views of different authors with my own

observations and the relation between the remedy and the disease. For in malaria the spleen and the liver are very apt to suffer, but a liver thus diseased will not be cured by *Carduus marianus*, which only acts on the right lobe of the liver, but *Chelone glabra* will have to be called in to aid.

II. To take another case. This was the case of a woman in Durlach, 45 years of age, who was somewhat corpulent but had otherwise been always well. Two months ago she had influenza; I was called to see her a few days ago and find her in a state of acute failure of the heart; the heart beats are intermittent, and she complains of severe pains in the region of the spleen and of the back. This yielded in a few hours to the doses of tincture of *Nux* and of *Spigelia*, which I prescribed for her. She had a sensation as if her heart was seized with the hand, then also violent pains drawing up the whole of the left side and down from the left side of the neck to the sigmoid plexus of the colon. Next morning exactly at seven the attack returned with extraordinary violence. I had to work for three hours before the heart returned to its normal activity. I laid an ice bag on the heart and used all imaginable means, but they all refused; but as soon as I gave her tincture of *Asafetida*, she improved. Since the attack had now for three mornings commenced at seven o'clock, I was compelled to think of masked malaria. So I gave her for several hours before the attack as much of *Chinin. sulph.* ʒ. i, as would lie on the point of a knife, every fifteen minutes. And sure enough, at the same time the attack returned, beginning with palpitation of the heart, and punctually at seven the pulse again became intermittent; but the attack was not as violent by far. Also this time *Asafetida* and the ice bag did good service. The next day the attack was still more moderate, and soon stopped entirely. Later I recommended her to take *Eucalyptus* ʒ. i. This patient had a hydrogenoid constitution. As to the rational of the case: The patient had had influenza two months before, but being treated allopathically, she had not received anything to counteract the poison of influenza, and this poison, therefore, remained, and circulating in the system, it greatly weakened the heart. On Pentecost she had taken a bath, for which her constitution was not strong enough, and then these peculiar paroxysms developed, which, without doubt, were only the ultimatum of a masked intermittent fever. I consider the bacillus of influenza as similar to that of malaria; as is well known *Eucalyptus* acts as well in influenza as in malaria.

Every one may see how important it was to discover the cause of the disease, as the attacks on the heart would have become more violent every day, unless the malaria had been treated, and this would have doubtlessly ended in the death of the patient. It is noteworthy that if we desire to abort such an attack we must for several hours previously continue giving the medicine. *China*, which otherwise is a remedy which is not well endured in collapse of the heart, is in such cases well borne. But my practice has indicated to me *Asafetida* as the best tonic for the heart, and it is a remedy which seems indispensable to every practitioner. The interesting part of this case would seem to be peculiar violence of malarial paroxysms, as they will hardly be otherwise met with, and then in the remarkably favorable action of *Asafetida*.—The *Homœopathic Recorder*, February 15, 1909.

Cleanings from Contemporary Literature.

ORIGINAL ARTICLES.

DIET IN ITS RELATION TO DISEASE.

BY HENRY GOODWIN WEBSTER, M.D.

Assistant Physician, Methodist Episcopal Hospital.

In presenting so broad a subject for your consideration and attention something should be said by way of preface as to the phases that our limited time and your patience will permit. Diet is a word of potent meaning and varied interpretation. I well recall the shudder of anguish that would thrill my boyish soul when mother used to say, "You must diet," for it brought up visions of deprivation from all the good things that made eating worthwhile and in their place a strict course of Lenten severities. Nor is this conception confined to early life, for not so long ago a patient assured me of her discovery that the qualifications of a specialist in diseases of the stomach included only forbidding the eating of the things the patient liked and an insistence on the distasteful ones. But in its broad meaning diet includes everything that is used for food and drink and a consideration of such a definition should deal with the various articles we eat and drink, their value as tissue builders, their appropriateness for the bodily economy, the proper preparation of each, the proportion in which the various food stuffs should be mingled and their relative degree of digestibility. Of no less importance is the way in which food should be eaten and the amount required for the needs of the body. As all this demands a knowledge of the chemistry of food, of the digestive juices and the complicated reactions that occur in the digestive system, it is obviously impossible to more than glance at a part of the question and confine our attention to a single phase of this vitally important subject.

Our title, then, limits us to a consideration of diet as a cause of disease and of the beneficial effects of properly selected food in the treatment of nutritional disturbances. The trend of medical science to-day is toward the prevention of disease fully as much as toward its cure, and following the sound old maxim that an ounce of the former is worth a pound of the latter, let me first emphasize the ways in which improper diet may cause disease, and later, if time permits, indicate some appropriate limitations and applications of diet in its therapeutic uses.

We may dismiss with the mention those instances in which a specific form of food causes a well defined disease, such as pellagra, a peculiar affection due to eating diseased maize; the various eruptive troubles occurring in susceptible people due to strawberries, crabs, lobster and other shell fish; the diseases following the ingestion of food infected by various parasites such as trichina, tape worm and the like; the infectious diseases due to contaminated food or water, such as typhoid fever, cholera and

beri beri ; the acute intestinal inflammations following excessive eating, or from food that has undergone putrefaction, or from poisons taken by mistake, as toadstools ; sprouted potatoes have been known to cause serious gastric and intestinal symptoms ; and a variety of less common ills may arise from specific irritants that occur in food accidentally or from careless handling and preservation.

The perfect diet is one so arranged that the proportion and amount of its nutritive constituents is just sufficient to meet the daily wear and tear and supply a slight excess for the tissues to store up in reserve. These constituents are three—proteids, fats and carbohydrates. Proteids are the nitrogen bearing food stuffs and include meat, gelatin, albumin, the casein of milk and other substances from animal sources with a few of vegetable origin, notably gluten. Proteids, together with water and a variety of inorganic salts, are essential to the formation of new tissue, while the fats, such as butter, cream and olive oil together with the carbohydrates—sugars and starches—supply the energy for the body ; in other words, its fuel. Exhaustive observation and experiment have demonstrated that life may be maintained indefinitely on proteids when sufficient water and mineral salts are supplied. Carbohydrates and fats cannot by themselves support life. It must be emphasized here that these terms are applied to the starches, sugars and fats in their pure and uncombined states ; most foods contain all of the nutritive constituents in varying proportions. We may, for instance, class the potato with the starchy foods, for it contains over 10 per cent. of starch. But it also contains 1.2 per cent. proteid and a trace of fat, beside mineral substances. On the other hand, roast beef, while mostly proteid, contains considerable fat and traces of muscle sugar ; and the cream of cows' milk yields generous amounts of albuminous or proteid material and mineral salts beside milk sugar, in addition to the prepondering amount of butter fat—20 per cent. as an average. It is evident, then, that in choosing a diet the various articles of food should be selected so as to balance the excess of proteid in one against the preponderance of sugars and fats in others in order that a proper average may be attained.

Let us now glance very briefly at what takes place when food is taken into the digestive tract. Mastication in the mouth serves to reduce it to a pulp and exposes the starch to the action of the ptyalin of the saliva by which some of the starch is converted into sugar, this action persisting for some little while after the food is swallowed. Therefore, thorough chewing is necessary. In the stomach the pepsin and hydrochloric acid of the gastric juice release and liquefy the albumins, rennet ferment precipitates the casein of milk, and the churning motion of the stomach further helps to reduce the pulp to a liquid form. As this slowly passes into the upper intestine it encounters the bile from the liver, the complex secretion of the pancreas and the secretion of the intestine itself. Through the agency of these various ferments the starches are changed

to soluble sugar, the facts to an emulsion and to soap, and the proteid substances left from gastric digestion are further completely digested. The resulting fluid is then absorbed through the intestinal walls into the lacteals which in turn carry it to the thoracic duct which conducts it directly into the blood current. It thus reaches the mass of individual cells that make up the body and furnishes the nourishment they require. But before it can be taken up by the cells there occurs an obscure but very complicated chemical reaction, which, if imperfect, results in certain complex substances known as "purin bodies," the presence of which in the economy irritates its delicate adjustment and a number of nutritional diseases result. When the chemical interchange is normal and complete the resulting waste product is a substance excreted through the kidneys and known as urea. Beside the interchange of fresh nutrition for the waste products of cell activity certain of the nutritive constituents are stored up for future use—sugar and iron in the liver and fat in the subcutaneous tissues and elsewhere.

There is in nearly all food a certain indigestible residue that is of importance as a stimulant to the muscular walls of the stomach and intestines, for it furnishes a resistant bulk against which to exert their strength. One cannot too strongly emphasize the importance of a healthy tone in the muscular layers of the stomach and intestines—an importance fully as great as in the muscles that govern locomotion. Without this, stagnation and putrefaction result in both stomach and intestine with the subsequent ill health that follows the absorption of the toxic materials elaborated in the flaccid organs. Exercise, then, is as essential for the stomach as for the legs, and to provide exercise we must provide food so prepared as to make the stomach—and the bowel as well—do a certain amount of actual physical work.

So much by way of theory, which is dry and uninteresting, but as needful for the framework of a talk on dietetics as is the sawdust stuffing to a doll. It remains to build the doll around the sawdust—to apply the theory to the practical question of what and when and how, and how not, to eat.

Who has not felt his mouth water and experienced a sense of pleasurable anticipation under his vest when his delighted eye travels over the alluring announcements of patent breakfast foods that alternate with advice as to personal and household cleanliness, the care of the scalp, how to walk on air, how to cure a headache (and incidentally to inaugurate heart disease), the best material for petticoats and all the other illustrated appeals to the pocket book the B. R. T. provides to wile the tedium of a journey in its cars? Truly the malted breakfast food and the toasted corn flake are a power in the land, and as we read a little further we learn that there is a reason. It is gradually being borne in upon us that in time we shall no longer have to tire our jaws with fruitless chewing—the kindly manufacturer will predigest our food

for us—and our children's children will carry a week's rations neatly compressed in their wrist bag or waistcoat pocket. One sympathizes with Mr. Dooley when he said to Hennissy, "Lave me rrrun arround to th' stable an' put on me collar before Oi thry thim patint oats av yours, Hinnissy." But already there is a little cloud like a man's hand coming out of the sea. The Fletcherites are abroad and the uncooked food enthusiasts are abroad and the uncooked food enthusiasts are proclaiming themselves, and a Boston philanthropist bespeaks our consideration of his diet of selected sea sand as a corrective for overeating.

Seriously, teeth were provided to chew with. The body soon dispenses with redundant organs, and if we do not use our teeth we shall lose them. If we do not give our stomachs work to do they will shrivel up. We must use reason in our choice of food. There can be no question that a too concentrated diet tends to cause trouble, with ^{the} teeth, from lack of work; it fails to provide sufficient exercise for the stomach and thus promotes in time intolerance and irritability on the part of that organ; and because of the lack of a bulky residue, the bowel becomes sluggish reabsorption of toxins results and they in turn poison the nervous system and promote mental inertia, an irritable temper, headaches and the like, while muscular weakness and anæmia indicate their pernicious effects on the tissues and the blood.

Please do not understand me as condemning concentrated food. It has its place in certain disorders of the digestive tract and in acute diseases, when it is indispensable. But the systematic use of a concentrated diet is harmful because it not only carries with it the effects just mentioned, but also is apt to contain too much nourishment in a small bulk and may therefore produce results such as come from habitual consumption of excessive amounts of food.

A word as to fads in eating. Frank R. Stockton, whose quaint wit has been the delight of the children of all ages for whom he wrote, described the aged tutor of a boyish prince who had attained to his advanced age by careful chewing of his food—42 bites to each mouthful. On the boy's unexpected elevation to the throne the tutor became regent, and so, in order to live until the prince should be able to rule, he increased the number of bites to 64! What a pointed reproof to the quick lunch victim! Whether from this undoubtedly authentic case arose the practice called Fletcherism I do not know, but one must heartily approve the habit of careful mastication, for it prepares the food properly for the stomach, and by compelling deliberation prevents surfeit. But one must not rush to the conclusion that a good digestion depends on careful chewing alone. It will fail if the quality and amount of food is injudiciously chosen.

The essential ideas in the method to which Horace Fletcher's name is attached emphasizes the importance of thorough chewing without regard to a conscious choice of food, his contention being that if one

masticate everything taken into the mouth, taste will regulate the character of the food, the time consumed in chewing will reduce the quantity to a normal limit and health, vigor and economy will result. The beneficial effects of such a system cannot be gain-said. The principle is no new one, but if Fletcher has been instrumental in popularizing the idea his service to his kind is as real as though he had discovered it.

On the other hand, the advocates of raw food, specially of raw cereals, are in error when they claim that health ensues from a diet of raw oatmeal, turnips and carrots. It has been abundantly proven that a diet of raw starch, which makes up the bulk of such forms of food, imposes a burden on the digestive organs that in time works havoc with the body's economy. The worst case of malnutrition that I ever saw in an adult was that of a domestic servant who lived almost exclusively on a diet of raw oatmeal. Its bulk satisfied her appetite but its poverty in all the nutritive principles except starch soon starved her tissues. It is appropriate to mention here a habit common to cooks in particular—that of excessive tea drinking. Though they use a different beverage they imitate Sairy Gamp's motto: "Bottle on the chimney piece and let me put my lips to it when so disposed." Distaste for good food, gastritis and anæmia are the results.

Not so long ago a band of enthusiasts with deranged stomachs used to frequent our city parks where they browsed on tender young grass as a cure for their dyspeptic symptoms. So far as I can ascertain Nebuchadnezzar was the only man who ever thrived on grass exclusively and, as we know, the circumstances in his case were exceptional. Although we may recognize bovine and sheepish characteristics in certain people the bulk of mankind is omnivorous and for the average man a judicious blending of all forms of food in moderation is essential to health. Furthermore, cooking improves not only the taste, but the nourishing qualities of food, and it might be well to add, contentment and a good temper are great aids to digestion. One might say "Smile while you eat."

Now as to excessive eating. This may be either in the direction of too much bulk or too much nourishment—that is, too concentrated a diet. As to the former, conscious gluttony is a vice of the gourmand and meets with such general censure that I need give it but passing mention. But overeating in a milder degree is common enough as a habit to deserve consideration. We must not forget that with most people eating becomes a habit, and we breakfast, lunch and dine in profusion because we have always done so. We forget that as full grown adults we do not need the same amount of building material as during the constructive period of rapid growth. We marvel at the capacity of little boys and say that their legs must be hollow to accommodate all that they can stow away, and we carry into middle life the habit of

childhood, forgetting that we need only enough to supply daily waste. And as age advances and less food is needed we still keep the furnace over-supplied with fuel.

This simile of a furnace may be used further to illustrate the effect of supplying too much nourishment with insufficient activity, for just as an excess of fuel cuts off the draft and clinkers the fire, so does an excess of proteid—that is nitrogenous—food impose too great a burden on the assimilative powers of the body, incomplete combustion results and toxic products are poured into the blood to poison the entire system.

This is precisely what occurs in that group of nutritional disorders that are variously called gout, or the gouty habit, or litemia, or the uric acid diathesis, of faulty metabolism, to use the now generally accepted term. Possibly no form of disease is so widespread or is manifested in so many dissimilar forms. Some of its victims can point to a port wine tinted ancestor and thus lighten the burden of their inheritance by pride of family, but many more must struggle against the load without the comfort that comes from “noblesse oblige.”

Take for instance the college athlete. During four years he is in active training, performing daily a large amount of hard physical work to keep his muscles at their best, and consuming a commensurate quantity of highly nourishing food to repair waste and store up energy. As a result his appetite is voracious, his digestion perfect and his liver capable of storing up and discharging energy excess of immediate demands. But when he enters upon a professional or commercial career he finds that his opportunities for systematic exercise are curtailed, while he has taught his appetite to demand a generous supply of food which by taste and custom is apt to be rich in nitrogen. For a considerable period his still active growth provides a balance between the intake and the outgo, but gradually the system becomes surfeited, the liver becomes over-supplied and sluggish and he finds that he is lethargic where he was spry, lazy where he should be active, and his mental processes are no longer spontaneous and brilliant. He must force himself to keep up to his standard. He becomes fretful and irritable; he may have dull headaches; he is not satisfied with a reasonable amount of sleep, but is always tired. His digestion becomes impaired and he experiences distress after eating. His friends advise him to give up coffee and he does penance by swallowing gallons of insipid substitutes. His family take a mean advantage of his unhappy state and point out that he is smoking too much. Various aches and pains may develop in his muscles or joints. His kidney secretion becomes concentrated and inadequate. He patronizes all sorts of guaranteed remedies with occasional transient benefit. As time goes on the deleterious effects of the circulating poisons bring about hardening of the arteries, a mild, insidious, but very real and permanent change in the secretory power of the kidneys and impairment of the vigor of the heart muscle; and premature old age results.

Please do not gather from what has just been said that this unhappy condition can result from overeating alone. Other causes may and do produce a precisely similar result. The steady abuse of alcohol, for instance, is an all too frequent factor. But I may point out that alcohol is by some authorities classed among the foods, and when so considered may well be used as an illustration of a harmful—nay, poisonous—diet. I trust that you will pardon a digression from the main subject if I here emphasize the harmful effects of alcohol. I do not refer to its excessive indulgence, which involves a moral as well as a physical question, but to the constant use of small quantities. There can be little question that although the body is capable of burning up about an ounce of alcohol a day, the habitual use of even such small amounts in time leads to hardening of the arteries and cirrhosis of the liver and kidneys. It is not too much to say that the premature breakdown of many a substantial and useful citizen may be directly traced to the habitual use of alcohol in moderation, and yet such a man would be the first to condemn drinking in others and would indignantly resent the imputation if applied to himself.

The harmful results of an excessive starchy diet have already been instanced. A large proportion of raw starch is converted into sugar by thorough cooking and the pancreatic ferment is capable of the further conversion of much more. It is therefore obvious that sugar need be added to an ordinary diet only in sufficient quantities to render it palatable.* And excess of sugar is to be deprecated and the candy and ice cream soda habits should be frowned upon. Chocolate is chemically closely allied to uric acid and in susceptible persons may act as an irritant to produce distinct symptoms of a gouty nature. Sugar, on account of the ease with which it splits up into water and carbonic acid gas lends itself readily to fermentation in the intestine and helps mightily in producing flatus. I am fearful that if I add too generously to this catalogue of delectable but harmful dainties you will wail with Israel of old, "Alas! for the fish which we did eat in Egypt freely; the cucumbers and the melons the leeks and the onions and the garlic." Let me qualify the injunction a little and suggest that a little sugar is desirable for its energy producing qualities, but woe to the house that sets an open candy box on its domestic altar!

A diet overrich in fat, may also cause trouble by interfering with digestion in this way: The ordinary fats, such as butter, melt freely at the temperature of the body. As they melt they cause a coating about the other portions of the meal and prevent a proper attack by the gastric juice. This delays digestion and by keeping the food overlong in the stomach promotes fermentation. This in turn liberates butyric acid, the substance that is present in rancid butter, which is an active irritant to the mucous membrane of the stomach. Temperature and surroundings modify our power of utilizing fat, a matter of everyday

observation, for we instinctively eat less greasy food in summer, while in cold weather pastry and such fat containing foods are more readily tolerated. Indeed, if we turn to the dwellers in arctic climates, we find that fat is the staple of food. A box of tallow candles finds its way to the heart (and incidentally to the stomach) of the Esquimaux maiden much more readily than any other love token, and a cake of soap is rapturously received, though she never washes. It is significant that the milk of arctic animals is peculiarly rich in fat, that of the whale and walrus, for instance, containing about 40 per cent., an evident provision for the protection of the young of these creatures against the extreme cold of their environment.

It has already been said that proteids are tissue builders while fats, starches and sugars are energy producers. The latter in addition possess the power of aiding the proteids in their building process, so that in their presence a much smaller proteid element is required to meet daily waste than if proteid food were consumed alone. Let me illustrate. Some years ago the so-called Salisbury treatment, consisting of an exclusive diet of meat and water, had an extensive vogue. It was found that unless the amount of meat was far in excess of what is ordinarily consumed the patient wasted rapidly, but if a moderate quantity of rice with a little butter were added the amount of meat could be reduced more than half. In other words a mixed diet provided more nourishment and greater energy with far greater economy in both quantity and cost of material. It is therefore both rational and economical to combine vegetables with meat. Of course it may be objected that the vast population of China and much of India lives almost exclusively on rice while certain tribes of South American Indians use nothing but beef and the Arctic people live almost entirely upon seal blubber and whale oil, but for Americans and other residents of the temperate zones a mixed diet seems to provide a maximum of physical and mental power with a minimum of expense. There are dyed-in-the-wool vegetarians who will take violent issue with this generalization, but I will venture the assertion that in the long run the vegetarian will fall behind in the race.

The question of economy in diet is an interesting and fascinating one but is hardly germane to our present subject. To those who are interested the bulletins of the Department of Agriculture will supply a mine of practical information on how to provide for a large family on a small income, even to supplying daily menus. The nutritive and gustatory advantages of salt codfish, pork and beans and oleomargarine are there compared with braised tarpon, artichoke a la bordelaise and sweetbreads Isabella, or pate de fois gras so eloquently that one yearns for the former and wonders how the latter could ever attract him. That aspect of dietetic economy, however, which deals with the minimum upon which daily life may be advantageously sustained is pertinent for

us to consider. Some comparatively recent experiments by Professor Russell H. Chittenden supply interesting data. He chose a number of healthy young adults from a variety of active occupations, among them a squad of soldiers from the regular army, students from the schools of divinity, medicine and other departments of Yale University, divided them into groups and after having carefully estimated the energy producing power of their ordinary diet and calculated the daily waste, proceeded to gradually reduce the quantity both in bulk and variety. Unlike the economical farmer who "got his horse down to one straw a day and would have gotten on without that if the durned brute hadn't died," he found that after weeks of restricted diet the subjects of his observations thrived, gained in strength and mental vigor and actually accomplished more work than they had ever done before. The following list, taken from Prof. Chittenden's work on "The Nutrition of Man," represents a diet appropriate for an average healthy man weighing 187 pounds. It is the practical expression of the above-mentioned experiments and is in no sense theoretical :

Breakfast : 1 shredded wheat biscuit. 1 teacup of cream, 1 German water roll, 21-inch cubes of butter, $\frac{3}{4}$ cup of coffee with $\frac{1}{4}$ teacup of cream, 1 lump of sugar.

Lunch : 1 teacup homemade chicken soup, 1 Parker House roll, 2 1-inch cubes of butter, 1 slice of lean bacon. 1 small baked potato, 1 rice croquette, 2 ounces maple syrup, 1 cup tea with 1 slice lemon, 1 lump of sugar.

Dinner : 1 teacup cream of corn soup, 1 Parker House roll, 1 inch cube of butter, 1 small lamb chop broiled, 1 teacup mashed potato, apple-celery lettuce salad with mayonhaise dressing, 1 Boston cracker, split, $\frac{1}{2}$ inch cube American cheese, $\frac{1}{2}$ teacup bread pudding, 1 demi-tasse coffee, 1 lump sugar.

His findings are somewhat too radical to be accepted without extensive confirmatory evidence, but they leave no room for doubt that we would do well to still further curtail our present notions of what constitutes moderation in eating.

So far we have considered the ill effects of injudicious eating, if so general and incomplete a summary deserves that title. Now let us glance at some of the same principles in the relief of disease. Did you ever hear Grandmother say "stuff a cold and starve a fever?" There is reason in the latter, at least. Consider what happens in typhoid fever. Here an acute disease produces high, persistent fever accompanied by numerous ulcers in the intestine. Obviously, in such a condition, we must choose only such food as will leave little or no residue to irritate these ulcers, or they might break through with disastrous results. Equally we must avoid gas-producing foods, for the same reason. Furthermore it is extremely doubtful whether the digestive processes are active in the presence of high fever. Certainly the tissues of the body

are in no condition to assimilate much nourishment ; and some authorities do not feed their typhoid patients at all, but prefer to let them live on their own resources, supplying merely an abundance of water. But for those of us who feel that some nourishment should be given milk is the rational fever food. Milk contains approximately 4 per cent. of butter fat, 3 per cent. of albuminous substances, $4\frac{1}{2}$ per cent. of sugar, decided quantities of mineral salts and 88 per cent. of water. All the nutritive principles are present in sufficient amount to meet the requirements of a good food which has the advantage of leaving no residue. A disadvantage lies in the tough clot that forms as soon as the casein of the milk comes in contact with the rennet ferment of the stomach. Various expedients may be resorted to to remedy this defect. Lime water added to the milk before taking helps to form a finer curd. The fermented milk products like koumyss and kefir accomplish the same result, supplying at the same time effervescence and an acid taste that are grateful to the fevered tongue. Professor Elie Metchnikoff has recently published a series of articles advocating lactic acid milk. This closely resembles buttermilk, but is prepared by souring fresh milk with lactic-acid-forming bacteria. The finished product contains all the original ingredients of the milk plus lactic acid, but is free from acetic and butyric acids and alcohol which form in ordinary buttermilk. It is easily prepared for domestic use. He attributes sovereign virtues to it as an ideal food and has gone so far as to declare his belief that one may live to be a hundred if he will use it as an exclusive diet, or at least eke it out with a little black bread only. At all events it is a very desirable food in a variety of chronic gastric and intestinal ailments as well as in other diseases where the digestive tract becomes affected and a bland, unirritating food is needed.

There is still a general belief in the efficiency of beef tea, meat extracts, mutton broth, chicken and calves' foot jellies as nourishment for the sick. There is no question of their tastiness and appetizing qualities, but it cannot be said of them as Sam Weller said of crumpets that they were "werry cheap an' fillin' at the price," for they are neither. There is a very moderate nutritive value to the small amount of gelatin in meat jellies, but the food value has been cooked out of beef tea and as usually served it is composed of water, taste, color and smell. The same holds for clear meat soups while broths are richer by the rice or barley they contain. It is more than likely that patients who are reported to have lived for days on beef tea would have done fully as well on water alone. The idea that a sick man must have food at all hazards works hardship for the patient who does not need it, for the doctor who does not approve it, and for the family who must prepare it. We usually discover that Aunt Jane has advised beef tea, and as Aunt Jane has had her troubles and knows all about it she has the final word. It is that same Aunt Jane who keeps the windows

tight shut and denies a drink of cold water to the sufferer. If food is indicated milk or some one of its preparations offers nourishment in small bulk which is well born by most patients for a long period.

Over feeding, or forced feeding, are terms applied to a method supplying large quantities of readily assimilable food to patients whose strength has become exhausted as a result of prolonged illness and in cases of nervous depression. One step in the present day treatment of tuberculosis includes the eating of large numbers of eggs and drinking milk freely, the quantity of each being steadily increased up to the point of intolerance. The same method forms an essential part of the Weir Mitchell rest cure. Here variety is necessary as patients with nerves quickly tired of a monotonous diet, so some ingenuity is required to change the envelop and still have the contents milk and eggs. It is surprising how sufferers from either of the conditions just mentioned can accustom their stomachs to receive such an excess of nourishment and yet those who have previously revolted at any but the daintiest fare soon learn to accommodate five hearty meals a day. Naturally, during a course of forced feeding the strictest care must be given to the *primæ viæ* and due attention paid to the muscles and circulation which are kept active by massage and baths, while fresh air and sunshine are of fundamental importance.

In regard to the dietetic treatment of disease in general it seems to be the present tendency to draw away from established diet lists and to endeavor to suit the food to the patient rather than the patient to the die. This is particularly the case in the management of disease of the kidney. Here a bland diet is needful and one relatively poor in nitrogen is desirable, but it seems wise to consult the taste of the individual as far as possible. Realizing that a regimen strictly in accordance with the theory of good treatment may not be sufficient to keep the patient in the best possible bodily vigor it is well to relax the severity of our prohibitions and allow enough tasty food to keep him contented. If he is fond of milk and can depend on it as a staple, well and good; but if he dislikes milk and craves meat it seems wiser to allow enough to please his palate, for otherwise he will lose in mental poise what physical benefit he might gain and the object of treatment be defeated. Judgment and a nice appreciation of the patient's personal idiosyncrasies must govern our estimate of the needs of each individual.

Space forbids any attempt to specify the advantages and disadvantages of individual articles of diet. It would be interesting to mention the appropriate place of potatoes, fruit, green vegetables, farinaceous foods and so on in the bill of fare, but as that necessitates a detailed discussion of each in both health and disease it is best left for the text book for technical magazine. If I have been fortunate enough to emphasize a very few of the facts of common sense eating I may feel that I have not trespassed unwarrantably upon your indulgence.—*Medical Times*, Jan. 1909.

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THE SPHERE OF HOMŒOPATHY.

By OLIVER S. HAINES, M. D.

Aside from their purely personal aims and purposes, I believe that the wish uppermost in the mind of every consistent member of the homœopathic school, is to see our particular therapeutic art, accepted by the medical body universal; to see it a part of the armament of every man who fights disease and who strives, by every means within his reach, to retard that inevitable earthly final-dissolution.

If there ever can be an absolutely altruistic desire, this is one. The benefit which its universal acceptance and practice would confer upon sick humanity, surpasses man's ability to estimate. That is how I feel about it. My own convictions came late; they came only when the evidence was overwhelming. When I received my diploma, I thought homœopathy a trifle; and the homœopathic profession, weavers of gossamer. Consequently I have been quite busy apologizing ever since.

To the accurate observer, it is really marvelous how much the practice of medicine in our school, has improved during the past twenty-five years. Our practitioners, to-day surmise so much less; and know so much more than they did. Still we cannot take all the credit for this general improvement ourselves. The change, for the better, that one observes in the homœopathic

school, is largely a part of that steady growth in intelligence, knowledge and in culture, that has stimulated the medical profession the world over, without regard to school or to therapeutic predilection.

And it is a matter for great rejoicing that the progress of our school, has been steady; and that whatever of narrowness or bigotry there may have once been in us, has been left far behind us, because ours has been a true progress, and true progress admits of no retreat.

Man learns much from experience. The experiences of a century have broadened us where we were narrowest, and, have made our practitioners liberal, tolerant and even magnanimous.

In every quarter, one sees to-day our men striving for that fine balance in their attitude towards the case; so that, in the endeavor to make thorough examinations and correct diagnoses, the full therapeutic needs of each patient shall not be misjudged; nor, on the other hand, that in their eagerness to make accurate medicinal prescriptions, they may not overlook hidden dangers, nor strictly mechanical needs.

And this is as it should be. Every case of illness must be viewed from every possible standpoint, its own peculiarities noted, its own particular therapeutic needs carefully scrutinized. Homœopathy has taught us that generalization is fatal to success in the practice of any therapeutic art.

Disclaiming any attempt at authoritative statement, it is my own belief that homœopathy is just beginning to be thoroughly understood and appreciated at its true value. The belief in the undoubted efficacy of the similar remedy, grows, extends, widens and is strengthened, as the years come and go; and the man who rises to pessimize, to-day, is regarded as one oblivious to the facts, or as one who has declared an amnesty to truth.

What notional views some few men still hold regarding the homœopathic school! Some time since, the writer was asked to see a case of appendicitis. The physician, in attendance, met him at the bedside. Never have I seen a countenance

more glum, nor, grasped a flabbier hand than his. After palpating the mass, we adjourned to the library. "Have you sent for the ambulance?" said I. With a smile of great enlightenment, my colleague replied: "Why I thought you were one of those queer homœopaths." This concluded our consultation. The simple fact that I reasoned as he did; and, talked in hospital vernacular, broke the ice and the hand he offered, at parting, expressed more than any words could have expressed, his appreciation of a closer view of things. Homœopathy and homœopathic practitioners no longer appear "queer," save to those who view them from afar. The more you look into them, the more rational and humane they appear.

Neither is it characteristic of our practitioners that we flaunt, to-day, the banner of any particular school of physic, with boisterous enthusiasm and loud huzzas. Ours is a quieter, deeper, more intense purpose. We are seeking for the truth, the whole truth.

Those practitioners who have included in their armamentaria, the homœopathic method of using drugs, have never realized as they do to-day, the full intent of that splendid first paragraph of the *Organon*, which reads:—"The physician's high and only mission, is to restore the sick to health." •

That was a most natural way to begin the exposition of a new method of using drugs to assist Nature's curative efforts. If its author had added the thought that was doubtless in his mind, he would probably have added the statement that no matter how much a new plan of therapeutic procedure jars upon conventional ideas of drug prescribing, the true physician will not be prejudiced; but will avail himself of everything that really promises to assist him in this noble aim, the restoration of the sick to health.

Hahnemann's idea of perfection in curative methods was the removal and annihilation of disease in its whole extent, by assisting Nature, in the shortest, safest and most harmless way, on easily comprehensible principles. •

Does it not now appear that practitioners of our school have, at last, gotten this idea firmly fixed in their minds? One can observe, everywhere, the complete and thorough manner in which the patient is interrogated and investigated by every physical method known to science. One may observe the active search for the causative factor of the illness. One may observe the thoughtful contemplation of the full therapeutic needs of every case, before treatment is begun. One may note the increasing regard for what is true in hygienic and dietetic principles. Nothing impresses one more than these features of our progress during the last quarter of a century. And, it makes a man proud of his school, and proud to be numbered among its practitioners.

These things had to come. Homœopathy was erected upon such sound basic principles:—The superiority of facts over hypotheses; the removal of every ascertainable causative factor of diseases; the treatment of the whole morbid entity, not the lopping off nor suppression of isolated symptoms; the prescription of every medicament, according to well defined principles; not haphazard; the assisting of Nature, in her efforts at cure, not an antagonistic attitude towards her efforts; the study of each patient, as a distinct morbid entity; and, if you will not object to the expression, a personally conducted method of treatment.

Homœopathy teaches us that sometimes the sole factor in determining a recovery is the properly selected medicament; sometimes, and indeed more often that it is only one factor; but, that in either case it is always an important factor, not to be viewed lightly, not to be selected haphazard.

Perhaps you will wish me to admit that a reasonable mental disease and the attitude towards medicinal therapeutics, is a striking universal characteristic of the medical man of to-day. I think that it is particularly to be observed among the practitioners of the homœopathic school: and it leads one to the conclusion that the acceptance of the principles and practice of homœopathy is compatible with the truest progress; and that they neither limit nor curtail the scientific freedom of their

possessor, nor lessen his responsibilities to medical science generally.

Notwithstanding this, if one observes carefully the work of our general practitioners who are not dwellers in urban America, one may see something that is mighty interesting. The rural general practitioners—he is the man who is up against problems day after day that are enough to try the metal he is made of. The anxieties and perplexities which he, of necessity, must often bear alone and unaided, surely make him a man who would not entertain any visionary medical theory, nor practice any therapeutic method that was impracticable or uncertain in its results. Yet these men are the very champions of our faith. They must know whereof they speak when they exclaim, as one did recently in my presence, “If it were not for my knowledge of the method of similia, I should often feel that precision in medicinal therapeutics, was impossible.”

What has been aptly termed the dual-action of drugs, must have been a fact observed and commented upon for a long time. In almost every treatise upon the physiological action of drugs, one may find numerous instances of this. Thus when one reads in the National Dispensatory that podophyllum produces copious watery stools, attended by severe gripings; and, then immediately following, the clinical observation that properly reduced doses will “often” cure the summer diarrhoeas of children, when all other remedies have failed one might feel inclined to believe that some sort of a principle must be involved, when one may use the same drug either to cause or to cure a diarrhoea.

The word, “often” is used correctly here, because podophyllum will not invariably prove curative under these circumstances. Now, if one should strive to discover the principle involved; and if one should succeed in perfecting a certain method of using podophyllum, so that it would invariably prove curative, it would seem as if that might be considered a creditable and praiseworthy effort.

It is probable that the entire medical profession does, at least occasionally, use drugs very successfully to-day, according to

what we may term—the index of similarity. That it has not yet become a common method of drug selection, throughout the entire profession may probably be attributed either to disinclination or to variability in results. And, as the medical profession would naturally pursue a policy consistent with public good; and would be unwilling to neglect any method, the omission of which might work against the interests of the sick, we may conclude that variability in results explains the general neglect of this particular method of using drugs.

I think you must have heard it said that the giving of a drug in this way—*podophyllum* for a diarrhoea, because it can cause a diarrhoea, for example was homœopathy. Just as we have heard it said that modern serum therapy was homœopathy; that Bier's hyperemic therapy was homœopathy; and much else of a similar sort. That is not so. It is not pleasant to think that no man may make an original investigation along therapeutic lines, but that his new series of established facts shall be at once claimed and dubbed homœopathy in her latest guise. It is reasonable to think that such things suggest a certain principle in therapeutics however. A something that is acting continuously and uniformly to produce certain results.

But there is no excuse for homœopathy squatting upon every newly opened vista. She has no need to do this. The word homœopathy is used too often in a figurative sense.

Homœopathy has to do with that department of medical science that we term therapeutics. It therefore has to do solely with the action of remedial agents upon the human organism, both in health and in diseases. It started really with the recognition of this double action of drugs—this dual-action. To appreciate how thoroughly Dr. Hahnemann went into this matter, one must read his essay upon "A new principle for ascertaining the curative power of drugs," first published in 1706, and now to be found in Dudgeon's translation of his *Lesser Writings*.

It has been generally believed that first observation made, was that cinchona bark given in large doses to sensitive, yet

healthy individuals, produced an attack of fever very similar to the intermittent fever which it was capable of curing. But if this fact were added many other facts of a similar kind, relating to most of the usual drugs. Then came the suspicion of the possibility that this disease-producing power, in some way accounted for the disease-curing power of the same drug.

The next step was the establishment of a principle—the inherent truth that explained these constantly recurring, more or less uniform results. Does it not seem quite natural that these two series of phenomena which were under scrutiny, should have been explained by saying that their relationship, one to the other, was in the direction of similarity; that their relationship was, at least, not antagonistic.

Thus was opened up to the medical profession an entirely new line of therapeutic investigation, because the old plan of using drugs was distinctly upon the principle of antagonism; unless the cause could be removed. As thus far developed, this new plan of using drugs thought that one should combat a diarrhœa from intestinal irritation, with a drug capable of irritating the healthy intestinal tract and producing a diarrhœa. If nothing more had been done, we may venture to say that physicians following such an imperfect plan, would have met with as many failures as successes; and they would have been justified in denying the utility if not the truth of this principle of similarity. They might then have said with truth:—Either the underlying principle in this new method is false; or the rules for its application at the bedside are too crude, imperfect, incomplete, unscientific.

Suppose that just at this juncture, one should take upon himself the onus of proving its principle to be true, and should so assemble his facts, and should so harmonize his facts and principles, and, after years of arduous toil, during which it was even necessary to build a new pathogenetic record of drug effects in health, should present to us a complete, rational, reasonable, scientific system by which we could use drugs in this new and better way, and with uniform results; ought not the response of

our hearts to such a man, to be a gratitude approaching veneration ?

That is the reason why the memory of Hahnemann will always be revered by our school ; not for what he did for us alone, but for what he has enabled us to do for others. He provided the medical world with a perfect system of using drugs according to the index of similarity, the practical merit and utility of which lie in its indubitable reliability.

Why, we could rest the claims of Homœopathy for universal recognition and adoption, simply upon the perfection of her plan of procedure, the definiteness of her essential rules, the uniformity of her results.

There is nothing transcendental about homœopathy. Our recommendation of it we back up by a vast array of facts accumulated in the clinical experiences of thousands of qualified practitioners. It is not simply that we wish to make homœopathy supersede all other principles of medical practice. We simply ask :—How can any physician refuse to avail himself of the added power which homœopathy would give to his therapeutic effort ! And in conclusion :—There is but one feature of the technique of our school, in which the most precise observer can discover no improvement during the years. That one feature is the practical application of the principle of similarity at the bedside.

• There must have been much strenuous endeavor directed to this end, but nothing has been accomplished. There has been much gratuitous criticism by those who have momentarily forgotten that it is much easier to criticise, than to create, much easier to pull down, than to construct. Pathology has been substituted for pathogenesis ; two or more similar remedies have been prescribed in alternation ; several similar remedies have been administered in combination ; we have gone all the way back to the beginning, to the dual-action of drugs for the key to the situation ; but it has invariably proven to be, not progress, not improvement but retrogression.

The plan of procedure, as it was offered to the medical world in the *Organon*, remains the one perfect and dependable plan. It

takes a long time for some of us to find this out; but every sincere and honest practitioner of homœopathy finally reaches that conclusion, and abides by it. No man could have performed his part more nobly than did Dr. Hahnemann. As far as he could, he avoided error and strove for perfection. Above every thing else he was typical of the honest, sincere, scientific investigator.

We may rest content if a man accepts homœopathy merely as a new and accurate method of drug selection of great practical utility. For, without doubt, if he applies it at the bedside, in strict harmony with the plan formulated by him who laid the corner stone of the science of pathogenesis, the final estimate of homœopathy will not be expressed by "a method of drug selection" alone.

Some one said recently :—"Your plan of procedure is too exacting, the convert trained in simpler, cruder, easier method, will not make the effort." He did make the effort in the earlier days of homœopathy. Indeed if it had not been for such there would be no homœopathic practitioners to-day. He will do it again, if he can be convinced that the effort is worth while.

Practitioners of the homœopathic school, we owe it to homœopathy, to our patient, to ourselves, and to those who now are looking at us askance, to prove by our results, based upon the correct practice of homœopathy—that it is worth while.

LATE DR. HEM CHANDRA RAI CHAUDHURY.

With the deepest regret we have to record in our pages the death of Dr. Hem Chandra Rai Chaudhury. The sad event took place at 5 on the morning of Friday, the 15th January. Dr. Hem Chandra had been for some time in an enfeebled state of health. The severe form of ring worm which he had been suffering from disappeared about a year before his death, but immediately after this he had a sudden attack of hæmoptysis. This troubled him for a few days, and he was completely cured by the homœopathic treatment. Though he had no more recurrence

of hæmoptysis he never enjoyed good health since then. He was wasting away every day, and in the expectation of gaining little strength he went to Baidyanath Junction for a change about two months before his death. There he stayed for about three weeks without any benefit and he came back to Calcutta much more exhausted than before. It was suspected that he had been suffering from tubercular phthisis but the examination of the sputa did not reveal anything of that nature. The larynx was attacked and his voice became hoarse and ultimately the ulceration of the larynx troubled him so much that he felt great difficulty in swallowing.

Dr. Hem Chandra was the only son of Babu Bhubaneswar Rai Chaudhury and was born in Calcutta, on Wednesday the 24th of December 1851 (10th *Paus*, 1258, Bengali era) at the house of his maternal uncle. His father died in October 1853 when Hem Chandra was only a year and ten months old, and it is said that he died of hæmoptysis. The mother, Radharaman Dassi, who perhaps hardly had seen her husband's house since her marriage, now being a widow, remained in her father's house with her only son. Both the child and the mother were taken care of by Babu Parbati Charan Syc, the father of the widow. It is a custom with us Hindus, that whenever a daughter becomes a widow, the parents, if they are alive, take a great deal of care of the widowed daughter and of her children if there are any. In Bengal, the maternal uncle's house is a source of enjoyment and pleasure to the children as their grand-parents love them most dotingly. Upon young Hem Chandra was centered the affection of the whole family and he was brought up with all care. The little boy, when he was about eight years old, had a severe accident. He fell from the terrace of an one-storeyed house and received a severe shock. Dr. Ram Naran Dass was called in and under his care the child recovered. That this shock had nothing to do with his illness is what we can not believe. Nothing is lost in nature, even the minutest shock is quite sufficient to upset the most delicate nervous system. From this

we do not mean that the root of his disease was this shock only, but that the shock had greatly debilitated some of the internal organs.

Hem Chandra got over this shock soon. His grand-parents were now anxious for his education and he was admitted in the Normal School where he studied up to the middle vernacular and then he had his education in the Hindu School from where he passed the Entrance Examination in 1869 and then entered the Medical College and obtained the diploma in due course of time, and in 1883 he came out as a Licenciate of Medicine and Surgery.

When he was in the Medical College he once suffered from a severe form of gout and rheumatic fever and the Old School treatment could not do him any good. Dr. Mahendra Lal Sircar was then sent for and he cured Hem Chandra by a single infinitesimal dose of a medicine. This cure had acted upon his mind and he became a follower of Dr. Sircar, long before he came out of the Medical College. He used to attend the clinique of Dr. Sircar in his out-door dispensary and received instructions from him. In fact he began to practice Homœopathy before he got out of the Medical College. He followed closely Dr. Sircar's method of treatment which was purely Hahnemannian.

The law of similars is immutable and a deeper study will greatly clear up the darkness and make the hazy vision perfectly clear. If we lose the spirit once we will always grope in the dark and the pure law will be out of our vision. Like his *guru*, Hem Chandra devoted his energy and attention to study and the library of Dr. Sircar was at his disposal and he made the best use of his leisure time by pouring over the masters of medicine. Very soon Hem Chandra became a favourite of Dr. Sircar, but this favouritism did not mean that he pushed him on in the profession. To push one into the profession is a thing which he never liked. A worshipper of knowledge he was all through his life, and a worshipper of knowledge was always a favourite with him. Hem Chandra did not care much for his

profession. He was always satisfied with whatever little he got. Like his *guru*, he had an abhorrence for those medical men who did the work of druggists and encroached upon their profession by selling medicines. Medical men, in the estimation of Dr. Sircar, were above all these men, and he thought it was beneath the dignity of a man of medicine to do the work of a druggist. To the last moment of his life, Dr. Hem Chandra followed this principle and be it said to his praise that the thirst for gain of money which is so strong in almost every man could not incline him a bit from this principle.

The Indian Association for the Cultivation of Science was established in 1876 and Dr. Sircar was the founder of it. Rev. Father E. Lafont and Dr. Sircar began to lecture here on scientific subjects and people were attracted from different places. Besides the Presidency and the Medical Colleges of Calcutta there was not a single Institution or Society where lessons in science were imparted. In order that science in all its departments may be studied by the Indians that this Science Association was started. The start was a modest one and now it has grown in importance and the beautiful laboratory is within the reach of every Indian whoever wishes to make any original research. Hem Chandra was attracted by the lectures of Dr. Sircar and Rev. Father E. Lafont while he was still in the Medical College. He became one of the assistants in the Science Association and assisted Dr. Sircar and Father Lafont in their lectures. This was a great opportunity for Hem Chandra to learn science under such distinguished savants. For about eleven years he served the Science Association, and in 1890 he had to leave it on account of ill health. After the death of Dr. Mahendra Lal Sircar, Dr. Hem Chandra was a joint editor with us of this Journal. He took a great deal of interest for this Journal and was an advocate of true Habnemannian homœopathy. In matters of truth, Dr. Hem Chandra was uncompromisable like his *guru*. He was always on the side of truth and no money or personal influence could induce him to change his views. In him we have lost a sincere

and earnest worker in the field of medicine. His informations were encyclopædic and his knowledge thorough.

Hem Chandra was married twice. By his first wife he had only one daughter who died long before the death of her father. Some years after the death of his first wife he again had to marry through the earnest solicitations of his mother and his grandfather. By his second wife he has got only one son who is now about twelve years of age and is living with his grand-mother and mother. Hem Chandra did not leave anything much for his mother, wife and the child, as we have told before he cared very little for his practice. "It was remarked by one," says the *Reis* and *Rayyet* "who understands men and manners, that there was benevolence in Dr. Chaudury's face. That benevolence was visible even in death. His Optimism never failed him." This statement is quite correct. He lived for others and "did his duty, unmindful of his own interest. If he had cared for wealth or fame, and not been so fastidiously scrupulous as he was, they could have been his and he could have died rich and better known outside his immediate sphere." Dr. Hem Chandra had a good ear in music and a taste for poetry and he had composed several poems in English and Bengali. His knowledge was diversified and he used to contribute to the *Reis* and *Rayyet* on various subjects—medical, social, religious, industrial and political. He was a true Positivist and optimism was his creed.

REVIEW.

Guia Homœopathico Brasileiro, II Para 1908 Organizado pelo Dr. Nilo Cairo. Publicacao da Revista Homœopathica do Parana—Anno I. Curitiba. Parana'—Brazil.

This is an excellent guide to homœopathy in Brazil. The English Homœopathic Directory should be after this model. This little book contains mines of information. It gives a short history of homœopathy in Brazil. It gives the names of homœopathic doctors and licenciates. It also gives the names of homœopathic associations with their directors and presidents. The homœopathic pharmacies and their attendant physicians are also given in this book. Then we have a list of homœopathic reviews, infirmaries, and dispensaries and also of homœopathic publications with the names of their authors. This is a really useful book and the beautiful photographs of known medical men have enhanced the importance of the book. It is indeed a pleasure to have often at one's elbow a book like this. We hope the Guide for 1909 has been published though we have not received a copy of it yet.

A Nursery Manual. The Care and Feeding of children in Health and Disease. By Reuel A. Benson M.D. Lecturer on Diseases of Children, New York Homœopathic Medical College, etc. 184 Pages, Cloth \$ 1.00. Postage 5 cents. Philadelphia, Boericke and Tafel, 1908.

We owe an apology to the Publishers for not being able to take up this work early. Messrs. Boericke and Tafel have been doing a great service to the profession by publishing such a book as the present one. Dr. Benson is an expert on the diseases of children and a book from his pen on the care and feeding of children in health and disease cannot but be a good one. The book is divided into three parts. The first part deals with the care of Infants, the second with their feeding and the last one with the care of children in illness. In India the children are entirely reared up by their mothers and we do not require any

trained nurse for the purpose. Our mothers should have a thorough training in this matter which is very important, but this training does not necessarily require any education in school but books of this nature which we have in our hand, when translated into our vernaculars, will be of great service.

Education is useful in every sense of the word especially education to rear up children. We gather experience of the past and thus grow wiser, so we cannot in any way underrate the experience of a medical man which is published in the shape of books or articles for the benefit of mankind. It is true that in days gone by when we were more inclined to the natural than to any artificial methods, health was almost our fellow mate, but now when at every step we are to lead an artificial life we must be careful, that we may not take false steps and thus lose health which is far more precious than anything in this world.

This excellent book does not leave any point which may be called important. The nursery has been carefully described and now-a-days as we are learning to take better care of our health in a city or a town which has not the advantage of a country or a village whose abundance of pure air is a natural heritage, we must not show our narrowness to make the nursery as much comfortable as possible, for the comfort and the health of the child depends upon his surroundings. The nursery instead of being a damp, dirty, ill-ventilated, dark room, should be dry, clean, well-ventilated and well-lighted room. This does not necessarily mean that there should be heavy draperies and unnecessary furniture. The idea of cleanliness reached such a perverted height in our country that in order that the rest of the house may be completely clean we neglected altogether the mother and the babe which should obtain the best of our attention. From the idea of cleanliness there came the bad practice of don't-touch-ism and this bad practice reached such a culminating point that even with all our education we have not yet been able to shake it off. The chapters on bathing, clothing, crying, airing and sleep have been well written and the child will grow

beautifully if all the instructions there given are followed closely.

The period of dentition is a very bad period with many children and the more we become anxious the more we make the case worse. Sometimes diarrhoea and high fever set in, but these will pass off in no time with milder forms of treatment. "Teething rings are useless and should be avoided, and the sensitive gums should never be touched, much less rubbed." The author has shown his wisdom here and experience shows that the operation is not only not useless but sometimes positively injurious.

The most important part in the rearing up of a child is the feeding and we can not help quoting the following from the author "under normal conditions, mother's milk furnishes the ideal nourishment for the baby. * * * * * However carefully we may study the question of artificial feeding, every one admits that breastfed infants have a distinct advantage over those artificially fed. It seems incredible that any mother should be unwilling to make even a great sacrifice when the future health of her offspring is at stake. Mothers are too apt to think that substitute feeding is as good as maternal feeding, and that the only considerations are those of convenience. As a matter of fact, substitute feeding should never be resorted to unless maternal feeding is impossible." In India our mothers, who have not got the infection from west, do take particular care not to wean their children from their own breast and the consequence of this good practice is that ricket and osteomalachia are diseases almost unknown in our land.

Of course we do not mean that when there is hardly any milk in the breast or when the mother is diseased that she should rear up the child from her breast. We should then exercise our judgment and give the best prepared milk.

Under the heading "Articles Forbidden" we find the author to say that children under four years should not be allowed to take meat. Meat of any kind is not at all necessary for the healthy development of a child; and we may say.

from our experience that meat is not good even for the adults. We do not say this from any religious prejudice.

The advice that "the child's likes and dislikes should be consulted to a certain extent, but it should not be allowed to become dainty and wilful about food" is a sound one and it should be followed by every parent "even if the strongest discipline is necessary to accomplish this, it is well worth while, and it may prove the means of saving the child's life in later years."

The last part deals with the case of children in illness and every medical man should pay his best attention to understand the proper illness of a child before he is capable of telling his own symptoms. The author has given only a very few diseases, their symptoms and the short treatment, but a trained medical man should supplement this by his previous knowledge of the diseases and the *Materia Medica*.

The book should be read by every man, lay or medical, and the time and money spent on it will not be lost in vain.

EDITOR'S NOTES.

Harm of night work.

L. Carozzi and Gardenghi (II Policlinico, an. xiii, fasc. 24) report to the International Congress for Occupation Diseases (Milan, 1906), that experiments prove a reduction in hemoglobin and blood iron in those who are deprived of sunlight. Crisafulli adds that night workers are desocialized in losing their part in normal human affairs. Giglioli believes that daytime repose is less restful and recuperative. The Congress passed a resolution that no female; and no male under 18 years, ought to be allowed to engage in night occupations regularly. When necessity compels any man to work at night he ought to be under medical examination at intervals, and have frequent changes of schedule, and periods of vacation.—*Medical Times*, February, 1909.

Banti's Disease.

Arcangeli (II Policlinico, an. xiv, fasc. 22, p. 688), disbelieves in a "commonplace" etiology, and suggests that the spleen will prove the habitat of some specific micro-organism. He says that it may be classed with the micro-organism of infantile splenic anemia endemic to Forio d'Ischia (Pianese) or the Donovan bodies of Kala-azar in India. In one of two cases he reports, he established the existence of a pronounced leucopenia, namely of about 4,000 whites.—*Medical Times*, February, 1909.

Infantile Tuberculosis.

F. Valagussa (II Policlinico, an. xii, fasc. 22, p. 681) speaking before the Fifth Italian National Pediatric Congress, drew emphasis to the conflict of opinion in regard to heredity and to the danger of primary infection of the alimentary tract. He warns us to accept opinions not more readily because of the lustre of great names. The words of Jakobi: *Primum non nocere*—are to be heeded. How can we reconcile the view that infection of the digestive system is rare (Biederth, Freeman) and the view of the danger of milk infection (Behring). Virchow still insists that he has never seen a genuinely proven case of congenital tuberculosis. Valagussa believes that infection is most often contracted from tuberculous sputum.—*Medical Times*, February, 1909.

Pneumonia in Infancy.

The lobar type is rare in infancy, states R. G. Freeman (J. A. M. A., July 25, 1908), and the pneumonia should here be recognized independently of percussion or auscultation, such signs being valuable to corroborate the diagnosis and to locate the lesion. The clinical picture usually suffices for an accurate diagnosis. The symptoms are sudden onset, depression, rapid respiration (the ratio to pulse being 1 to 3), fever and usually cough. If with these are noticed flaring nostrils, pneumonic breathing and expiratory grunt, a definite diagnosis may be made, while rigidity of the neck and upper extremities without rigidity of the lower extremities is (if present) an important confirmatory sign.—*Medical Times*, February, 1909.

Malaria and Early Tuberculosis.

P. H. Ringer (Med. Rec., Oct. 3, 1908), makes an important differentiation. Clinically chills, with a definite and rapid rise of temperature, indicate malaria; in this disease fever drops by crisis, in tuberculosis by lysis; sweating is more profuse in malaria, malarial bronchitis is diffuse at the base, the tuberculous variety at the apex. Rough breathing at the apex indicates tuberculous involvement, probably discrete tubercles. Repeated laboratory findings are important. Even if all examinations are negative, a slight change in breath sounds at one apex, with fever and malaria, indicates tuberculosis. Quinine will cure malaria; it will have no effect on tuberculosis.—*Medical Times*, February, 1909.

Some Pathogenic Bacteria.

The *Staphylococcus albus* is one of the most important organisms in peritoneal infections. It has been found frequently in the blood-clot in intraperitoneal hæmorrhage, and also in the peritoneal cavity in various acute infections. A staphylococcus has been shown to frequently occur in malignant growths, and has been described as the *Micrococcus neoformans*, but it appears to be merely the *Staphylococcus epidermidis albus*. Furunculosis is due to the *Staphylococcus pyogenes aureus*, and is, therefore, an example of auto-infection. Dr. Dudgeon thinks that acute osteomyelitis is due to auto-infection with the same organism. The *pneumococcus* is found in the saliva in 18 per cent. of normal individuals. It

is also commonly found in the normal nose, and can often be cultivated from the tonsilar crypts. Diphtheria bacilli are often found in the throats of persons who have come in contact with diphtheria patients, but show no signs of the disease. The *Bacillus proteus* is found most commonly in the urine and intestinal tract, and may be a cause of bacilluria. This group of organisms persists in the urine for indefinite periods, and gives rise to attacks of so-called alkaline cystitis. In some cases, too, of chronic middle ear disease, the discharge contains this bacillus in pure culture. The *Bacillus coli* is a normal inhabitant of the intestinal tract. It is also the most constant organism met with in peritonitis, especially in the commonest variety—that due to appendicitis. It is also, at times, a cause of bacilluria, *e.g.*—during the course of typhoid fever.—The *British Homœopathic Review*, March, 1909.

Influenza and typhoid Fever.

In the later convalescent period of certain cases of influenza and typhoid fever, says Dr. Beverly Robinson (*Jour. Med. Sc.*, Dec., 1908), particularly when the heart remains weak and slightly dilated, I am confident that the Nauheim treatment, wisely given by experts, is often of unquestionable and great value.

In a suggestive and eminently practical paper, Dr. W. Parker Wooster directs attention lately to the great value of affusions and other methods of using hydrotherapy in the convalescent period from any disease, “when death seems imminent from heart failure and when free stimulation with drugs had been made.” More or less infectually affusions increase arterial tension and restore resistance in vessels when the heart requires them urgently.

In instances of sudden heart failure occurring during the early convalescence of acute infectious disease, suprarenalin or adrenalin by the mouth in tablet triturates, each containing 1-20 grain, or preferably in hypodermic solution of 1 to 1,000, is unquestionably very useful, as has been frequently observed. Personally, however, I have learned to place great reliance upon tincture of strophanthus by mouth and hypodermically, and I do not feel like abandoning it at present for the newer drug, until I am satisfied it is more advantageous under like circumstances; in view of the fact that strophanthus acts almost wholly as a very rapid and efficient heart stimulant, whereas adrenalin acts almost as much in contracting small peripheral blood vessels and thus raising vascular tone as it

does in giving power to the heart itself. This double action, it seems to me, might be prejudicial instead of beneficial in those cases in which there is no vasomotor paralysis and which do not require the heart to be stimulated by increased functional vascular power.—*Medical Times*, February, 1909.

The Earliest Man.

This elusive individual seems in a fair way of being unearthed at last. A specimen of him, we learn, was recently dug up in Southwest France. This citizen was of the stunted, low-brand type, with prognathous jaws, broad shoulders, crooked thighs, slightly bent knees and of a semi-erect posture; skeletons of one or two of his brethren were also discovered in the "glacial deposits" of Belgium. It is calculated that these gentry prospered a matter of 150,000 years ago; they must have been a hardy race, slaying as they did, by means of their stone weapons, such uncomfortable neighbors as the hairy mammoth and the Irish elk. It would seem that Prof. Kemp of Columbia has not been speaking quite by the card in seeking among these skeletons evidences of the "missing link" between man and the simian form of protoplasm from which he developed. There is indeed no missing link—no midpoint of development between man and ape; science has definitely given up that notion, if it ever really entertained it. Both man and ape have been developed from an ancestor much lower than man and lower than the ape in the evolutionary scale. It is now the prevailing belief that from this non-simian ancestor there sprang a divergent type that eventually became man.

The Gallic specimen here mentioned has been pronounced by French savants to be akin to the Neanderthal skeleton, which was discovered shortly before Darwin published his "Origin of Species." It is of interest to note the opinion of Prof. Wm. Z. Ripley that a reversion to this Neanderthal type may come about sporadically from the mixture of races which is now going on so successfully in these United States; indeed it is his view that from this mixture (which he considers abnormal) there may be a reversion to an even much more ancient type—that of the ancestors from whom the differently colored races sprang. This is not an agreeable prospect, certainly; those who oppose indiscriminate immigration within our boundaries should find in it a powerful argument; nevertheless, as this condition of things is not likely to eventuate for some 150,000

years to come there would seem little occasion for us of this generation to worry unduly over it.

We learn further in considering this interesting but unimportant subject, that, not to be distanced in these matters by Southwest France, Prof. Wright recently discovered in the glacial deposits of Medina County, Ohio, a rough flint instrument evidently shaped by human hands; it must somehow have got there in the ice invasions of two thousand or so centuries ago. Dr. Ales Hrdlicka, of the National Museum, has moreover examined fourteen skeletons or parts of skeletons which at various times have been supposed to be of established American antiquity. He concludes (not quite in accord with Wright) that the "Quebec skeleton" was dug out of the solid schist rock on which the citadel stands; but that this rock was formed before human life could have been supported. The "Natchez plevic bone" was found with bones of the mastodon and other extinct animals; but it may have fallen into the ravine among these early deposits. The famous fossilized Calaveras skull is similar to the skulls of a recent age taken from caves in the same part of California; and the "Trenton bones" are known to be the remains of Indians and early immigrants. The bones of the "loess" man discovered two years ago in the mounds of Nebraska offer "no insurmountable obstacle" to the assumption that all are comparatively recent. Most of these American skeletons resemble closely the bones of the modern Indian. The higher primates (gorillas and chimpanzees) which are considered to have differentiated from the ancestors of man are, or at least have not been found among us, but have existed only in Asia, Africa and Europe. Here should be a source of pride to the native American, that his primitive ancestry was indigenously human and not at all Simian.—*Medical Times*, February, 1909.

The Nipple as a Landmark.

Students frequently require to be warned against taking the nipple as an accurate landmark when examining the male chest. The uncertainty of its position in the healthy subject is well known, but has recently been definitely investigated by a Russian surgeon who contributes a paper on the subject to a military journal, an abstract of which appears in *La Semaine Medicale* of March 3rd. Dr. Gorski's observations were made on 300 young soldiers in good health without any trace of rickets and all the same age—viz., 21

years. In 216 cases out of the 300 the two nipples were anatomically in the same position—that is to say, in 52 cases they were both situated on the fourth rib, in 92 on the fourth intercostal space, in 70 on the fifth rib, and in two on the fifth intercostal space, but in only eight of these 216 were the nipples actually at the same level, the right being the higher in 18 and the lower in 190 cases. In the 84 cases where the nipples were not anatomically in the same situation, the right was apparently lower than the left in 20 cases and higher in the remaining 64. In only four of the 84 was the actual level the same, so that out of the whole 300 soldiers the actual height of the nipples differed in all but 12, the difference varying from 2 to 12 millimetres, the left being usually the higher. Again, there was usually a difference in the distance of the two nipples from the middle line of the sternum, the right one being the farther off in more than two-thirds of the cases; this difference varied from 1 to 13 millimetres. All these measurements of course, tend to show that, generally speaking, the right side of the thorax is more developed than the left and quite agree with the observations of M. Subrazes and M. Lafforgue recorded in *La Semaine Médicale*, 1907,* p. 431, which showed that in right-handed men the distance from the umbilicus to the left nipple is slightly greater than to the right, this difference being more marked in persons engaged in severe manual labour and being probably due to the displacement of the nipple downwards by the increased projection of the pectoral muscles.—The *Lancet*, March 13, 1909.

Rheumatism as a Cause of Appendicitis.

The article of Dr. Beverly Robinson on this subject in the *Medical Record*, Sept. 14, 1895, page 373-374, is confirmed by Dr. Eustace Smith, in the *British Journal* of Nov. 28, 1908, concluding as follows; "I have seen not one or two, but many cases of appendicitis, in which the question of operation was being considered, which underwent such rapid improvement under anti-rheumatic treatment, that all idea of surgical interference was quickly set aside. If the treatment fail—that is, if no improvement be noticed within thirty-six hours of taking the first dose of the salicylate (which should be of substantial quantity and given every three hours)—the assumption of a rheumatic origin for the inflammation may be definitely ignored."—*Medical Times*, February, 1909.

Tuberculous Milk.

The Royal Commission on Tuberculosis have, in their third interim report, decided the vexed question as to the purity of the milk from cows that are tuberculous, but whose udders are healthy. They found that the milk of cows which no tuberculosis of the udder, but with plain clinical symptoms of tuberculosis, such as cough and emaciation, contained tubercle bacilli whether the milk was obtained by ordinary milking or was withdrawn from the teat by means of a sterilized catheter. They consider such milk dangerous for human beings.

They also examined the fæces of tuberculous cows, and found tubercle bacilli to be present in them in every case, and, where the disease was at all marked, to be very abundant and virulent. They conclude that tuberculous cows should be excluded from the shed in which healthy cows are milked, as some of the tubercle bacilli which escape from their bodies in the excrement are almost certain to find their way into the milk.—The *British Homœopathic Review*, March, 1909.

Sir F. Treves on Radium.

Great public interest has naturally been excited by Sir Frederick Treves' lecture on "Radium in Surgery," delivered at the London Hospital on January 26, through its having been freely reported in the daily papers. It is natural that the mysterious, and yet little understood, properties of this substance should excite curiosity and wonder; and, as usual, it is popularly expected to prove a patent heal-all for cancer and other maladies. Nevertheless, Sir Frederick Treves spoke with studied caution and reserve, and the popular Press will find little to support their too sanguine hopes from his words. Although British scientists are well in the front with notable discoveries, in the practical application of these we lag far behind other nations. So in the case of radium, after its discovery by Curie, Sir William Ramsay investigated its properties sufficiently to indicate its possibilities for experimental test in the body. But nothing has been done until now to develop these possibilities in England, except by a few private persons on a small scale. However, in Paris for some years there has been an Institute established for the public treatment of suitable cases by radium. It was chiefly from this Institute that Sir Frederick Treves obtained the valuable evidence of its efficacy in various diseases, which he described at the London Hospital.—The *British Homœopathic Review*, March, 1909.

Perforation After Gastric Ulcer.

Morton (Bristol Medico-Chir. Jour., Sept., 1908), has operated on ten cases with three recoveries. After the sudden violent onset there is often a latent period which may be deceiving. In two of these cases appendicitis was diagnosed. (Morton reminds us that in 19 out of 51 cases of duodenal perforative ulcer collected by Moynihan a diagnosis of appendicitis was made. The latter surgeon attaches most importance to rigidity of the abdominal wall, though in one case, in which there was general peritonitis, there was neither rigidity nor tenderness the patient being profoundly collapsed). Sharp abdominal pain, vomiting, distention and collapse may occur at the beginning of menstruation and may closely simulate perforating gastric ulcer. The pelvis should be examined in all cases if not by a separate opening, at any rate by inserting into it a sponge on a holder. If fluid is found suprapubic drainage should be practiced. The right kidney pouch and left loin can both be drained by long split tubes with gauze wicks from the anterior abdominal wound; but in some cases of very extensive infection of one or other loin a counter-opening may be advisable. Drainage is practiced in every case; all of Morton's cases were anterior perforations.—*Medical Times*, February, 1909,

An Experience with Variolinum.

BY DR. B. L. GORDON.

On March 31st a lady came to my office and said her daughter, ten years old, was sick but she did not know what the trouble was. She described a condition that made me suspicious of small-pox, and she said they had been to town about a week before, and there were several cases in town.

I found a true case of small-pox in mild form; it had been broken out for twenty-four hours. The lady said she did not want to be vaccinated, nor did she want to have the other two children vaccinated. I told her she did not have to be, I could protect her just as well without. I had put a dram vial filled with sugar disks, saturated or rather moistened with variolinum 30 in my pocket. I told the mother to take two at a dose every three hours for four doses, and give one to each of the children same way. The daughter that was broken out when I saw her developed only a few more

pocks and then they began to dry up. She and her little sister, some three years younger, and a little brother younger still had been sleeping together, they had also showed a few pocks in the usual time, but it was very mild; none of them were confined to bed. The mother did not take it. The father had been vaccinated and did not take it.—The *Medical Advance*, March 1909.

Our debt to the vegetable world.

The modern chemist points proudly to his synthetic triumphs, but with all his skill and knowledge he has not yet succeeded in preparing in practical quantities for his fellow men a food-stuff from its elements. The synthetic processes of the plant are so far inimitable, and the plant is after all both the direct and indirect food of the animal. The relations between plants and animals form a beautiful dispensation and for the vegetable kingdom man should hold a deep reverence and do his best to extend and promote its faithful offices. Whether his views are in favour of the exclusive diet of vegetable or of a diet containing both animal and vegetable products he owes the vegetable world more than one debt. He is at the mercy of the vegetable for his food, whether it be animal or vegetable, and he may be at the mercy of the vegetable for a supply of oxygen, without which the vital processes of his organism could not be sustained. It is thus conceivable that as the animal kingdom exists only by virtue of a continual combustion process, in which air is taken up while carbon dioxide is liberated, the loss of an agency which not only removes this product of respiration but sends back oxygen in its place would be disastrous. This agency is of course the plant, and in short, the animal and the plant are interdependent on each other. On this line of reasoning animal life would be extinguished if vegetable life ceased and vegetable life would fail if animal products were not available for its sustenance. This is an interesting cycle of events, but the performance of a cycle implies a force and the motive power of these alternate and great synthetical and analytical processes is light. It may happen, therefore, that a horrible struggle for existence between plants and animals might ensue if for any considerable period the sun was shut out from the world, for then this agreeable interchange of mutually advantageous exhalation would cease and with it all life. Were those who worshipped the sun ignorant of these things; or did they realise that it was the source of both food and air? The *Lancet*, February 27, 1909.

International Vital Statistics.

In the course of the week before last there were asked in the House of Commons certain questions which, had they been differently worded, might have led to the diffusion of useful information respecting the incidence of mortality in various parts of Europe. Mr Lyulph Stanley asked the Under Secretary of State for Foreign Affairs whether he could state the death-rate per 1000 in England and Wales, France, and Germany respectively, and also the respective rates in London, Berlin, and Paris. He further asked for the percentage of infants dying within a year of their birth in the above-mentioned countries and cities. Mr. McKinnon Wood stated in reply that in the year 1907 the death-rates for England, France, and Germany were 15·0, 20·2, and 18·9 per 1000 living, and those for London, Paris, and Berlin 14·6, 18·5, and 15·4 respectively. Infantile mortality was stated as 11·8 per cent. for England, 14·3 for France (in 1906), and 17·6 for the German Empire. In Berlin infantile mortality was highest, viz., 16·3 per cent., and lowest, 10·5 per cent., in Paris, against a rate of 11·6 per cent. in London. Presumably these figures were supplied on the authority of the Registrar-General, although no acknowledgment to that effect appears in Mr. McKinnon Wood's statement. But any one who has perused the Registrar-General's Annual Summary for 1907 will be cautious against placing implicit reliance on the figures thus furnished to the House of Commons. Referring to the document above mentioned, we note that readers are warned against comparing the death-rate of one city with that of another on the basis of the crude death-rates there given, because these rates are necessarily uncorrected for differences of age and sex in the several populations for want of the necessary particulars as to the ages of the living and the dying. A further important fact may be learnt from the summary, although this was not communicated to the House of Commons—namely, that whereas in the last quarter of a century the death-rate of Paris has decreased by 26 per cent., and that of Berlin by as much as 36 per cent., the decrease has not exceeded 21 per cent. in the English metropolis.—The *Lancet*, March 27, 1909.

CLINICAL RECORD.

Foreign.

CHILD-BED FEVER AND ITS TREATMENT.

By R. DEL MAS, Ph.D., M.D.

If the patient complains of burning of the feet, with a "general" sensation of hot flashes running intermittently throughout the whole body, associated with an empty feeling in the stomach, and the night aggravations, with exhaustion, *sulphur* is the remedy.

If the case is aggravated from 4 to 8 p. m. and from warmth, and we find that one rigor rapidly follows the other and can see no end to it, *lycopodium* is the remedy, whether the right side is worse or better than the left one; whether red sand is in the urine or not; whether there is emaciation from above downward or not; whether the first few mouthfuls fill the stomach or not; whether the splenic flexure rumbles, rumbles down or not.

Should the temperature and the pulse not bear a strict relationship to each other (*lilium tigrinum*), and we find, throughout, quiverings intermingled with chilliness, *pyrogen* will take hold of the case in a very short time. This remedy has all the characteristics of *arsenicum*, minus the amelioration from warmth; still, with the hot sweats, if you raise the covers, your patient will feel like *rhus*, *silicea*, *eupat. perf.*, *eupatorium pur.*, *hepar* and *nux vomica*. It has the *aching and bruised feeling or soreness in the bones of eupatorium perfol.* Like *lachesis*, it has an unnatural desire to talk, but hilarity and not despondency is one of its mental marks. It has the restlessness of *rhus tox.*, the soreness of flesh of *arnica* and the great sensitiveness, exquisite delight and happiness of *coffea cruda*.

Pyrogen is potentized septic pus and should never be used empirically. Like tuberculin, nosodes and ophidian venoma, it is no remedy to play with by repeated doses; use it high, in single doses, and wait. Use it *only* when *indicated*; a patient has a right to his life.

The woman may be aggravated from jar, motion and the slightest touch (*belladonna*); she may be jaundiced, exhausted, with hot flashes (*sulphur*), or cold sweat, purple appearance (*carbo veg*); swelling of face, milk leg, phlebitis, mottled skin; she passed dark clots of blood that keeps on flowing with no coagulation, and it smells putrid (*secale*). Blood that is bright red, thin, liquid or

clotted, calls for *sabina*. The abdomen is greatly distended; the exhaustion and offensiveness extreme; sliding down in bed (muriatic acid and phosphoric acid); coma, loquacity, in the delirium but in a *clumsy, passive* manner. Lachesis is wildly excited; pyrogen is pleasurably excited; belladonna is cheerful: cantharis, lachesis, phosphorus and stramonium are erotic; bryonia is busily engaged; hyoscyamus is also quite loquacious, but quiet and you can hardly make out what she says.)

In this case just described bryonia would not cope with the low, zymotic condition; *crotalus horridus* should be given, for it alone, in our materia medica, has this continuous oozing of dark, liquid, fetid blood, with the besotted countenance, the trembling of every muscle when aroused, the difficulty to protrude the tongue, which is *tremulous*, large, swollen, *clean, smooth as if varnished*, fiery red (phosphorus and pyrogen) inability to articulate. How could she, with *prostration nearly complete* and a *trembling, quivering tongue*? When the body is purple, covered with a cold sweat, subject to remittent or intermittent chill, and the face red during the chill, with thirst at no other time (ignatia), *ferrum* is the remedy. If we find a tearful patient, trembling with fear (*crotalus horridus*), with prostration, excitement, and restlessness, one side of the body hot or sweating and the other side cold, *pulsatilla* is all she needs.

Take, for instance, a pallid, cold face, covered with sweat, with lips pinched, puckered, blue and nose pointed and drawn in, whose tongue, when protruded, is cold and pale, whose breath is cold, whose legs are cold to the knees, and who still wants to be fanned constantly, and within a short range from her (lachesis and china at a long distance from them), her abdomen tympanitic and flatulent; flatus is putrid, incarcerated, rumbling; diarrhoea is offensive, thin, dark, bloody, burning; the genitals ooze a continuous flow of dark, thin, putrid, burning blood; the patient is benumbed, lies motionless and prostrated, does not realize her condition, sleeps into an aggravation (lachesis) venous stasis of the brain and capillaries of the body, giving the skin a blue, purple, cadaveric aspect. You take this physiognomy, and tell me if it is not *carbo veg.*?

Should we find despondency instead of hilarity (pyrogen), with a wild loquacity, the sleeping into an aggravation, intolerance of clothing or the slightest touch on a tympanitic abdomen, labor-like pains extending from left to right, *lachesis* should be considered. And here we find the *puffed purple face*, not the besotted (baptisia)

appearance of crotalus horridus, with coma, and temperature oftentimes subnormal.

On studying crotalus horridus, one readily sees that its aggravation from touch and motion borders on bryonia; in fact it borders on many remedies; but this does not give us the totality of the symptoms, and the time has come when we should not prescribe on key-notes and failures go hand in hand.

If we find in our ranks so many men with "a good dose of allopathy in their heads"—although they never studied allopathy—it is because they never understood our principles of practice; and, having laid them aside, failed; they therefore attributed their failures, not to their incompetency, but to the law of similia, as if they were wiser than the law itself!

On observation and discrimination depends also the easy differentiation of pyrogen from arnica, arsenicum, baptisia, carbo veg., crotalus horridus, eupatorium perfol., lachesis and rhus tox., if the general symptoms of each and every remedy be kept in mind.

We might have a patient complaining of burning of the hands, with hot flashes extending from there all over the body, even to the bloated face; general fidgetiness, restlessness, nervousness, or apathy, prostration, stupor, trembling; the fever is continuous; the aggravation at twilight; amelioration after sleep (the opposite of the ophidians); she may expose herself (hyoscyamus); have petechia, a feeling of intense heat running up the back, or localized between the shoulders (lycopodium), and violent, loquacious or low muttering delirium or not; lips are parched, dry, cracked (bryonia, natrum muriaticum), dark brown, bleeding; her teeth are covered with sordes (baptisia, rhus tox.), her tongue is swollen, dry, chalky-white (milk-white is antimonium crudum); yellow (kali bicromicum); but it is generally *red, smooth like a marble table*, with no engorgement of the papillæ (the reverse does not contraindicate the remedy); and *this* tongue accompanies a *craving for ice-cold drinks* (bryonia, natrum muriaticum), *that relieve immediately, and are vomited as soon as they become warm in the stomach*; an unquenchable thirst (arsenicum sips water down and often). I am sure you know this case is called *phosphorus*.

When the suppressed lochia seem to account (?) for the child-bed fever, sulphur is generally the remedy that covers the case; and next in importance comes lycopodium. Colocynthis has suppressed lochia from manifested anger, with indignation; staphisagria from

suppressed anger; chamomilla from sudden and uncontrollable fits of anger, quarrel and dispute. (The undiplomatic chamomilla).

Aconite and opium have the lochia suppressed from fright; ignatia from grief; dulcamara from damp cold; cimicifuga from mental emotion, a sad story.

Platina has suppressed lochia associated with nymphomania, with voluptuous tingling in the pudendum, veratrum album with a disposition to kiss everybody that comes near her; pulsatilla and aurum with melancholy; stramonium with lascivious talk and singing, smell of goat over whole body, and wild visions and desire to escape; hyoscyamus with passive mania, sexual frenzy and shamelessness; cimicifuga with hysterical symptoms and general soreness; gloominess, sadness, and that kind of suspiciousness that makes her "refuse to take her medicine, because there is something wrong with it;" caulophyllum with a protracted and exhausted labor, false pains and a sense of internal tremulous weakness in a patient easily affected by rheumatism of the small joints; secale, with great coldness to touch of the surface of the body, in a scrawny, dry, emaciated, dirty-gray faced, withered, wrinkled, purplish-bodied woman, when the circulation is slow, who complains of burning externally, more so internally, and wants to be uncovered in a cold room; chamomilla, with diarrhoea, colic, toothache, various pains, hysterical manifestations, snappishness, scolding, great sensitiveness to pain, refusing things asked for and offered, calling back the nurse sent into the next room; face red, on one side especially; frantic with pains, must move to drive them away; excessive uneasiness, agonized tossing about, cramping in the back and abdomen when child nurses (pulsatilla); better from heat (except teeth) because she is chilly.—The *Medical Advance*, February, 1909.

ARGENTUM NITRICUM.

BY DR. SPENCER.

Dyspepsia.—Mr. K., cotton waste merchant, æt. about 35 years, tall, slim, and of active disposition, had been some time under allopathic treatment for attacks of fainting with loss of consciousness, and was told they were a kind of fit. The attacks most usually occurred in the street whilst returning from dinner to his office. He had much flatulence with copious loud belchings and occasionally vomited food, <sweets, especially rice pudding, of which he was taking fairly large quantities in the way of dieting himself. R *Argent. nit.* 3 2h.

He was ordered to take less of rice pudding, and to have it made less rich by adding boiling water during the process of cooking.

The heart was normal except that its action was very much upset by the flatulent distension of his stomach. He never had a severe attack after commencing the medicine, and was gradually restored to health.

Duodenal Ulcer.—Miss M., weaver, æt. 38 years, tall, thin, phlegmatic, had been under an eminent local allopath for some months.

April 25, 1907.—She complained of pain in epigastrium < four hours after food, pain doubles her up, some vomiting, loud belchings of wind, heartburn, and distension causing her to loosen her corsets. On examination she was very tender to pressure in epigastrium. R *Argent nit.* 4 and *Coloc.* 1x alt. 3h.

April 29th.—Vomited sour fluid on 27th; pain and weight in right side and back lumbar region > vomiting. Less heartburn and flatulence. B.c. R *Argent. nit.* 4 and *Nux* 3x.

May 4th.—Better. No vomiting. Much urine after attacks of pain, and is high-coloured. No gravel. Sinking sensation > eating often. R *Argent. nit.* 4 and *Sepia* 6.

May 10th.—No sickness, but has had three attacks of wind. Less sinking and is gaining flesh. Repeat.

May 15th.—No nausea but vomited a little last evening soon after tea. Much done feeling due to the heat. Flatulence. R *Argent. nit.* 4 and *Ign.* 1x.

May 22nd.—>. No pain, and less wind. Has vomited. Repeat.

May 27th.—Vomits a little after food. No nausea or pain. R *Argent. nit.* and *Ipec.* 1x.

June 3rd.—Vomits a little yet. Repeat.

June 12th.—More wind. Aching in epigastrium < when tired. Dyspnea on walking, especially if she tries to hurry. R *Argent. nit.* 4 and *Cact.* 3x.

June 22nd.—Almost well. Repeat.

July 3rd.—All right. No pain or vomiting. Repeat.

May 8, 1908.—Goneness. Vomits food as soon as eaten, and pain when stomach is empty. R *Anac.* I and *Argent. nit.* 4.

October 14, 1908.—Neuralgia. Stomach has kept quite well.—*The Homœopathic World*: January 1, 1909.

A CASE OF ARGENTUM NITRICUM.

By DR. SAMUEL VAN DEN BERGHE.

I.

The first case is that of a boy of 7, having always enjoyed flourishing health up to the time in question. His only pathological antecedents were a mild attack of measles at the age of 4 and a rather severe attack of whooping-cough at 5.

In December, 1906, I was asked to see him. The boy had a complete loss of appetite and a diarrhoea without thirst characterised first and foremost by a soft stool immediately on rising. *Bryonia* in no wise altered the condition. Having learned that the boy was very sedulous, a model student, the first of his class, had always the fears of not satisfying his masters (a zeal very rare at that age), and that his departure for his class was often accompanied by tears, I thought of *Ignatia*, but the remedy had no effect. The condition was getting worse; the stools occurred not later than 5 or 6 a.m., compelling the boy to leave his bed; they were followed by a second stool before his departure for his class. *Sulphur* had no effect.

The situation got worse and worse. The stools became more frequent, and were mixed with bloody mucosities of epithelial debris, sometimes greenish, always urgent and accompanied by noisy flatus driven out with force. The boy had colic before the stools, and intense tenesmus during the stool, with relief afterwards. During two consecutive nights he had not time to leave his bed, the stools were so urgent on waking in the night. *Cham.* 30 prevented the return of these involuntary stools, but in no way modified their general character. They came on chiefly at night and in the morning, and in a general way during the day; at each time the boy had to do violence to himself to get over his natural timidity of which I have spoken above, and which always made him fear his insufficiency, when, on the contrary, he had no sort of effort to make to pass his fellow scholars.

Several months passed, during which the boy grew notably thinner.

He received in succession, and in this order, *Bryon.*, *Ign.*, *Sulph.*, *Ars.*, *Chi.*, *Oleander*, then *Carbo veg.*, when the involuntary stools at night occurred, *Cham.*, *Phos.*, *Calc. c.*, *Puls.*, *Merc. sol.* The strictest regimen was observed during the whole period of the treatment, the boy taking only milk, eggs, bread, meat, and sometimes a

little wine and water. The disease seemed to defy all efforts, and at length the parents began to be alarmed, fearing that their boy's malady was incurable. ▽

In the course of one of my visits a detail given by the mother, who was very careful to report to me all the details concerning her boy, happened to decide the lot of the patient. The boy had an extraordinary appetite for sweets before he became ill, but for the months of his illness he has had neither sugar nor sweets. This symptom was of the greatest importance to me, and I told the mother that very likely her observation would lead to her boy's cure.

At the beginning of May I ordered the boy twelve globules of *Argent. nit.* 6. The result surpassed all expectations; the stools took on a certain consistence from the first day; the boy slept peacefully without waking from the first night, and the next day, to the great satisfaction of us all, had a normally moulded stool intermingled with a few rare mucosities. The next day the stool was irreproachable, a thing which had not happened for close on six months. The remedy was continued for two or three days and then left off, the boy being apparently cured.

Ten days later the occurrence of one or two soft stools made us revert once more to a dose of *Argent. nit.* The effect was immediate; the cure was so far complete that the boy was able in the course of the summer and even soon after his cure to eat fruits without the least caution and without being in the slightest degree inconvenienced. †

This cure has held good for more than a year and a half without the least tendency to a recurrence.—The *Homœopathic World*, January 1, 1909.

Gleanings from Contemporary Literature.

THE LAW OF SIMILARITY EXCLUSIVE IN THERAPEUTIC SCIENCE.

BY EDWARD MAHONY, M.R.C.S., ENG., L.S.A., LOND.

Mr. President and Gentlemen,—There are, I believe, two mental processes which practically include the entire way in which the human mind can reach truth in all the various spheres of true science, and these two processes are the synthetic and the analytic. Correlative with these is geometric reasoning as given us by Euclid, and then, as you are aware, the motto of our profession is *Ars medica est tota in observationibus*.

Now, gentlemen, in considering the great law of similarity in its application in the therapeutic sphere we shall find that Hahnemann very distinctly applied to its elucidation synthesis, analysis, Euclidean reasoning and observation, and; as a result of most careful and laborious investigation and tremendous industry, having most gigantic capabilities—it has been said that for forty years he spent every third night in literary labour—he brought to light the glorious fact that the science of healing was a true science of correlated facts, in themselves as certain as any other scientific facts whatever, and facts of every-day use at the bedside, apart from all theories whatsoever. I desire to emphasize this at starting, because the remarkable character of his great discovery of the law of potentization, and the fact that at present there is no way of proving its virtue at all equal to the sensibility of the human frame, have led many to the idea that the law of potentization was a vagary of his later years, founded on no evidence whatever; whereas, he himself says of it, “the peculiar mode adopted for the preparation of homœopathic remedies enables us to develop the medicinal virtues of a drug into a series of degrees of potency, and by this means to adapt the remedial influence of the drug with great precision to the nature of the disease . . . Their medicinal properties exist in a latent state and may all be developed to a high degree by the peculiar mode of preparation prescribed by homœopathy . . . This discovery is due to homœopathy.” Thus you see he recognized dynamization as an integral part of the whole science of therapeutics.

Now for his combined observations and reasonings; first, you will understand that on account of the immensity of the subject, and the short time at my disposal, I can do little more than hint at his great propositions, and recommend to the earnest, thoughtful, and patient perusal of any who have not yet studied them, the first volume of the *Chronic Diseases* and the *Organon*, and also any works you may come across by Von Boenninghausen, whose works are pure gold, and the outcome of some forty years of diligent clinical observation. Reckoning on your kindly consideration on this point, I will now briefly state some main

facts and instructions. First, Hahnemann distinctly taught that disease is in its primary essence immaterial or dynamic proving this by the fact, among many others, that the most serious diseases, even ending in death, had their origin in something immaterial, *e.g.*, sudden and heavy sorrows, fright, superstitions, &c., &c., &c. This is, on the face of it, a most important point to be borne in mind in the consideration and treatment of all diseases, and explains why so constantly in the provings of medicines and their selection, when more than one seems indicated, the mental and moral symptoms take the first place in importance; also it throws light on the undoubted fact that the *Material* symptoms present, such as swellings, hardenings, softenings, disfigurements, eruptions, must all be regarded as outcomes of a disordered vitality in the background, and hence such a disease as pneumonia, *e. g.*, might in half a dozen cases, each having the general symptoms of crepitation, heat, thirst, dyspnoea, nevertheless each require a different medicine—because the subjective symptoms, such as restlessness or the reverse, direction and character of pain, &c., were different. Hahnemann states, to pass on that there are only three possible modes of cure: (1). By contraries; (2) by similarities; (3) by some other, commonly known as allopathic. He proves that (1) and (3) contraries and allopathic, are erroneous; (1) because it is necessarily followed by reaction aggravating the original trouble, of which fact both the profession and the public have numberless undoubted proofs, as opiates against pain, purgatives against constipation, diaphoretics against absence of perspiration, *quinine* in malaria, and so on. No. 3 is proved unsound because its energy is directed against one symptom only, consequently only to a small part of the whole, and then comes, after temporary amelioration, an increased aggravation, two sufficiently good reasons for rejecting this mode of treatment. Therefore, says Hahnemann, physicians should have inferred “that the true radical healing art must be found in the exact opposite of such an antipathic treatment of the symptoms of disease.” Hence, by the Euclidean reasoning of the *reductio ad absurdum* argument, we are reduced to the law of similarity as the only possible mode of cure. There are many other proofs given, such as that in cases where one disease of a *different kind* attacks a patient already diseased, the stronger of the two will run its course first, and when it has finished the weaker one will have its turn; whereas, if there be similarity in the two diseases the one will cure the other. As an instance of the first he quotes, “that the plague of the Levant, according to Lorry, does not break out where scurvy is prevalent, and persons suffering from eczema are not infected by it. Reckitis, Jenner alleges, prevents vaccination from taking effect. Those suffering from pulmonary consumption are not liable to be attacked by epidemic fevers of a not very violent character, according to von Hildenbrand.” Where, however, two diseases, differing, it is true, in kind (note this gentlemen), but very similar in their phenomena and effects, and in the sufferings

and symptoms they severally produce, invariably annihilate one another whenever they meet together in the organism, the stronger disease namely annihilates the weaker by reason of its similarity of action involves precisely the same parts of the organism that were previously affected by the weaker morbid irritation. He instances small-pox which so often causing violent ophthalmia has been known to cure chronic ophthalmia permanently; other illustrations follow. It is to be noted in passing, that he takes all his proofs either from what occurs in Nature without intrusion from man, or from the classical writings of the orthodox school, a sufficiently convincing proof that he was conscious of the firmness of the ground on which he stood, *i.e.*, Nature and the evidence of the opposition, however unconscious they may have been; and it may be added that he is careful to give credit where credit is due to others, from Hippocrates downwards, referring favourably to Stahl, Halle, Huxham, Rau, and others; a further proof of the *mens sibi conscia recti*—he could afford to be generous. A short quotation here from each edition of the *Organon* will further give a glimpse into Hahnemann's own mind, progressively. In the preface of the first edition, he says: "According to the testimony of all ages no occupation is more unanimously declared to be a conjectural art than medicine, consequently none has less right to refuse a searching enquiry as to whether it is well founded than it, on which man's health, his most precious possession on earth, depends. . . . I am the only one in recent times who has subjected it to a serious honest investigation, and has communicated to the world the results of his convictions in writings published, some with, some without, my name. In this investigation I found the way to the truth, but I had to tread it alone, very far from the common highway of medical routine. The farther I advanced from truth, to truth, the more my conclusion (none of which I accepted unless confirmed by experience) led me away from the old edifice which, being built up of opinions, was only maintained by opinions. The results of my convictions are set forth in this book . . . I must warn the reader that indolence, love of ease and obstinacy, preclude effective service at the altar of truth, and only freedom from prejudice and untiring zeal qualify for the most sacred of all human occupation—the practice of the true system of medicine."

Then in the second edition: Physicians are my brethren. I have nothing against them personally. The medical art is my subject. The true healing art is in its nature a pure science of experience, and can and must rest on clear facts and on the sensible phenomena pertaining to their sphere of action, for all the subjects it has to deal with are clearly and satisfactorily cognizable by the senses through experience. . . . Unaided reason can know nothing of itself (*à priori*), can evolve *out of itself alone* no conception of the nature of things, of cause and effect; *everyone* of its conclusions about the actual must *always* be based on sensible perceptions, facts and experiences, if it would elicit the truth. . . . In

the pure *science of experience*, in physics, chemistry and medicine, merely speculative reason can consequently have no voice ; then, *when it acts alone*, it degenerates into empty speculation and phantasy, and produces only hazardous hypotheses, which in millions of instances are, and by their very nature must be, self-deception and falsehood." He ends the preface here with saying, "It remains to be seen if, by my conscientious labours, in this way the true healing art has been found." This was written from Leipzig, end of the year 1818.

Then in the third edition : "In the five years since the publication of the second edition, the truth of the homœopathic healing art has found so much acceptance from physicians, far and near, that it can no longer be obscured, still less extinguished, by abusive writings, of which however, there is no lack. . . . In this third edition I have not refrained from making any alterations and emendations suggested by increased knowledge and necessitated by further experience." Köthen, Easter, 1824.

Further edition : "What has hitherto been termed 'healing art' was a mere (imperfect) imitation of those unhelpful, useless, not infrequently injurious efforts and operations of the instinctive, unreasoning vital force (misnamed Nature) when left to itself in disease. It will, I think, be conceded that before me the true healing art was not discovered. But that homœopathy is this healing art, which had hitherto been sought for in vain, its fundamental principles teach, its performances prove." Köthen, January, 1829.

Fifth edition. Here he insists on the fact "that the diseases of man are solely spirit-like (dynamic) derangements of the spirit-like power (the vital force) that animates the human body ; hence homœopathy employs for the cure ONLY those medicines whose effects in altering and deranging (dynamically) the health it knows *accurately* and from these it selects one whose pathogenetic power (its medicinal disease) is capable of removing the natural disease in question by similarity (*similia similibus*), and this it administers in simple form but in rare and minute doses . . . an apparently easy but actually troublesome and difficult business." Köthen, March 28, 1833.

These short extracts convey to us a very distinct impression of the path of a pioneer : he "had to tread it alone," the result had been "convictions," the path itself being such as required "only freedom from prejudice and untiring zeal," the subjects "medical art," the thing itself "a pure science of experience," correlative to other sciences as "physics and chemistry," then after results had been announced there was the twofold encouragement of being in the truth, namely, "acceptance from physicians far and near" and "abusive writings of which there is no lack," then when he reaches the fourth edition he can, write "that homœopathy is this healing art, which had hitherto been sought for in vain, its fundamental principles teach, its performances prove."

Finally, he insists on the surely self-evident fact that the diseases of man being solely dynamic derangements of the vital force for their cure must be employed *only* those medicines whose dynamic effects are known accurately. It is plain that Hahnemann was certain he had reached the shore of the therapeutic sea, as Columbus was sure he had discovered the new Continent of which he was in search when first he described land after continuous sailing due west, or Sir Isaac Newton that he had discovered the great law of gravitation after duly pondering in his gigantic mind over so simple an every-day act as that of an apple falling from a tree; and the possession of the truth in each case would enable each pioneer to estimate at its true worth the opposition, whether that of dense ignorance or wilful blindness, and to discern also all *subtle* opposition of which there was, and still more now is abundance, craftily introducing homœopathic truths and practices by other names, of which more anon if time permit. Some notes that are appended to these prefaces are worthy of note also. First comes a quite sarcasm. "The experienced allopath delights to invent a fixed name, by preference a Greek one, for the malady, in order to make the patient believe that he has long known this disease as an old acquaintance, and hence is the fittest person to cure it," *apropos* of languages, touched upon in this remark. Hahnemann elsewhere calls attention to the learning of the ancient Arabian physicians, as also to the Hebrews in referring to certain statements as to leprosy in the Books of Moses, thus giving further proofs that he surveyed the whole scene of both history and languages, and was ready to cull whatever was of worth without minding names or prejudices whether moral, physical, historical, or scientific, truly possessing the open mind so much talked of in the present day. In another note he says: "Homœopathy sheds not a drop of blood, administers no emetics, laxatives, or diaphoretics, drives off no external affection by external means, prescribes no warm baths or medicated clysters, applies no Spanish flies or mustard plasters, no setons, no issues, excites no pyalism, burns not with moza or red-hot iron to the very bones, and so forth, but gives with its own preparations of simple uncompounded medicines, which it is accurately acquainted with, never subdues pain by opium, &c." Then in another note, after referring in the text to backward straying to the pernicious routine of the old school, *whose opposite it is as day to night*, please note this last remark: "Gentlemen," he says, "I am therefore sorry that I once gave the advice, savouring of allopathy, to apply to the back in psoric diseases a resinous plaster to cause itching, and to employ the finest electrical sparks in paralytic affections. For as both these appliances have seldom proved of service, and have furnished the mongrel homœopaths with an excuse for their allopathic transgressions, I am grieved I should ever have proposed them, and *I hereby solemnly retract them*, for this reason also, that since then, our homœopathic system has advanced so near to perfection that they are now no longer required."

This last note is an illustration of what runs through Hahnemann's writings, namely, the fact that he was learning for himself a new science, indeed two sciences, namely, the law of similarity and the law of potentization; and as was inevitable in such a path, he made mistakes as well as advanced in knowledge of his thesis, thus discovering errors both of omission and commission, which were as frankly owned as soon as he was aware of them. In one of his recorded cases where he gave, on account partly of the vigour of the patient, a full drop of tincture of *bryonia*, he adds that this is not to be taken as an example and followed indiscriminately. I desire to call attention distinctly to this trait in his writings, because there has come into view in the writings of many who avow adherence to homœopathy a tendency to lay hold of certain statements, such as this about *bryonia* being administered in tincture, and the recommendation of the thirtieth potency as the *ultima Thule* of potentization, as though Hahnemann had taught them as a part of the entire system. As to this matter of recommending the thirtieth, it simply occurred from the fact that cases were reported in the journals cured with very varying potencies, and Hahnemann, being written to, suggested that for forming a classical clinical repertory or similar volume of instruction, if all used one potency, say the thirtieth, the observations would be more useful for comparison and general instruction.

Some remarks from the introduction will further elucidate for us Hahnemann's frame of mind, and his reasons for insisting on exclusiveness in the sphere of both medicine and therapeutics, and the nature of diseases and their treatment, by the laws of similarity and potentization, and let us note that he contrasts both with the whole realm of the art and science of medicine.

Surgery, of course, stands on a different footing, as in itself it is the application of mechanical laws to conditions of injury, and no question of treating disease *per se*, however its claims may have been overstated in the present day. The partisans of the old school of medicine, says our author, cried incessantly "*Tolle causam*," but they only fancied that they could discover the cause of disease . . . for as far the greatest number of diseases are of dynamic origin and dynamic nature, their cause is, therefore, not perceptible to the senses, so they exerted themselves to imagine one, and from a survey of the parts of the normal inanimate human body (anatomy) compared with the visible changes of the same internal parts in persons who had died of diseases (pathological anatomy), as also from what they could deduce from a comparison of the phenomena and functions in healthy life (physiology), with their endless alterations in the innumerable morbid states (pathology, semeiotics), to draw conclusions relative to the invisible process whereby the changes which take place in the inward being of man in diseases are effected, a dim picture of the imagination which theoretical medicine regarded as its *prima causa morbi*,

and thus it was at one and the same time the *proximate cause of the disease* and the internal essence of the disease, *the disease itself*. Then there came, he says, with the more astute physicians of the old school, a search for what might be supposed to be the probable general *character* of the disease, whether it were spasm, or debility, or paralysis, or fever or inflammation, or induration, &c., &c. Pointing out the error of this, he writes how often has it happened that, for example, spasm or paralysis seemed to be in one part of the organism, while in another part inflammation was apparently present; hence, without the most minute individualization, homœopathy is not conceivable, or, on the other hand, whence are the certain remedies for each of these pretended general characters to be derived? Those that would certainly be of benefit could be none other than the *specific* medicines, that is, those whose action is homogeneous to the morbid irritation, whose employment, however, is denounced and forbidden by the old school as highly injurious, because observation has shown that in consequence of the receptivity for homogeneous irritation being so highly increased in diseases, such medicines, in the usual large doses, are dangerous to life. The old school never dreamt of smaller and of extremely small doses.

Then, in notes referring to the mistaken treatment by emetics and purgatives of sudden or other attacks of indigestion, he makes some remarks on the error of venesection, which I cannot but think every unprejudiced person must admit to be convincing; he says, any one who has felt the tranquil pulse of a man an hour before the occurrence of the rigor that always precedes an attack of pleurisy will not be able to restrain his amazement if told two hours later, after the hot stage has commenced, that the enormous plethora present urgently requires repeated venesections, and will naturally enquire by what magic power could the pounds of blood that must now be drawn off have been conjured into the blood-vessels of this man within these two hours, which but two hours previously he had felt beating in such a tranquil manner? Not a single drachm more of blood can now be circulating in those vessels than existed when he was in good health, not yet two hours ago. He then instances the mistake of local treatment, such as ligatures on polypi, eradication of indolent glandular swellings, encysted tumours, operations for aneurisms and fistulæ, drying up old running ulcers, cauterizing chancres, destroying condylomata locally, driving off itch by ointment, &c., &c., with the result of the reappearance of the disease *worse than the original malady*, because, as he further insists, diseases will not cease to be *dynamic derangements of our spirit-like vital principle in sensations and functions, that is to say, immaterial derangements of our state of health*. This is further proved, as he remarks by the fact that the least foreign material substance, however mild it may appear to us, if introduced into our blood-vessels, is promptly ejected by the vital force, as though it were a poison, or when this dose not happen death ensues. Life was endangered by injecting a little pure

water into a vein (quoted from "History of the Royal Society"). Hydrophobia has caused death even when the part bitten was immediately cut out.

He then deals with the doctrine of ferments and advances. Are not the foul, often disgusting, excretions which occur in diseases *always excretory products of the disease itself, that is, of the life which is only dynamically deranged and disordered?* The treatment of so-called worm disease by so-called anthelmintics he discusses vigorously in a long note, pointing out that the presence of worms is always dependent on a general taint of the constitution (psoric), joined to an unhealthy mode of living. Let the latter, he says, be improved, and the former cured homœopathically, and the children are cured and remain so. He also remarks that the morbid symptoms caused by worms are generally of such a kind that they are rapidly relieved homœopathically by the smallest dose of tincture of *male-fern root*, and then in time the antipsoric treatment finally cures the psoric condition, so that worms cannot reappear. This reminds us of the importance of recognizing the cures performed by the old school, while carefully relegating them to their true source, namely, homœopathy or the law of similars. Attention is next called to treatment by derivation or crises under the form of excretions, in imitation of self-aiding operations of Nature, to assist which counter-irritants were used, as wool to the skin, foot-baths, nauseants, fasting, &c., also metastases and abscesses, the result being that after apparent amelioration or removal a worse disease took its place. All this is gone into with great vim through several pages. He then contrasts with this the opposite, namely, that when Nature sets up evacuations and local symptoms these were sought to be suppressed by repercutients and repellents, opium by diarrhœa, vomitings by effervescent saline draughts, foetid perspiration of the feet by foot-baths, and astringent bleeding of the nose by plugging, and so on, almost *ad infinitum*, with corresponding melaucholy results. Another old school method is criticized, namely, the stimulating and strengthening, by excitantia, nervina tonica, confortantia, roborantia, properly speaking, enantiopathic. The great harm here was that reaction was correspondingly great, and he refers to this as being according to the *laws* (pray note the word *laws*) of all palliative action. Then come some strong remarks on the abuse, under this theory, of mercurials, *cinchona*, and above all *digitalis purpurea*, in chronic patients. Next he attacks the so-called indications, deficiency or excess of oxygen, nitrogen, carbon, or hydrogen in the fluids; exaltation or diminution of the irritability, sensibility and reproduction; derangements of the arterial, venous, and capillary system, asthenia, &c. In considering these strictures of Hahnemann we must not overlook his previously proved knowledge of scientific chemistry, as well as subjects cognate to the knowledge of medicine, such as anatomy and physiology. His work known as *The Lesser Writings* gives ample proof that he was in thought and practice

a medical officer of health, sanitary inspector, and understood well the care of the health in diet and general habits of life. Then come some stringent remarks on polypharmacy, and the terrible ignorance of the actions of medicines, even had they been given singly. Then follows the oft-repeated statement of his own discovery as a result of observation, reflection and experience, and of this *Omnino* patho, as he now terms it, he says, "Hitherto no one has ever *taught* this homœopathic mode of cure, no one has *carried it out in practice.*" Observe he does not say, had the thought of it—like all really great minds he is cautious in his statements and generous. "In all ages," he goes on to say, "the patients *who have been really, rapidly, permanently, and obviously cured by medicine,* and who did not merely recover by some fortuitous circumstance, or by the acute disease having run its allotted course, or by the powers of the system having in the course of time, gradually attained the preponderance under allopathic and antagonistic treatment—for being cured in a direct manner differs vastly from recovering in an indirect manner—such patients have been cured although without the knowledge of the physician by means of a homœopathic medicine which possessed the power of producing a similar morbid state. Even in *real* cures by means of mixtures of medicines—which were excessively rare—it will be found that the remedy whose action predominated was always of a homœopathic character." Many references follow illustrating the above facts and instancing cures discovered by the empirical practice of the common people, such as *arnica* for contusions, *mercury* for chancres, &c. ; and here we find how it was habitual to Hahnemann to ask why such and such a cure occurred, being certain with the insight of genius that there must be a scientific reason ; thus he inferred the properties of *natr. mur.* from the fact that salt was used habitually by the *plebs* for arresting local external hæmorrhage, *charcoal* for certain forms of dyspepsia, *lycopodium* for trichiasis, &c. ; in fact, he habitually thought, and did not cease thinking, on whatever subject thus was presented until he had proved to point by experiment. He proved an apt pupil to this own father, of whom it is narrated that once when in conversation with a friend he broke off the subject, saying, "Now it is time for me to go and give Samuel his thinking lesson."

A long note here follows on that Hahnemann calls Isopathy. Here it is only necessary to remark that in the *Organon* itself we read (p. 79, note, Dudgeon's edition): "A fourth mode of employing medicines in diseases has been attempted to be created by means of Isopathic, as it is called—that is to say, a method of curing a given disease by the same contagious principle that produces it. But even granting this could be done, which would certainly be a most valuable discovery, yet, after all, seeing that the virus is given to the patient highly potentized, and thereby, consequently, to a certain degree in an altered condition, the cure is effected by opposing a *simillimum* to a *simillimum.*" This little note informs us that

Hahnemann had anticipated mentally the modern use of attenuated viruses, of various kinds, and which are continually being exhibited to our mental observation as discoveries *de novo*, and nowhere is to be found, as far as I am aware, the least reference or hint to homœopathy as having through its discoveries introduced us to this new field of therapeutic victory. *En passant* I am reminded that the only reference made to Hahnemann by the professors of my student days was one by the then Professor of Chemistry who, when about to speak of *mercurious solubilis*, prefaced his remarks with the words: "A quack, named Hahnemann, discovered." In the clinical studies now being issued by Dr. Byrom Bramwell to the students in Edinburgh, reference is made in the October number of *Clinical Studies* to protection by attenuated virus. It is to this effect: that a syphilitic infant may infect the most healthy nurse and yet will not infect its own mother—the suggestion being that she has been protected *in utero* by the absorption from the fœtus of an attenuated virus or the product of an attenuated virus—this is called Colles' law. Sir Thomas Browne, author of "Religio Medici," in the *Homœopathic World* for December, 1908, is reported to have said that the virus of rabies may be mitigated by transmission from one animal to another. In point of fact, gentlemen, what is happening, and it is well that our eyes should be open to it, is that the law itself of similarity and its corollary of potentization are being re-discovered under other names, and are being gradually instilled under other names to the active brains of medical students. I conclude that Hahnemann has fairly proved himself to have brought to light one science, that of the law of similarity in the therapeutic sphere, and to have *discovered* another one, namely, that of potentization; and having had my attention continuously occupied in these directions now for close on forty years, I can declare with emphasis that all who oppose his teachings do so from ignorance or wilfulness. There are, of course degrees of apprehension, as we have seen in Hahnemann himself; the grandeur and vast extent of the objects gradually unfolded themselves before his penetrating and indomitable perseverance and energy, and if I were asked what is the key which will open every lock in this vast edifice, I would reply unhesitatingly, Perseverance; and how happy it is to persevere when you are certain that you are in the line of truth.—The *British Homœopathic Review*, March 1909.

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THE MODERN HIPPOKRATES.

By A. JACOBI, M.D., LL.D.

Hippokrates lived approximately between 460 and 375 B. C. His biography was written nearly 500 years later by Soranus; he refers to Erastosthenes, who lived two centuries after Hippokrates, and cannot be proven to be absolutely correct. Of contemporaneous writers who mention him, we know Plato. From him we learn that he knew him, or knew of him, that he lived at his time, was born on the Island of Kos, belonged to the noble family of the Asklepiads, was a physician and a teacher who was paid for the instruction he conveyed and that he held a creditable position.

Many of the essays called hippocratic are not the writings of one man, of him whom we revere as the father of medicine. He and his pupils and followers learned from different sources. There was a previous lay medical literature, which was preceded, and followed by, or contemporaneous with, priestly medicine. Hippokrates studied the former and utilized the latter. He expressed the conviction that a large portion of medical knowledge consisted in the faculty of knowing and correctly judging of its literature. In the second book on prognosis he says literally: "Those who are quoted on account of the accuracy of their prognosis I have either conversed with personally, or I have consulted their writings." The medicine of the priests was by no means mere quackery. Their Epidaurus was a sanitarium in an idyllic country, with a Saratoga of sodū sulphas and chlorid, a bath and gymnasium and a large store of histories of cases, and epigrammatic sentences containing rules of diet and of healing, in addition to hypnosis and suggestion. Many of those epigrams

are met with in the Hippocratic aphorisms. On one of the Epidauric tablets is found the first description of the facies hippocratica of the collapsed or dying.

The physicians of those times were also philosophers. Plato, who had such a poor opinion of the practicing physicians—it is true most of them were slaves—that he declared their business as unworthy of a gentleman, pronounced the physician who was also a philosopher to be “divine.” And many of the philosophers of renown who studied alongside the human mind, of anatomy and physiology, mainly, it is true, or exclusively, of animals, paid their attention to medicine also, and constructed theories in the essence of life and of disease. In the writings of Hippocrates we meet the names of Empedokles, Melissus, and Democritus.

The latter is known to have made himself inconvenient to his fellow citizens of Abdera. They sent Herodikos to examine him for his mental condition. The psychiatrist asked him what he was employed with. “To study the stupidities of people.” Thereupon the doctor pronounced him to be the most sapient of them all.

The pathology of Hippocrates was humoral. A correct mixture of the juices (the blood representing warmth mucus; cold, yellow bile; the dry and black bile; the moist-corresponding with the four elements of the world, viz., fire, air, earth and water) yielded eukrasia, health, a lack, however, of balance between them dyskrasia, sickness. Many diseases were the result of mucus, which flowed down into the nose, the eyes, the lungs and the spine.

The anatomy of Hippocrates is very defective. Animals had been dissected before, the living human body was studied in the gymnasia. The brain was not the nerve centre, but a glandular body which secreted mucus. Still it was connected with the spinal cord. Nerves and tendons were not differentiated. The heart contained air, “pneuma,” the arteries also were filled with air. The pulse was not studied much before Praxagoras. That is why Hippocrates, whom Celsus calls the creator of surgery, never performed a bloody amputation and did not practice the ligation of blood-vessels. His amputations were confined to gangrenous limbs on the lines of demarcation. The uterus was bicornis; the males came from the right horn, the girls from the left. The testicles were not recognised as the producers of sperma. Ovaries were safe at those happy times, for nobody knew of their existence. The knowledge of bones and muscles was extensive. That is why fractures and luxations were treated correctly, operations for caries and sequestra and trephining were frequent, also for cancer, abscesses, wounds of the head and

others, fistulae and ulcerations. Many operations were performed on the eye in all cases that were accessible to observation. Kyphosis was often treated in methods similar to the modern ones of Calot. Amongst the bandages the mica Hippokratris is known to-day. Massage was used in clubfoot. Heruiotomy was not performed, but he practiced and taught the treatment of hernia, orchitis, parotiditis, the bladder, angina, noma, dropsy, paracentesis, the liver, ileus, epilepsy, intestinal worms such as tæmia and oxyuris. "Kynanche," the obstruction of the air passages, was treated by introducing tubules into the throat "so that air may be drawn into the lungs" (lib. VII. 130). Stone in the bladder had to be removed by specialists.

As anatomy and physiology were defective, etiology became mainly a matter of close and undisturbed observation. Too much food, too little food, meals at improper hours, the interruption of habits, and improper or indigestible food were frequent causes of illness. Loss of appetite was known to be due to the omission of meals, or irregular meal times. Heredity, climate, season, bad air and bad water gave rise to many disorders, to swelled spleens, and to dropsy. Vesical calculi are attributed to the latter; possibly their frequency was due, as in Egypt, to the turbid waters of Bilharzia embryos. Endemics were well known, epidemics ascribed to changes of season and bad air. Warm winds and cold winds were studied in men, women and children, for their influence in causing rheumatic pains, diarrhoea, hemorrhages, abortions, epilepsy, dyspnoea, pleurisy with empyema, epistaxis, and diseases of the eye. A final source of experience were the observations collected in the gymnasium. Plato reports the case of Herodikos, a teacher of gymnastics who succeeded in prolonging his life—he was feeble and sickly—by gymnastics. For his success he rebukes him, but admits that he reached an advanced age through his exercises. Hippocrates himself tells us that his own observations graduate the amount of physical exercise and of the food which is to be taken in appropriate correlation. No person who does not work remains in good health by mere eating. Limbs are strengthened by use, emaciated by inactivity. Untrained people get exhausted by exertions. A sudden transition from long rest to labor is not wholesome. The man who changes from hard and permanent work to rest and luxury, should diminish the demands on his stomach.

Prognosis.—"It seems to me best for the physician to acquire practice in the prediction of the termination of a disease, for when he knows before and predicts the present state of his patient, and the past, and the future, also such things as the patient omits in his report on his condition, people will have

firm confidence in him and in his superior knowledge and will entrust themselves to him."

Though the exact scientific method was wanting and special and local diagnosis were not what they are or should be to-day, Hippocrates teaches prognosis on the strength of what he learns through touch, sight and smell and hearing. Succession was well known to him, the urine was judged according to its gravity and by the amount of water taken in; empyema which had perforated the lung was favorable when the expectoration was uniform, not offensive, and not attended with fever; but permitted of an ominous prognosis only when offensive and accompanied with fever, or when the probe became discolored by pus. Phthisis gave a bad prognosis when the patient's hair fell out and the sputum smelled badly when thrown into the fire. The prognosis was bad in apoplexy, in uræmic convulsions, in the grinding of teeth with the exception of those who had exhibited it from early years, in the sudden changes of temper which made a formerly modest and manageable patient give snappish answers, in difficult deglutition attended with great restlessness and without swelling, in increased reflex irritability unless the patient were hysterical, in a slow pulse when attended with sopor; in what is known to-day as *facies hippocratica*. A good observation is also recorded in connection with a hoarse cough (like dog's barking). The prognosis is bad when the cough is dry, without expectoration, and without swelling. Lately, within the last 50 years, these symptoms, with which was combined the absence of elevated temperature have been recognized—though accepted slowly—as pathognomic for pseudomembranous laryngitis in its differentiation from the common form of laryngitis or a diphtheritic or coccic pharyngitis or rhinopharyngitis.

The prognosis was bad under the following circumstances: sordes on the teeth—perspiration in a feverish patient with no decrease of fever—excessive sleep or sleeplessness—good or ravenous appetite and much eating with rapid emaciation—cold hands and feet and head with a hot trunk—and fever in jaundice.

The science and knowledge of prognosis differ for the modern clinician from Hippocratic prognosis in the same degree as his nosology. Etiology and therapy change the prognosis of individual cases.* The duration of an illness, its curability, incurability, and fatality may entirely depend on the power of individual resistance, which is the result of age, previous health, complications, of nursing and medication. Nothing is more deceptive than the determination of a prognosis by the name of the disease. A few instances of what I mean may be

acceptable. To what extent pulmonary tuberculosis may be influenced by the management of either the incipient or the advanced stage, we all know. The cases complicated with a mitral insufficiency—which are rare after all—are favorable, those which are found together with pulmonary stenosis—yield a very bad prognosis. Those which run along with healthy abdominal organs, are promising. Urobilinuria, however, and oxaluria are grave symptoms. A pneumococcus meningitis affords a better prognosis than the tubercular form, or that which is complicated with a cerebral tumor or cysticercus.

A sudden fall or abrupt increase of arterial pressure is ominous. Sclerosis of the coronary artery may terminate suddenly, that of intestinal arteries may prove fatal by hemorrhage, also aortic aneurism, or syphilis of cerebral arteries which become suddenly fatal through hemorrhage in the medulla oblongata. With the fatality of blood diseases we are acquainted. But there is none of them in which the prognosis should be absolutely fatal. Leukæmia may get well, mainly that which depends on bothrycephalus, Hodgkin, more frequently than leucocythæmia, also pernicious anæmia though there be megaloblasts, diminution of leucocytes, and poikilocytosis. Infectious fevers permit a cautious prognosis only. Diphtheria, when nasal, is liable to be fatal unless frequently but carefully and gently irrigated, and its myocardial degeneration has often been the cause of sudden death at the hands of nurses who *will* take the struggling patients up for manipulations, or even without such ignorant criminality. The prognosis of a relapse in a typhoid fever is made by finding the spleen refusing to decrease about the 16th or 17th day. That of whooping cough is rendered doubtful by the neglect of treating it; those of us who cause broncho-pneumonia, or pulmonary or cerebral hemorrhage by our neglect of positive indications, should be punished for their sins of omission.

Sepsis from any source is serious. Streptococci in the blood are dangerous, but not so bad prognostically as staphylococci which give rise to pyæmia.

Thrombophlebitis at any part of the body, both externally and internally, permits of a cautious prognosis only. It requires absolute rest, even when on the lower extremity only, unless you want to run the risk of a pulmonary embolus, and the co-operation of an undertaker. A sudden falling off of the number of leucocytes in a serious illness means a dangerously low grade of blood forming.

Orthotic albuminuria may get well; non-traumatic acute and subacute, unilateral or bilateral nephritis, the former very rare if at all existing, even the tuberculous form, may allow a fair prog-

nosis in instances, and uræmic convulsions every one has seen to recover. Diabetes, though gangrenous, or pneumonia in diabetes, or diabetic coma, may get well, at least temporarily, in opposition to contradictory teaching. Pyelitis, which ten years ago was indentified with death, unless it originated in lithiasis, permits a very fair prognosis, mainly in the very young, and whenever it is bacillary, rather than streptococcic.

The prognosis of empyema depends mostly on its origin, the tuberculous form is extremely grave; but even that may recover.

The diagnosis of appendicitis should always be combined with a blood examination. A moderate leucocytosis, however, does not always require the operation; from 10,000 to 20,000 have often permitted a favorable prognosis. Extensive ulceration of the colon has lost its terrors since Weir utilized the appendix, which he and his many followers implanted in the abdominal wall these ten years for local irrigations. Lately the transatlantic cable and the American newspapers have in their ignorance or naivete eulogized the doings of an English physician who lately performs the same miracles. Dr. Weir will not mind it, he is only an American, and his method will become more appreciated when it returns to him from Europe. Meanwhile it will be Keetly's method; and Dr. Weir may be satisfied with the position taken by one of the very greatest Americans, perhaps the greatest, of all times, Alexander Hamilton. Him Frederick Scott Oliver credits with the realization of the principle that as long as a thing was done it mattered not who was credited with it. He was a statesman, not a politician.

The prognosis of this ulcerative colitis depends to a great extent on its cause; the amoebic is worse than the bacteric, but the prognosis is not absolutely bad in either; for therapy was not absolutely futile, even before Weir.

Be careful how you form your prognosis in cancer. Early operations heal many when they are, and as long as they are, accessible. Cancer of the stomach and scirrhus of the intestines may last years, and permit life saving or life prolonging operations. My observations of prolonging the lives of those inflicted with inoperable cancers—presented to the American Medical Association three years ago (*Journal A. M. A.*, Nov., 1906); have been repeated since.

The question of prognosis is not exhausted by the actual knowledge of the morbid process from which a patient is suffering. We have no dealing with a Greek name, but with an individual, whose power of resistance, external circumstances, means and nursing modify what appears to yield an inevitable prediction. That is why a prognosis should not hurriedly be pronounced fatal. Tuberculous meningitis is not always fatal.

Cerebro-spinal meningitis allows under the influence of our Flexner's serum of a better prognosis than two years ago without it.

There is both for prognosis and salvation no end of legitimate hope. The combination of exact nosology and inventive surgery has accomplished seemingly impossible results. Sixty years ago an American was held up to ridicule for his report on the incision of an accessible brain-abscess; to-day the apparently inaccessible, large or small tumor, or abscess, is diagnosed and removed, and the doomed patient is cured.

I have mentioned that staphylococcus in the blood, with pyæmia, is not always fatal. Streptococcus still less so. The well informed medical man should be cautious enough not to expose himself to grievous mistakes when asked for a prognosis, and the conscientious physician should be humane enough not to be led by his fears into a sentence of death. Such a mistake was made lately by a most experienced laboratory man. The result was the resort of the otherwise well informed and well meaning patient and his vast number of influential relatives and friends to the Christian Science crowd of New York which has enjoyed and utilized this occurrence, until the patient, after an apparent temporary improvement, lost his thinking and speaking powers. Then hundreds of people asserted that he passed his time, a whole week, not in dying, but in silent prayer. He died, but the injury to the medical profession is irretrievable. Many a fatal prognosis, correct or not, has driven the patient into the fangs of the quacks. The loquaciousness of vanity harms both the patient and the medical man. That does not, however, cover the case entirely. The sick, unless deprived of intellect, will not endure being told they have an incurable disease; least of all those who tell you they want to know all about themselves.

Hope is the best stimulant of the nervous and circulatory systems. A few months ago a patient was dragged into my office, after having lost ten pounds in a few weeks and sleep and appetite and digestion and strength. That was when he had been told by his knowing doctor that he had cancer of the liver, and no prospect of a recovery, I assured him he had a tumor, that I could not have him operated upon in his present condition, but that he would be vastly improved by proper medication. So he was; the man who was rapidly dying from his cancer and his doctor, improved, and slept and digested, and walked up to me ten days afterwards. These ten days of encouragement were a clear gain, so were a few more stretches of ten days each. Tell either the exact prognosis, if there be one, or your fears to a reliable member of the family, and another more encouraging to

the patient. Encouragement is a remedy, sometimes the best. He may ask you in many a bad case; is he to send for his family, or the absent member? I tell him exactly what you would, viz.: that absent member has a right to know of the illness, or will be offended unless notified, or should be notified at all events, and then be left to his own discretion. He may also ask you whether he should make his last will, or delay. You will answer like myself: What? You have never made your will? I am not a business man, but I have made six different wills in my life, though not in any apparent danger. You should make your will at once, you are strong enough and not superstitious, and if you dislike it in six months make another one. That is, in my opinion, the correct and humane and practical method of a conscientious physician, who is not merely a medical man given exclusively to diagnosis and the pathological anatomy of the autopsy, but a humanitarian with both medical knowledge and the sense of responsibility towards the body and soul and comfort of a suffering, but hoping fellow man.

In your vocation you have to deal with no crystals, but with the life of a fellow being. You are no mere naturalist, you are a physician. If you cannot cure, you can improve. If neither, you can cheer, and that is to improve. I said a year ago on this platform: Therapy is service; service is therapy.

You may render a tangible service—that is part of your therapy—by improving your phraseology. You will strengthen confidence in your visitor by not telling him he has "consumption," which to most people means a sentence of death. When he asks tell him he has "tuberculosis," and will not be "consumptive" unless he will get very much worse. Be sure not to inform an impecunious person that he is certain to die unless he leaves town and family this very week. Is there anybody here who doubts that a humane physician would be guilty of that? Perhaps you are correct. But what I have experienced hundreds of times is that medical practitioners committed that brutal error. That is no therapy, no service; it is partnership with a destructive disease. Nor is it a serious loss to your dignity to use in a case of cancer when inoperable in place of the word cancer: carcinoma, or better yet, tumor, or enlargement of the liver, or of the glands; or in place of valvular disease—which has a now and then cruel reputation with many—enlargement of the heart; in place of aneurism of the aorta which will be read up in the cyclopædia; dilatation of an artery. Thousands of years ago Charaqua told you: it is not permissible to make any communication of the imminent death of a patient whenever it may injure him or anybody else.

Hippokrates could not build upon extensive anatomical and physiological knowledge. His guides were the history and literature of his art, close observation of clinical facts, and the sense of obligation and responsibility. Therapy means service. His service was preventive and curative. Diet and hygiene play a prominent part. He dealt with no disease, but with diseased men. That is why, while trying to be the minister of nature, he knew he could be minister in individual cases best by turning master. That is why he relied on active treatment both by drugs and by mechanical interference. He was not a "no drug" man, nor a "one drug prescription" faddist. He was an all-round practitioner and teacher, though he recognized the special-istic calculus cutter. As it was in East Indian medicine, so was to him the physician without surgery a bird with a single wing. He shunned improper advertisements, though he displays a certain shrewd willingness to impress the people. He was modest, for the phrase "it seems to me" is met everywhere; but also sometimes self-opinionated when he objects to those who differ with him. While being altruistic, he is also pedantic, and while being philosophic in his views and methods, he is no dogmatic philosopher. His diagnoses were not so local as we try to make them—except when external and palpable and visible anomalies or lesions had to be corrected—but often the recognitions of altered universal function.

Such was the head of ancient medicine, the great Hippokrates. From him we have inherited many principles: close clinical observation, both dietetic and active treatment, absence of metaphysical fads, clear description of symptoms and proper service to the sick not guided by preconceived notions or prejudices, and medicine as a unity, which studies the physiological function, its alterations by what we know to be bacteric and other influences, and the changes of tissues; finally humane ethics.

According to this etiology the therapy is regulated. Hippokrates deals with sick individuals, not with sickness. It is only by Plato that disease was given a degree of autonomy, and considered an entity. Hippokrates emphasizes individual etiology, symptoms and diet; the mode of living, clothing, the climate, occupation, and age. He prohibits generalizing and theorizing, and relies on "physis," the healing power of nature. No overfeeding, no underfeeding, no inconsiderate stuffing of drugs. Treat empirically and be guided by symptoms. It was only the school of dogmatics after him that speculated where their knowledge failed, even his very sons Thessalos, and Drakon, and his son-in-law, Thessalos, were carried away by them. Plato had no realistic foundation, and in mediæval times until a few centuries ago Aristotle was not known except

mutilated, and theosophy, neo-platonism and astrology reigned supreme. According to Galen it was only Diokles of Karystos, the same who studied the embryo in the egg, and Praxagoras of Kos that remained soberminded.

It is natural that the Hippocratic mind turns to prevention as a main salvation. The practical value of the book on diet is still great. In acute diseases starvation and low diet and water were recommended. Water seems to be withheld, however, more than to-day we should approve of; still its comparative prohibition agrees with what I remember to have been practiced half a century ago. Occasionally wine was recommended in acute diseases. He did not, I repeat, believe in no drugs, nor in one drug prescriptions, having no text-book to teach him except the traditions and teachings of comparatively a few centuries only, and nature and experience. Enemata are frequent, vomiting is produced by tickling the throat, or by veratrum, which also served as a laxative. Euphorbiacæ were in frequent use. Altogether laxatives were administered extensively. Copper served as a hæmostatic, iron was used as an oxid (rust) only, metals were not used, except externally, until Paracelsus. Barley teas, preparations of honey, vinegar water, milk, wines, warm drinks as diaphoretics, scilla, celery and cantharides as idiuretics, meconium as a narcotic are frequently met with. Scarifications and cups were pet remedies, leeches only later; venesections were made near the seat of the inflammatory trouble. In exhausting hemorrhages the head was lowered and the limbs bandaged. He was not afraid, either of allowing nature to have its way, or of relying on spontaneous recovery under the guidance of rational hygiene, or on the effect of mild medication, or effective treatment by drugs or external means. Nor was he afraid, as I have said, of being the minister of nature by temporarily turning her master. He was aware that "what medicines will not cure, the knife may cure, what the knife will not, fire may, what neither will cure, is incurable."

What now-a-days we call therapy comprehends a great many things which must be known and employed unless the sick is to be punished for our ignorance. Medication, which I shall not touch this morning, should be studied as conscientiously as the nature of disease. Its scoffers satisfy nobody but themselves. Medication is guided by experimentation like other parts of medicine, and is engaged in its progress to greater accuracy. That is mainly so since 1876. From that year on, though there were good hypotheses on the microbic nature of disease these 2,000 years at least since Varro, many diseases have become accurately known to have a bacterial origin, and sera and vaccines are employed to treat them. Malaria, the tsetse fly and

glossina have consented to divulge their mysteries and to show their vulnerable parts. Pasteur has enriched agriculture industry and sanitation by the same methods. At present, medication may relieve and cheer when advanced tuberculosis, which so often is hopeful to the last, is not improved or alleviated by nursing, or climate, or sanitarium, in your neighborhood, or in a far away exile. Comfort the sense of annihilation connected with grave anemias, and prolong and ease the misery of a moribund carcinomatous father of a family. Give aid and hope. Do not try to fulfil impossible indications, for instance: The vast majority of my tubercular patients these 55 years have not been millionaires. I have learned that a low-priced attic with no window in Colorado or Liberty is not preferable to an open window in a suburban tenement in New York, and the solitude of a distant institution which takes his last dollar while his wife and children are destitute at home, does not improve the outlook of a man who lacks his accustomed food and a sympathizing eye, and the scanty aids of his poor dwelling.

In our therapy there is no severing of art and nature any more than in ancient Hippocrates. The stimulus given by cold water and friction to local and general circulation and sanquification, the influence of pulmonary gymnastics on abdominal plethora, of the regulating power of the stomach on the action of the heart, the very benefit derived from the proper recumbent or semi-recumbent or erect arrangement of the body in his couch, the determination of the quantity and quality and timeliness of food, the knowledge of when to stimulate the heart or to relieve it, the selection of either cold or warm applications, are part of one therapy as well as mercury or iodine or opium, digitalis or nitrites. Another part is the utilization in our individual cases of the adjuvant forces which add to our diagnosis and our success. One is the clinical laboratory.

With the ludicrous claim of the narrow bacteriologist who thinks that all medicine is limited to his lenses and reagents we have a great pity. They take the place of pathological anatomy which 70 years ago recognized in medicine nothing but itself. But the clinical laboratory, the best part of which should be established in our own office, aids us in forming the diagnosis without which (in many cases) our therapy is crippled. The other is the help afforded by a specialist when our individual knowledge or art is insufficient. Do not despise it though it may not be the hand of a master which you are able to reach. Great masters are scarce anywhere. But be thankful for the aid given by one though he may not have reached the heights of his art. Crumbs are better than no bread at all. Let us be modest and admit that we may learn and our patient profit from a man

who may otherwise be our inferior. Ambroise Pare went a great deal beyond what I here advise, when he said he had some use even for a quack until he could no longer learn from him. Beyond all, however, let us be thankful to the specialist, big or small, who at least upholds and teaches to the unbeliever the advisability of active treatment. I say active treatment, not maltreatment. A conscientious specialist will agree with us, that warm cavities in which they are being coddled, are better for many a nasal septum and an ovary than a formalin reeking jar.

Which is the relation of modern medicine to specialism? Specialism is not new, ancient Egypt developed it to a wonderful extent, but neither Hippocrates, and Greece after him, nor Alexandria would recognize it, with few exceptions. There was not even a separation between medicine and surgery until 600 years ago. Modern medicine, however, has evolved special studies and practices to a surprising degree. Technical skill—that is true—can be attained best by repeating the same labor indefinitely. That is well known and acted upon in manufacturing; ten different men are required to furnish by the differentiation of labor the best style of a needle, or a tool. The result is twofold: an accomplished article, and an idiotic workman. Now, is specialism the ripest fruit of medical service and art? and the realization of profoundness? It is; look at Albrecht Graefe, or James Paget. It is not; look at the thousands of young men who turn to what they consider an easy road to money and reputation after having escaped from a medical school. The submission of patient after patient affords the self-styled specialist a certain measure of dexterity, the gifted amongst them also a greater facility of local diagnosis. Now it is true that one of the tendencies of the 19th century was in the direction of local diagnosis, but local diagnosis is not the quintessence of medicine, and the horizon ascertained through peering into a speculum is not the universe of a circumspect and wise physician. The latter is the modern Hippocrates, the revered head of his calling, the others are those whom Aristophanes and Moliere ridiculed. Still they may become useful. But when it seems to take an ophthalmologist to make the diagnosis of a chronic nephritis it is not a great feat after all; his opportunity came because the doctor, such as we, was too obtuse or too lazy. When a peach stone is discovered in the suffering rectum by a proctologist, it required no specialistic acumen; the doctor was too indolent to make his own examination. When half a dozen practitioners treated an offensive vaginal discharge for years, it is their sin of omission in not looking for a twenty years' old rotting pessary, and not exactly the merit of the professed

gynecologist. Is there a pain somewhere? They want a nerve specialist. A headache or giddiness? a psychiatrist. An urticaria from overeating? a dermatologist. An earache from a sore throat? an otologist. A renal secretion with a urate deposit after a midnight dissipation? a genito-urinary man, the same genito-urinary brother, when the urine is pale, which is the alleged proof that the uric acid is retained and demands expelling by a specialist. You could not do it. You know it has come to this that a chronic constipation is beyond your ken and requires a "metabolism specialist." The latter is so naive—or something of the kind—that he sends you the announcement of his limiting his practice to the disturbances of "metabolism." Abnormal metabolism was diagnosed and treated in earnest by one of them—it turned out to be a case of pregnancy. One similar to it in a young woman of 21 years was treated by one of the neurologists—it was absence of the uterus and ovaries. Some of them have gone into partnership with underdone clergymen. The latter publish their neurological associates' names and office hours; they are expected to reciprocate by swelling the attendance upon churches which are no longer filled by sacerdotal eloquence and efficiency. Still they are worse off in other climes. A few years ago a Prussian judge acquitted an unlicensed dermatological malefactor on two grounds: first because he was ignorant and could not be held responsible for mistakes; secondly, he, the judge, was credibly informed that the culprit had obtained valuable prescriptions from the body servant of a famous specialist and therefore deserved confidence. Will not this judicial wisdom of enlightened Prussia justify what is still revered by equally refined mediæval minds, who still believe in the specialistic powers of saints. St. Agatha restored the milk in the breasts of women, St. Anne cured eyes, St. Judas coughs, St. Valentine epilepsy, St. Rochus the ailments of animals.

The specialistic tendencies in their exaggeration are met with more extensively amongst the public than amongst medical men. When a man presented his child in my office and volubly insisted upon a specialist, I told him that if he were not satisfied with a doctor he might go somewhere else. That is what he meant to do. That is why that same afternoon he turned up in my college clinic and expressed the wise opinion that I might know about children, but not what was good for me. That you are asked by a new patient about your specialty, is your common experience. One of my friends was asked the same question. What he answered was: My specialty is to treat rich people like yourself. Very many times I hear practitioners complain of having descended to the role of an agent for specialists, because their patients will apply for a diagnosis—

perhaps not even that—and at once for the address of a specialist. To a great extent it is their own fault, for too often they will tell their patients to go to a specialist for trifles. That happens so frequently that the public looks upon us practitioners as a subordinate class of medical employees, and considers the word "specialist" as synonymous with "superior physician" or consultant.

Great changes have taken place in the short time of 1800 years. Hernack (*Medical things from Church History*, 1892) reports that in the second century there was a class of exorcists, something like the modern difference between real physicians and so-called nature practitioners. But sensible people were sceptical. The jurist Ulpian refused to admit them to the position of doctors. He felt also doubtful about "specialists," and hesitated to accept them as practitioners under the rules of the law.

When you are criticised or pitied by a specialist, take your dose and let "no dog bark." A few months ago you could read about yourselves in an editorial of "American Medicine," what follows: "Arsenic is excessively and indiscriminately prescribed by practitioners"—that is you and I—"in the treatment of skin diseases, evidence of its frequent and unnecessary administration is too often brought to the attention of the specialist. The practitioner's rule appears to be when in doubt as to treatment, give arsenic. The specialist on the other hand withholds arsenic except when specially indicated." Where in this pronouncement the necessary grain of salt is wanting, you know at once. Of another class of specialists Clifford Albutt has this: "I know that at certain spas even in angina pectoris, baths are prescribed, but spa reports require for their assimilation more salt than is always at hand."

The teaching of specialties, indispensable for the making of thorough practitioners and of perfect specialist, leaves much to be desired. If they belong to a full equipment, they should be taught by competent men who should be rewarded at least by satisfactory positions. The first medical school which established in America a full professorship for the diseases of children was the New York Medical College, which after its reorganization in 1860, as one of the vicissitudes of the Civil War, closed its doors in 1864. In 1860 the scanty instruction in the diseases of children which was a nominal appendage to that of the ailments of women was entrusted to a professor. He accepted in 1865 a place in the University Medical College and in 1870 in the College of Physicians and Surgeons. In both schools he enjoyed the title of "clinical professor." His function found no further recognition anywhere else but in the newly-found Bellevue

Hospital in 1861. When in 1900 he was given the title of Professor, that advancement was only nominal, for it did not convey a seat in the faculty. The first real professorship was established by Harvard, where Dr. Th. Rotch has worked and taught successfully ever since. Many American colleges have since followed that example, in England none except Kings College, which has established full chairs for the diseases of children, the mind, the eyes, the ears, the nose, the larynx, the skin and the teeth. Thus mere toleration has ceased, and full citizenship been awarded to the special branches of medicine, which were utterly neglected in the curricula and so despised that a long time full-fledged specialist certificates were given after courses not extending beyond six weeks, at the University of Vienna.

That has changed since. But our young men spend some of their time in vain. I have never been able to see in the almost compulsory fabrication of an "Arbeit,"—an effort—much more than the vanity of the head of a laboratory who, by printing the painful elaborations of pupils, believes, or wants other to believe, that he has founded a "school."

In Europe they like to specialize more than we do. They set up a specialty by advertising themselves in the newspapers. The pediatricist, the nerve doctor, the woman's doctor, the skin doctor advertises himself, his alleged specialty, and office hours. Our ethics are more refined and I believe our results are better. We expect a man first to deserve his position by impressing his peers and the public with his superiority. And I have known men who would succeed best when they minded what Gowers wants us to remember, viz.: that "specialism is not exclusivism."

Who is to teach therapy in our schools; the botanist who knows all about the structure and classification of plants, the chemist who remembers names of eight syllables and tumbles about H and O and N and C in endless combinations, or the physiologist who, while constantly—I hope—experimenting on animals, cannot always gather experience on the human body; or rather the clinician whose occupation is with the sick, and whose workshop a human living organism? This modern specimen of Hippokrates is imbued with the great principle of his ancient Father: Do not injure. He knows, on the basis of facts and of philosophy, that mere empiricism is sterile, that polypharmacy and polypragmasy are as reprehensible as apharmacy and apragmasy, or as over and under feeding. Our modern Hippokrates objects both to the therapeutic pessimism of the uninformed, or the mere naturalist, and to the optimism of the dilettanti who, mostly in the pay of manufactures, eulogize the

latest synthetic chemical, which benefits the writer and his employer, if not the sick. He is also aware that pharmacology and the clinic have got too far apart from each other.

The ideal teacher knows how to distinguish functional weaknesses from genuine disease, and recognizes the fact that the latter has stages with adaptable therapeutic indications; that a scientific diagnosis can be made on hills and in hamlets, but not without previous clinical and laboratory teaching, and that for city and country we should know enough and be diligent enough, to do most of our tests ourselves, and not to rely exclusively on the knowledge or honesty of laboratories; that a close study of a moderate number of ordinary cases is best for the instruction of the doctor embryo and not the hustling through wards filled with practically inaccessible material; that the same disease is not the same disease in different seasons, climes, constitutions and ages; that with every advancing decade there are increasing complications of lesions and symptoms, and of diagnoses, simple in the infant or child, which become more difficult from year to year and whose prognosis more problematical—indeed I do not know whether all our rising pediatric specialists have an idea of how difficult a task it is to become a real all-round doctor. The modern Hippocrates keeps his hands clean like Billroth, and cleaner than the ball-room dandy, and teaches how to do much with very little.

Oh! I think I understand what the great clinician, the modern Hippocrates, should be and should teach, knowing what many of us like myself are lacking in universal knowledge and usefulness.

There is, however, more in the great modern Hippocrates than a mere modern doctor. The ancient Hippocrates was a philosopher, the great modern physician reaches beyond the sick-room or the hospital ward into public life. His very spirit enters even the most modest country doctor who pays his attention to the prevention of individual and collective disease. The period of individual health cobbling has passed a century ago, or longer. The great clinician is a sanitarian. He teaches and practices the hygiene of schools, factories, mines, city and country; water supply, architecture, ventilation, the care of epidemics and epidemics. But he knows quite well that a single measure is no cure all; that is why, being a great and good physician, he is a good citizen. So was Albert von Haller the Swiss, so was Virchow the German. By adopting and alleviating public cares the great physician becomes not only a benefactor but a public teacher, not only of knowledge, but of morals, of ethics, of responsibility to the commonwealth. One such great modern Hippocrates leaves his vestiges for ever though even his name be

forgotten, through his imprint on the brain and heart of his time. The question whether the physician should or may interest himself in politics, need not occur to him; he is a statesman. Being intimate with the four millennia that built up our medicine, he belongs to many generations and is a citizen of the present era and those which succeed us.

The ethics of Hippocrates is worthy of the best ideals of the physician. That is why the sentence:

"It is unbecoming to enjoy the riches of the Persians or to stop the illnesses of these foreigners, for they are enemies of the Hellenic people," is out of place. This sentence has been quoted quite frequently, but it should also be added that it is apocryphal. There is, however, one sentence which should be the daily intellectual food of the physician: "Wherever there is love of mankind, there is love of the medical art." His ethical teachings are frequently found connected with technical lessons, particularly with his indications for treatment.

"The past must be known, the present recognized, the future predicted and cared for. In connection with the disease there are two indications, either to be useful, or at all events to do no harm. Three factors there are in connection with therapy: illness, the sick, and the physician. In regard to his art the physician is the minister (servant-therapos). The sick and the physician must combine against the sickness."

"The surgeon requires his sight, hearing, his nose, his tongue and his intellect."

Surgical work demands the consideration of: "the patient, the operator, assistants and instruments, the light, the location of every person and everything, the hour, the how much, the ways and means, the how and where, as regards both the body and the tools; the time, the procedure, and the place."

"I am of the opinion that we should keep our hands off those who have been totally overcome by illness." This warning contained in the book on "art" does not contradict, as it has been claimed (Th. Beck, Hippokrates Erkenntnisse, 1907), a rule laid down in the book on "diseases" which teaches to succor with treatment as much as possible those suffering from incurable diseases.

"It is the uppermost duty to cure the patient. If there be different methods to accomplish that, such a one should be selected as causes least anxiety and perturbation. For that is the nobler way and more appropriate for art for him who does not crave improper popular favor."

By far the noblest and most instructive teaching of the ancient sage, who, in this, like other things, followed the example of the reformed Asklepiads, in his "Oath," of which I extract

the following. I know of very few historic manifestos equally impressive and touching :

“I shall give my orders according to my powers, knowledge and conscience, to benefit the sick and to defend him against injury and wrong.

“I shall give nobody a death working remedy, though I may be requested to do so, nor shall I suggest anything of that nature; nor shall I give a woman a medicine to procure an abortion. I shall manage my art and lead my life honorably and piously, and commit no wrong or work an injury intentionally, nor perform any aphrodisiac action.

“Whatever within or out of the practice of my art, I shall learn of the life of people, I shall bury in silence as a duty of discretion. If I shall observe and never break this oath, I may be permitted to live happily in my life and my art, and to enjoy the esteem of all men for all times.”

At the period in which Hippokrates taught and practiced, the practitioner was a tradesman, or an artist. He had his shop, his office for consultations and operations. Many appear to have had accommodations for those who could not or would not go home—a medical boarding-house, a sanitarium. He was often assisted by young men, free or slaves. The latter might attend slaves, but no freemen. Bedridden patients were visited at their homes, and the young assistants were occasionally employed as nurses. At first presents were given and accepted in place of pay; they were soon substituted by money rewards, scant or rich, according to the means of patients, or to circumstances. There were also travelling doctors, some with irregular routes, others with regular changes like our climatic and watering place doctors, whose cards and letters of appreciation and thanks are immortalized in your waste paper baskets. There were doctors for the army and navy, for the poor and the towns, just as with us, and probably with still less pecuniary rewards, or position. For then as now the profession and the eminent physician were occasionally, from Sokrates to Descartes and Kant and Gladstone, rewarded with appreciation and honors, and the individual doctor was mostly liable to be treated by his patient worse than a tradesman. At present—I need not tell you—often worse than a tradesman. The latter asks and receives a *quid pro quo*, the doctor is required to work for no remuneration, or a small one. He that does no gratuitous work, or he who has merely financial gifts, is fortunately rare. Rich doctors are scarce, but gratuitous work is plentiful. Almost every doctor whom I ever knew to have ample means had them before he was a doctor. The accession of these men to our work has mostly been a great blessing, for there are those amongst them who, while not obliged to work

hard for a scanty or moderate living, had the faculty and the ambition of making themselves useful in the laboratory and in literature, some also in practice. Though you may be no demonstrative handshakers your heart goes out to them. They raise the average standard of knowledge and of medical ethics in our profession. It is necessary indeed that we should have something to counteract the blighting influence of the commercial spirit of these decades of ours, and of withering poverty, and of grasping greed, in the overcrowded and carelessly invaded profession. And now let me quote, as an excuse, for the sin I am going to commit, our old friend Jonathan Swift, "I write for your amendment, not for your pleasure." What I wish to say in a few quiet words so that no outsider may notice it, is that our skrits are not clean.

One of the means of obtaining a foothold in crowded communities has turned out to be contract and society practice. In New York City alone there are more than five hundred doctors who either have it or crave it. Competition for such appointments is eager. It might be hailed as welcome if it would result in crowding that feature in its worst shape out of the practice of medicine by forcing men into other walks of life. But what it consummates is the degradation and demoralization both of the public and of the doctors. To earn at the rate of one dollar a year for an individual member of a society, and three for a family, they underbid each other, they coax and flatter and treat and otherwise bribe a society president or influential member. That is why what they arrive at is mutual jealousy and hatred amongst themselves, and contempt and despicable treatment at the hands of their customers or patrons. If they could only remember that the law of nature may be mutual strife, but is also mutual aid, and that what is the noblest of all vocations may be contaminated so as to be the meanest of trades. May the present efforts to efface that stain be successful.

Worse is to be said. There are those in the practice of medicine who demand and take commissions. Do you know what that is? An agent receives it when supplying a new customer. Is it difficult to say who pays it? Is it employer? Is it the customer? The person insured or a purchaser? It is an indirect tax to be paid by the latter, the consumer, who is robbed in order to sustain a high tariff. Commissions are asked and given from and by apothecaries, truss and bandage makers, instrument manufacturers, even by poor nurses. Do not ask for proofs unless you want to have them. There is also a rumor—call it a rumor—that consultants are called because they offer or grant commissions—that practitioners call their consultant

on that condition—a rumor—call it so—that a surgeon is given a case because he is willing or consents to be robbed of a big percentage of his fee, which is raised accordingly. Who is robbed? He? The patient who is unfortunate enough to fall “amongst thieves which strip him of his raiment”? My friends, it is not I that select that word, I found it in the gospel (Luke 13). And in Galen I found a sentence in which he discriminates between robbers and the practitioners. There is also a rumor—call it so—that many of these fleeced and fleecing consultants, medical and surgical, are quite capable, members or adjuncts of faculties and hospitals, and what is still more perilous, teachers of the future physicians of this republic. I love my profession as you do. I want it to be respected and to respect itself. I want it without the blemish of bribery or mendicancy.

In this republic of ours with its freedom and individualism there is much corruption and graft. How does it endure and live? Because outside centers of population, and of ill or honestly gotten, wealth and temptation there is the big sturdy American people, too honest and massive for topheavy giddiness. Thus where is my hope and trust in our profession? In the tens of thousands of upright, honorable, at the same time shrewd and over learning professional men as represented in the villages and towns, small and big, counties, states, and the union. If those who do not make it a habit of joining us here, if they but knew the advantage I and we have over them; and that what we, or some of us may carry here, is vastly outweighed by what we take with us in scientific gain, and what is more: in moral poise. Fortunately our profession has what is sometimes, in long intervals, men in political life, viz., a man to brighten millions of intellects, and to brace millions of characters. The Lincolns, the Schurz, the Clevelands are rare, and their bodies are dead, but there is nobody that does not appreciate the presence and power and immortality of their spirit. So in medicine. The one great ancient Hippokrates is dead, so are Sydenham, and Haller, and Virchow. Their minds and labors, however, have fertilized the fields on which the modern Hippokrates has been growing, he and his class. For there is a whole class of them, and by growing in numbers and power proves that the golden age was never behind us, but before us.

If I were to characterize the modern Hippokrates, it is thus that I should describe him. You who are fortunate enough to live with open eyes and ears, have seen and heard many of them, or know of them, both here, and in Europe; for as medicine has grown and widened, so have her followers and practitioners and teachers.

He loves to behold four thousand years of the history of medicine as at the foot of the pyramid Napoleon's warriors, those of brave efforts. He amasses learning and delights in science; is equally patient and painstaking in study, on the platform and at the bedside; and scrutinizes the patient both for what the sick may add to his knowledge and what he may add to the comfort and welfare of the sufferer. While being searching and exact, he is conscientious and full of pity. He is equally joyful over restored health and over a new fact revealed by investigation guided by erudition and genius. That he will gladly publish; but he is seldom a text-book writer. He enjoys new truths discovered by himself or others; he is no priority hunter and is anxious to give credit. His character is full of simplicity, fidelity and loyalty; loyalty to his duties toward the individual, the hospital, and his pupils. He is the revered teacher of young and old, and a friend to the young colleagues in whom he honors the future of medicine. That is why they feel at home with him though, or because, he is a celebrity on both sides of the ocean. Gossip and low strifes do not reach him. His prototype, old Hippocrates, told him that "disputes amongst doctors cause disrespect of the whole art among the people, so that they begin to doubt the reality of medical art." In his practical word he is nobody's antagonist. His competition is judicious and gracious and guided by the unwritten code of ethics inscribed in his soul. That of the just he invites, that of the unjust he endures with forbearance. Still greater than as a physician he is as a man and a citizen. His eminent place in science and the community he utilizes in the service of the commonwealth. He is its adviser as a sanitarian, who augments for the millions both health and wealth. In that sense, as our modern requirements and responsibilities have grown and persist in growing, his opportunities and labors and his results exceed those of his older brother, Hippocrates of Hellas.

If we cannot reach him, we may try to imitate him. If we cannot be stars, we may try to hitch our wagons to them. If we do not succeed in that, we delight in looking up and admiring them. In connection, however, with our duties and our hopes we remember two great men, Shakespeare, who makes medicine say; "who chooses me must give and hazard all he has," and Descartes: "If it be at all possible to ennoble mankind, it will be only through Medicine."

EDITOR'S NOTES.

Tuberculosis Among School Teachers.

Inasmuch as education is compulsory in this country, it is of the highest importance that everything should be done to protect the children and teachers from contracting disease. It is a somewhat astonishing fact that school teachers are particularly subject to tuberculosis. This has been found true in Canada and also in the United States. In the Transactions of the International Congress of School Hygiene, London, 1907, Prof. Wm. Oldright, of the University of Toronto, states that the causes are to be found in foul air and chalk dust. From 1881 to 1883 an analysis of the returns in Canada showed that teaching is one of the occupations most frequently attacked. In the United States recent census figures are significant, showing the following ratio of deaths from consumption in 1,000 deaths: Of all males engaged in all occupations, 154; of all male teachers, 184; of all females engaged in all occupations, 215; of female teachers, 256.—The *North American Journal of Homœopathy*, March, 1909.

The Early Recognition of Tuberculosis.

The N. Y. State Charities Aid Association is prosecuting a vigorous anti-tuberculosis campaign, not the least important factor in which is news-paper publicity. Among the pieces of copy sent out to editors recently was one entitled: "How May the Layman Often Recognize the Early Symptoms of Pulmonary Tuberculosis (Consumption)?" It read as follows:

"Any of the following symptoms should lead one to consult his physician and have his lungs examined and sputum (spit) tested:

1. A cough lasting a month, except whooping cough.
2. Poor appetite (especially in the morning), and indigestion, loss of weight and strength and pallor (generally "run down").
3. Hoarseness, lasting several weeks.
4. Spitting, especially in the morning.
5. Night sweats.
6. Spitting blood.
7. Fever in the afternoon, shown by flushed face and tired feeling.

Any, several, or all of these symptoms coming after a severe cold, grippe, bronchitis, whooping cough, measles, typhoid fever, or any other acute disease, may indicate tuberculosis.

Two or three or more examinations should be made. The germs may not be found the first time the sputum is examined, and it is a very difficult disease to diagnose even in a physical examination.—The *North American Journal of Homœopathy*, March, 1909.

Remedies in Chlorosis.

Prof. Grawitz considers chlorosis as a neurosis belonging to the hysteria class, and the treatment chiefly in the line of general care and dietetics. Iron, in his opinion, is no specific, although in certain cases a valuable supporting agent. The action of iron, and here all authors are agreed, is not that it builds up hemoglobin, but that it arouses the hemogenic organs, as elucidated in Schade's investigations whose conclusions are: "Hemoglobin acts as catalytic agent in the blood, and apparently it is the iron in the red cells which specially exhibits the catalytic power of oxygen transference. When the blood is lacking in this oxydase, no better substitute can be offered than a substance most similar in action to hemoglobin. The activity of an iron preparation is dependent, then, after its resorption, upon whether it be found in a form accelerating oxidative processes. Hence, iron therapy depends not upon the quantity of iron but upon its quality. The action of iron is limited to the blood and the hemogenic organs, since the system holds it within these organs." What form of iron exhibits this accelerative action in oxidation, Schade, unfortunately, does not say.

Turning from theory to practice, and reviewing the chlorotic cases of the last year, it is noticeable that but few of them found their remedial agent in iron. Most presented syndromes dissimilar to the ferrum reaction; they were of the more or less chronic type, had been repeatedly treated with iron, with either no result or an aggravation. In such cases, arsenicum, in rare doses, had favorable action, particularly in the gastric sphere, in the burning in the stomach, sensitivity to pressure, vomiting of food, all of which were soon relieved, and the appetite increased. Even with symptoms of deeper stomach lesions: colicky pains, hematemesis, black stools, arsenicum 30 was often of striking benefit. With circulatory disturbances prominent, e. g., anxiety, pain in the cardiac region, accelerated cardiac action with small pulse, increased area of cardiac dulness and blowing systolic murmur at the base of the heart, edema of the legs, arsenicum 6 was used, which, mostly alone or followed by spigelia 6 or cactus 3, relieved the complaints.

Sepia is another remedy often correspondent to the chlorosis syndrome, and one of our best hemic drugs. In these cases, also, was present the gastric pressure after eating, but sensitivity to pressure was usually absent; and never so marked as in arsenic. Sensation of weakness after eating, tendency to yawning, headaches, particularly occipital and vertical, also one-sided, and aggravated by the least noise, change of disposition, irritability, inclination to solitude, indifference were characteristic. The menses were commonly too early but not profuse, and generally followed by leucorrhœa. Sacral and back pains often completed the picture. In such conditions sepia 15 habitually caused speedy improvement.

Natrum muriaticum 6 succeeded in patients of particularly pallid but puffy appearance, with marked chilliness and excessive lassitude,

with constipation, stomach pressure, pyrosis, dizziness, pains in the frontal region, and the menses absent or colorless.

Pulsatilla 6 was efficacious when its characteristic mental symptoms were present: quick alterations of mood, lachrymose tendency, etc.; when in spite of the chilliness, the complaints were better in the open air; when bluish discoloration of various parts showed a venous stasis; when nausea and coated tongue were in evidence and the gastric symptoms were particularly aggravated by fat foods.

Phosphorus 6 rendered good service in cases distinguished by a certain irritable weakness of the nervous system; in those where the hyperirritability of the nervous system had been preceded by excessive work and excitement. If the nervous weakness were more limited to the genital tract, platina 6 acted well, which like phosphorus, holds excessive menstrual hemorrhage within bounds. Under certain conditions, the action of these drugs was reinforced by china 1—3.

Calcarea 6 was almost invariably helpful when the menses were too early and copious; with complaints of sour stomach; with partial sweats, cold feet and hot head, and difficulty in falling to sleep at night.

If the circulatory organs exhibited marked excitement, indicated by nocturnal palpitation, cardiac pains, anxious sensations, vertiginous attacks, sense of pressure on back and sacrum, kali-carbonicum proved helpful.

Vanadium, thuja and ferrum iodatum may also be called for.—
Dr. Lorenz.—*The North American Journal of Homœopathy*, March, 1909.

Extraordinary Result Following the Administration of Crude Mercury.

Mr. CHINNOCK related the following extraordinary case, communicated to him by Dr. James Blundell. A patient, attended by Mr. Eccles of Rotherhithe, had suffered from obstinate constipation. Every remedy usually resorted to under such circumstances had been administered by that gentleman without effect, when Dr. Lister's attendance was requested. He ordered half an ounce of crude mercury to be administered, and to be repeated twelve hours after if the bowels were not relieved. The ounce was given by Mr. Eccles himself; the object was not merely to produce action by its specific weight, but the Doctor hoped some chemical change might occur. A blister had been applied to the scrobiculis cordis, and complete vesication was produced previous to the exhibition of the medicine. An enema was also administered. Very shortly after the administration of the second dose of quicksilver, the intestines were emptied. There was an appearance of mercury in a state of oxidation in the stools. The patient complained of great uneasiness in the blister, and begged Mr. Eccles' attention to it. On examination, he found there were "scores of globules of mercury the size of pins' heads, scattered over the blistered surface;" some of these, subsequently, were collected by Mr. Eccles to form a large one, thus proving without doubt, that it was mercury in its metallic form. This case was observed narrowly by Dr. Lister, and Mr. Owen a respectable surgeon of Chancery Lane, as well as Mr. Eccles. The details, as before mentioned, were given to Mr. Chinnock from Dr. Blundell's note book, with permission to relate it to the Society.—The *Lancet*, March 6, 1909.

The Metallic Filament.

The modern inventor is not always guided by considerations of public health; the improvements which he seeks and achieves may be an immense source of convenience in one way, but in another they may react unfavourably. At the present day there seems to be a very keen struggle for supremacy in regard to attaining intense lighting effects; gas is vying with electricity, and electricity with gas, to produce an enormous lighting velocity at a minimum of cost, and so for public lighting we have powerful yellow glaring electric arc lights and high-pressure incandescent gas burners, and for domestic use the inverted incandescent gas burner and the

electric lamp with a metallic filament. The disadvantage of them all is that unless special arrangements are made the light they give is not diffused, and the most agreeable light of all to the health is unquestionably diffused light. The craze for intense concentrated light spells demoralisation to the human eyesight, and the ills of the eye increase. Perhaps the most interesting development in connexion with modern methods of lighting is the metallic filament in place of the carbon one in the electric incandescent lamp. This development is not only interesting on economical grounds but also from a hygienic point of view. When the system of incandescent gas lighting was introduced, a system which saved coal gas from falling into disrepute as a lighting agent altogether, there were loud complaints from those interested in electric lighting of the damaging effects of the intense radiations of the rare earth mantle. Apart, however, from the fact that the light was concentrated there was very little evidence forthcoming that the kind of light emanated was harmful to the eye. On the contrary, many workers who employ artificial lighting largely at their work prefer the gas incandescent light, finding it softer and less trying to the eye than the light of the carbon filament. The light of the carbon filament is certainly rich in red rays, and to these some authorities ascribe in part the tiring effects. On the other hand, the light of the gas mantle is rich in actinic rays. The introduction, however, of the metallic filament changed the character of the light of the incandescent electric lamp and rendered its radiations of much the same quality as those given off by the rare earth gas mantle. It remains to be determined whether the metallic filament is better or worse than the carbon filament so far as the action of its light on the human eye is concerned. It is probable, we think, in view of the experiences recorded in regard to the fatiguing effects of the light of the carbon filament, that the palm will be given to the metallic filament. This is, however, a matter which only a fairly long experience can decide. The metallic filament, at all events, is bringing electricity as a lighting agent within the reach of all on account of its relatively small demand on the electric current and a larger yield *pro rata* of light.—The *Lancet*, March 13, 1909.

Mechanical Detection of Emotion.

Some amusement has been caused by notices in the papers of a "machine for detecting lies" which is technically styled a galvanic psychometer. A very weak current is passed through the subject whose electrical resistance is indicated by a delicate mirror galvanometer. It is found that variations of resistance occur according as the repose of mind or body is or is not disturbed. Thus, when questions, or words implying questions, are proposed the extent of the interference with the resistance and the length of time elapsing—generally a few seconds—before the variation commences are considered to give some indication as to the degree of emotion caused, but it must be somewhat difficult to judge between the emotion of horror experienced by a person spoken to about a murder of which he is guilty and that of a totally innocent person suddenly accused. It is pretty certain that the apparatus is useless for the detection of falsehood. Notwithstanding this, many interesting results have (according to Dr. Schlub in *La Semaine Médicale* of Feb. 24th) been obtained by experiments carried out by Dr. Veraguth of Zürich. He found that when mind and body were completely at rest there was a gradual diminution of the current. A noise, a light, touch, reading of an exciting character, mental calculation, or the recollection of some exciting incident, all produced—at the end of a few seconds, which may be called the latent period—a marked increase of the current. Dr. Veraguth made observations on patients with anæsthetic regions due to disease of the spinal cord and found that in these circumstances as well as when narcosis had been induced no reflex was produced by tactile, thermic, or faradic excitation. A cat, too, which mewed on its tail being pinched showed considerable increase of current, but when sensation had been abolished by anæsthetics no alteration in the current passing was produced by pinching the tail. In contrast to this it was found that hemianæsthesia in hysterical patients did not prevent the increase of the current. Dr. Veraguth finds that alteration in the electrical resistance, which he calls the psycho-galvanic reflex, is not due to voluntary or involuntary movements on the part of the subject nor to any differences in the contact of the electrodes, nor to endosomatic electric currents in the muscles, nerves, or glands, but that it is entirely due to the resistance of the skin and is especially marked in the palmar and plantar regions, the special organs in the skin to which alone he has been able to trace the effect being, the

sweat glands. He remarks that there is considerable similarity between the structure of the skin of the heel and palm and that of the electric organ of certain fishes which has the appearance of being a mass of glands.—The *Lancet*, March 6, 1909.

Earth Tides.

The extremely complicated problem of earth tides has recently been brought into public prominence by an announcement of Professor Camille Flammarion as to the researches of Professor Hecker of Potsdam. These experiments, which were carried out with that labour and patience which characterise German scientific work, were described in an illuminating article by Captain Craster, R. E., in the *New Quarterly* for March 1908. By these experiments Professor Hecker was enabled to get a "direct measurement of the earth tide which had eluded observation for so long." The principle of the calculation is that it is possible to estimate how much a pendulum would be deflected by the attraction of the sun and moon if the earth were perfectly rigid. Professor Hecker's observations were devoted to recording how much a pendulum actually is deflected. The difference between these two records is the measurement of the earth tide. It may be of interest to our readers to recall to mind a little known and privately printed work (1888) by the late Dr. Charles Bland Radcliffe, entitled "Behind the Tides." Dr. Radcliffe, who was physician to the National Hospital for the Paralysed and Epileptic, was a man of whom the present Dean of Salisbury said in a memorial sermon: "Some would describe his scientific theories as eccentric, while others would declare them original;" and "his mind ascended as by nature into the high regions of philosophic mysticism." His attention was first drawn to the subject by observing that the rise and fall of a sensitive aneroid barometer in a boat floating on the sea only showed about half the rise and fall put down in the official tide table. He therefore studied the barometer readings, both ashore and afloat, at three different stations for an average period of five weeks, and came to the conclusion that the floating barometer at low water showed a *downward* movement of about 11 feet, while the land barometer reading at low water showed an *upward* movement of about 9 feet—i.e., that the land rose out of the water as well as the water simply receding from the land. The two figures added together made the 18 feet or so which was the tidal rise and fall as set down in the official tide tables. As to the cause

of this earth tide, Dr. Radcliffe evolved a theory that by the electrical action set up by the sun and moon there was an increase or decrease in the subterranean heat which causes the earth to bulge and to contract. It may be as well to add that the observations of Professor Hecker go to show that there is a movement of the earth's surface to the extent of some 20 centimetres only. Assuming that the methods of determining the earth tides are beyond criticism apart altogether from the question whether they have been proved to exist at all, it would next become of interest to find out what influence (if any) they may bring to bear upon the ordinary recorded physical conditions of the earth's surface at different places. Does the earth's alleged tidal movement, for example, render some correction necessary in regard to meteorological observations? and, if so, does it afford one more factor of possible importance in the relationship between climatology and health?—The *Lancet*, March 6, 1909.

Uro-Saccharometry in Practice.

Classic as is the method of Fehling for the estimation of sugar in urine it has been only step by step that certain modifications have been introduced which have rendered the analysis of value to the busy practitioner. More or less scientific contributions on the subject have been made from time to time, pointing out the various fallacies of the method and the precautions which need to be observed if accuracy in the results is required. Contention as to the reliability of the method has turned chiefly on the question of interfering substances other than sugar which have been shown to have a reducing action on the alkaline copper solution, and on the difficulty of determining when sugar alone is present—i.e., the exact point at which the copper salt is completely reduced. In a paper which we publish this week it is pointed out that the appearance of the well-known blood-red precipitate corresponds with the complete reduction of the whole of the copper oxide to the suboxide and the discharge of all the colour from the solution. As Dr. T. J. Walker in the paper referred to writes, "Every medical man must have observed (especially in urines containing a large amount of sugar) that the copper suboxide is occasionally thrown down as a pure red (scarlet or crimson) deposit instead of the usual yellow, drab, or orange precipitate which as a rule occurs in the ordinary method of qualitative testing." And so it occurred to him that if he could determine

the conditions which led to the formation of a pure blood-red precipitate he might be able to utilise its occurrence as an index of the amount of sugar present. This he does satisfactorily, as subsequent experiments proved, by adding the urine drop by drop to boiling Fehling's solution, boiling for a few seconds as each drop was added, in which case, with the exception of urines containing a very low percentage of sugar, the definite result was obtained constantly and not occasionally. In short, the point when the precipitate obtained is of a decided blood-red colour indicates that the copper solution has been exactly reduced and that no blue supernatant liquid remains. This point can be reached with fair precision by following the directions which Dr. Walker gives, and by taking exact measurements of both the amount of Fehling's solution employed and the quantity of urine added in the way described, a close approximation of the sugar present in the urine is quickly arrived at. This interesting observation as to the significance of the appearance of a precipitate entirely of a blood-red colour, which is an indication that the copper has received exactly the amount of sugar sufficient to reduce it, places in the hands of the busy practitioner a speedy and trustworthy method of estimating the sugar in urine on the chemically sound principle discovered by Fehling—*The Lancet*, March 6, 1909.

CLINICAL RECORD.

Foreign.

CLINICAL CASES.

BY DR. M. TYLER.

AN *Alumina* CASE.

Mrs. L. (35) has three children ; last confinement bad; *Chloroform* and instruments; never well since. Comes to Dispensary *November* 5, 1908. Says she has been ill for five years. Was treated at the Middlesex Hospital for two years—ring, &c.—and recently at the New Hospital for Women for “erosion of uterus” for two months. Here she was getting local treatment, “painting,” &c., and was not improving. Complains of sacral backache; a gathering sore feeling to the left of navel; bearing-down sensation; feels as if she would be better if something came away ; very frequent micturition ; leucorrhœa, with pus and blood to-day—it sometimes makes her sore; periods regular, excessive—at that time the parts are sore ; bowels troublesome—no power; feels as if the bowel bulged forward into vagina.

Examination.—Chest, nothing definite. Thin. First sound weak at base of heart ; heart's action slow. P.V. cervix deeply torn ; rugose interior felt. A small indurated patch ant. lip, and to left. *Alumina* 30 discs *jii alternate days*. No local treatment.

November 9th.—Bowels a little better; more power. Back better. Bearing down better.

November 23rd.—Feels much better. Walking better. Does not feel side the last few days. “Feels better for not syringing.” Urine less frequent. *Alumina* 200 P.R.N. only.

December 17th.—Very much better. Bowels very much better. Every symptom better. Feels no need of ring now. Till she came to me left leg used to swell; had to put it up on a chair when doing her washing; that also well now. Backache better; soreness at navel better; bearing down better; leucorrhœa better. Periods less, and less swelling. Looks quite healthy; much better colour, and less thin.

(Case shown by Dr. Searson at his class.)

A *Calcareo Carbonica* Case.

October 12, 1908.—Asked to prescribe for Mrs. B. (65), suffering from a violent cough (of ten or twelve years standing). The cough

is from "a brush in the throat," or "a hair across the throat." She has the cough by day too, but it "starts up after she goes to bed." She jumps up in bed quickly, suffocating with the cough and the tickling, and her people have to get up at night to get her hot water to drink. This is the only thing that relieves the cough, and "she would choke without it," the paroxysms are so violent.

It is a neighbour who hears her coughing all night, and hears the disturbance through the wall, who asks me to prescribe for her, and who furnishes particulars. She describes her as a stout woman, chilly, pale, with large abdomen. *Calc. c. c.m., discs ij. weekly.*

October 15th.—Has slept each night since her dose of *Calc. c.* without disturbing cough.

October 20th.—Sends message: "Never had them up at night since first dose." Looking very much better; feels very much better. "Looks quite different; gets her night's rest now!"

November 5th.—Sends message: "Cough quite well; need she take any more medicine?" [Three doctors had treated her for the cough in vain.]

November 23rd.—Her husband, who comes on his own account, tells me the doctors never gave her any relief for her cough. She had had it ten or twelve years, always with this tickling at the bottom of the throat. One of them used to try painting her throat; now she feels and looks better than for years. Better condition; more healthy appearance."

Now *Calc. c.* has *violent cough, from "a feather in the throat"; worse from cold drinks;* and it suits the chilly, stout, pallid patient that was described. But the first dose apparently did the trick. What a waste of three doses of *Calc. c. c.m.*!—The *Homœopathic World*, March 1, 1909.

Gleanings from Contemporary Literature.

TRAUMATIC PERFORATIONS OF THE UTERUS INFLICTED FROM WITHIN THE CAVITY OF THIS ORGAN.

BY AIME PAUL HEINECK, CHICAGO, ILL.

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For practical considerations, a three-fold division of this paper was deemed justifiable. The first part will be devoted to a consideration of the subject as a whole ; the second part includes an analysis of all the cases of uterine perforation consecutive to intra-uterine maneuvers, published in English, French and German medical literatures from 1895 to 1907 inclusive ; the third will embody what my clinical experience leads me to consider safe, conservative and practical suggestions and conclusions.

Practitioners must not be unmindful of the fact that rough handling of the uterus exposes the patient to grave dangers. The experience of noted and skilful surgeons amply confirms the statement that the uterus can be and is often perforated with the most startling ease.

Owing to the fact that clinicians are unwilling, as a rule, to give publicity to such an accident occurring in their practice, the frequency of traumatic perforations of the uterus can not be accurately determined. Most, if not all, gynecologists of large experience have met with this accident not once, but several times in their work (Baldwin).

In the records of 3172 consecutive autopsies held, between Feb. 1898 to Feb. 1908 at the Cook County Hospital, Chicago, not a single case of uterine perforation is reported. In all the cases of abortion and in all the cases of pregnancy, treated at the same institution during the years 1903-1907 inclusive, 495 abortions, 2343 pregnancies, only three perforations of the uterus occurred ; two died (autopsy denied) ; one, treated expectantly, recovered.

By diligently searching the medical literature (American, French, English and German) from 1895-1907 inclusive, I was able to collect only 160 cases of perforating wounds of the uterus inflicted during the the course of intra-uterine instrumentation. Some additional cases are found in Rebreyend's These (8). They do not infirm ; in fact, they confirm our conclusions.

Uterine perforations can be classified into True and False Perforations.

True perforations may be spontaneous ; may be consecutive to some insult to the uterine tissues. This insult may be thermic, chemical, bacterial, or traumatic in nature (2 a. b.) All perforating wounds of the uterus are true perforations.

False perforations, 3 a. b. c., (Pseudo-uterine perforations) are not perforations in fact. They constitute a condition in which the clinician is under the impression that he has perforated the uterus when in reality this accident has not taken place. Though pseudo-perforations are of very infrequent occurrence, it is important that clinicians be cognizant of the condition. A timely and accurate interpretation of its symptomatology will save the physician much anxiety and the patient needless subjection to operative risks. As the failure to recognize this condition has led to serious mistakes we will briefly discuss these pseudo perforations and eliminate them from further consideration. In pseudo-perforations, 1. The uterine sound or other instrument may have slipped into a double uterus (uterus didelphys) 4. It may have entered a uterus unicornis.

b. The instrument may have slipped into the dilated uterine end of a fallopian tube (5 d. e.) (very rare) or into the bicornuate uterus. Watkins (5 b) after opening the abdomen found that what he had diagnosed as the passage of the curette into the peritoneal cavity, was passage of the curette into the fallopian tube. In Hind's (5 c) case, the uterine sound was introduced before incising the abdominal wall; after opening the abdominal cavity, it was seen that the sound had threaded the whole length of the fallopian tube. It was presenting at the abdominal orifice of the tube. In Flockinger's case (5 a) laparotomy showed that the uterine sound was in the oviduct. In Thorn's case (5 d), one uterus was myomatous, the other was latero-flexed and latero-verted. In the case of myoma of the uterus, the uterine sound was introduced 14cm. Suddenly there was a lack of resistance. Hasty removal of the sound. On opening the abdomen it was seen that the sound had penetrated for a distance of 3cm into the fallopian tube. Ahlfeld (5 e) also reports a case, in which after laparotomy, it was seen that the left oviduct had been entered by a sound.

Nevertheless, this occurrence, the introduction, by way of the uterus, of any instrument into the fallopian tubes, is very infrequent, so infrequent that its possibility has been denied by competent observers, because :

1st. Under natural conditions, the lumen of the uterine end of the oviduct is so small that it is only with difficulty that one can introduce a bristle into it.

2nd. Of the anatomical position of the tube.

3rd. Of the maintainance (under normal conditions) by the broad and also by the ovarian ligaments, of the fallopian tubes in a transverse position in the pelvis.

Lawson Tait was never able on the cadaver to sound the tubes through the uterus. He maintains that under normal conditions it is not possible to introduce by way of the uterine canal, an instrument into the normal fallopian tubes. Catheterization of the tubes is more liable to occur in the presence of such pathological conditions as uterine latero-versions and

latero-flexions; after interstitial gravidity, after haematometra, etc., etc.,

c. The instrument may have slipped into a small cavity which has developed in the interior of a uterine fibromyoma.

d. The sudden ballooning or relaxation (3-a-b-c-d) of the uterus may also convey to the operator the impression that he has perforated the uterine wall. There is such a condition as atony of the uterus. The fact that at all periods of sexual life, the uterus has the property of alternate contractions and relaxations is regarded as proved by all physiologists. Contraction and relaxation are properties inherent to all muscular tissues and the uterine muscularis is not an exception to the general rule. Keiffer's experiments, bimanual examinations, etc., all point to a more or less periodic variation in the tone of the myometrium.

During curettage, one often notices a uterine lengthening of 1, 2 or 3 cm: It is no longer claimed, just because the curette in these cases is not kept in constant contact with the uterine wall; that such uterine lengthenings are instances of perforations of the uterus. They are evidences of uterine relaxation. The system of uterine blood vessels is adapted to the expansions and to the contractions of the uterine musculature. R. De Bovis, (3 a) in *La Semaine Medicale*, Paris, 1906, Vol. 26, P. 253, has an excellent and exhaustive article on pseudo-perforations of the uterus.

Though this condition is infrequent, its existence can no longer be denied. In the case reported by N. Gheorghiu, (7) the removed uterus showed no trace of a perforation. In Craig's (6) case, the operator, supposing that he had perforated the uterus, opened the abdomen. He then found the uterus to be uninjured absolutely. Kossman (3-b) bears witness to similar facts.

Perforating wounds of the uterus, especially of the gravid uterus, can be inflicted from above. can occur during the course of a laparotomy; can be associated with penetrating wounds (gunshot wounds, stab wounds, and similar injuries) of the abdominal wall, of the gluteal (9) and of other regions, can occur during the course of delivery. Wounds so inflicted, though they involve the same organ, though they extend also through the entire thickness of the uterine wall, demand, owing to their method of infliction, owing to their portal of entrance, owing to their invariable association with serious visceral or other injuries, to be considered separately from the wounds that form the subject matter of this paper.

We will consider in this article only such perforating wounds of the uterus as are due to violence inflicted from within the uterine canal, that is, only those perforating wounds, in which the vulnerating agent has either been introduced through or traversed the uterine cervical canal before perforating the uterine wall. The element of trauma is essential, is indispensable to an accurate conception of these perforations.

In the course of intra-uterine instrumentation, diseased and healthy uteri, cases No. (10) a, b, c, d, e, f, etc., have been perforated, and most disastrous results have ensued. Wounds of the uterus, like wounds of the

other organs or tissues, are solutions of continuity of tissue. They are always of sudden occurrence and are always due to the direct application of mechanical violence.

To avoid misunderstandings, a distinction must be made between penetrating and perforating wounds of the uterus: The former only enter the uterine wall; the latter, traverse its entire thickness. Therefore, the distinctive characteristic of perforating wounds of the uterus is that they involve the entire thickness of the uterine wall. All the coats, or rather layers, of the uterine wall are interested, the mucosa, the muscularis and the serosa, (in those portions of the uterus that are covered by peritoneum.)

The uterine perforations discussed in this article were always consecutive to some intra-uterine maneuver and always immediately so. In this class of uterine wounds, the vulnerating agent establishes a direct communication between the uterine and some adjacent cavity: the peritoneal cavity, (11) must always; rarely, the vaginal (12, a, b, c) or the vesical cavity (13a) still more frequently, the lumen of the gut. In other cases, the perforating instrument after having pierced completely through a portion of the uterine wall not covered with peritoneum, enters the peri-uterine connective tissues, penetrating between the folds of the broad ligaments (parametrium) (14, a, b, c). If the violence still continues to act, the vulnerating instrument may perforate one or both layers of this ligament and thereby enter the peritoneal cavity (15 a, b.) The perforating instrument may enter the vesico-uterine space, (16a), may enter and lodge in the space of Retzius (17 a), may enter and lodge in Douglas' cul-de-sac. (18 a.)

Traumatic perforations can involve any portion of the uterine wall. In my two cases (19), the perforation, as is usual, and as is most always the case, involved the posterior wall; In Van Ripper's case, (11), the rent was in the anterior wall: It extended from the fundus uteri to near the vaginal vault. In Harris and Whitney's case (20), the anterior wall showed a transverse rent, about 1 1/2 inches in length. In case (21) the uterus was perforated from horn to horn and the perforation was filled with omentum. In case (14b), the perforation was situated at the junction of the anterior and left lateral surfaces of the supravaginal portion of the cervix. In case (22), the perforation was also in the anterior wall.

The perforation may be in the cervix uteri as cases 23, 12, a, b, c; may be in the corpus uteri or may involve both; may be single, may be multiple (they are, most usually, single); may be small, may be large; as in one case (24), in which the midwife produced a uterine rent 20cm. long. In Ulmann's case (25) there were two perforations. In Schenk's case (26) there were three. In Werelius' case (27) the uterus contained seven punctures. The perforation may be barely visible, (in one of my cases merely a subperitoneal ecchymosis was present); may be large enough to permit the escape of a large portion of omentum and of intestines through the rent, as in Hessert's case (28) in which four feet of gut had been pulled

through the uterine rent ; as in Holme's case (29), in which the intestines were found between the woman's legs ; as in Congdon's case (30), in which the operator after pulling 40-1.2cm of the intestines into the vagina, twisted them off. All of these cases recovered. In case 31, the operator kept on pulling intestines until he had drawn out 6 feet of bowels, which he then cut off. This case terminated fatally. In Davis' case (90), during the course of intra-uterine maneuvers, the anterior wall of the uterus was perforated and the intestine damaged to such an extent that over fifteen feet had to be removed. The perforation may be large enough to allow the escape of the foetal head into the abdominal cavity (32); may allow the escape of the foetus into the peritoneal cavity, as in Whitney's case (20). In Tait's case (33), nine months after the perforation, the track of the curette could be still seen. The size and the shape of the opening are to some extent dependent upon the size and the shape of the vulnerating instrument.

The perforation may lead to the formation of a permanent abnormal channel of communication between the uterine and the adjacent cavity as in Dr. Lobdell's case 13, in which the perforation of the uterus took place directly into the bladder ; and a permanent vesico-uterine fistula resulted ; may lead to the permanent prolapse of a portion of omentum into the uterine cavity (cases 34,a,b). Usually, the vulnerating agent is removed after the infliction of the perforation. In some of the tabulated cases, exceptional cases, I admit, it was abandoned in place and was either expelled per vaginam or eliminated by the aid of a slowly ulcerative, suppurative or other pathological process through newly created avenues. The perforating body may be eliminated through the rupture of a near or of a distant abscess or may be removed at operation (cases 35, 14 a, 36) or at autopsy. In one of Treub's cases (17), the bougie was embedded in a retro-uterine abscess. In his other case, he removed by an incision the perforating catheter from the space of Retzius. In Johnson's case 57, the patient was laparotomized and the bougie, cause of the perforation, was found to be almost entirely folded in and covered by omentum, and evidence of the efforts of nature to repair the damage and to prevent injury of the abdominal viscera. In Thorn's case (18), the perforating bougie, after the patient had been laparotomized, was found lying obliquely in Douglas' cul-de-sac. In Talmey's case (10 f), the perforating bougie was found lying in front of the proximal edge of the right kidney. In Bullard's case (38) the crochet hook, was discharged through the anterior abdominal wall. It did not interfere with the continuance of gestation. In Perl's case (24), the needle or trocar that had perforated the uterus, was removed, sometime after, from an abscess in the right inguinal region where it had been encysted after its passage through the uterine wall. In Fairchild's case (39) at the laparotomy, the hairpin was found high up, in the abdominal cavity near the diaphragm. In Patru's case (14 a), the perforating catheter was embedded in an abscess which could be palpated through the

anterior rectal wall. An incision was made through the anterior rectal wall, all the pus evacuated and the bougie removed. In Marchand's case 40, a Hegar's metallic dilating bougie No. XII perforated the uterus and was abandoned in the patient's body. After about a year of invalidism, she was laparatomized, and the sound was found between two folds of mesentery. Recovery.

Any instrument that can be used or misused in the uterine cavity is capable of perforating the uterine wall. All forms of uterine sounds, of uterine dilators, of curettes (the St. Cyr Augur curette included, cases 41, a,b,) can be incriminated. In the case (41, b), thirty one inches of gut had been torn away by the augur curette. In our series, it is stated in unmistakable terms that the vulnerating instrument was

1. Uterine douche tube, irrigator, catheter, 12 cases.
2. Uterine bougie, uterine sound, 17 cases.
3. Uterine dilators, 31 cases.
4. Uterine curette, 44 cases.
5. Miscellaneous, 50 cases.

In other cases, the offending agent is either not stated or happened to be either a probe, case 38, a wire, 39, a meat skewer case 15,b, an electrode case 18.

Perforating wounds of the uterus are always of accidental occurrence; nowadays, they are never intentionally inflicted. They have occurred in the hands of the most dexterous, of the most clever operators. The accident has occurred to Lawson Tait, 33, Auvard (Paris) 42, had one perforation in 270 uterine curettements. It cannot be stated that they are always due to ignorance, to incompetence or to carelessness. But it can be stated that in the hands of the novice, in the hands of the careless, in the hands of the surgically unclean, all intra-uterine instrumentations are dangerous. It can also be stated that in most of the cases where death has followed upon uterine perforation, the perforating instrument had been introduced for criminal purposes. In 26 of the cases considered in this article, the perforating instrument was introduced to end an undesired pregnancy. In some of the fatal cases, in which the perforating instrument was not introduced for criminal purposes it had been guided by unclean hands.

In 1873, L. E. Dupuy, 43, said: "I have found 17 cases reported in which the uterine wall has been perforated from within. In some of these cases, the uterus had been perforated at more than one point. All these patients made uneventful recoveries. In none were any measures taken either before or after the accident, to prevent the development of complications." In 1878, Carl Liebman (44) in reporting two cases of uterine perforations treated expectantly and terminating in recovery, reviewed the subject quite exhaustively. In his article, Liebman makes the following statement: "In not one of the cases reported in the medical literature, and they exceed thirty in number, was the perforation of the uterine wall

followed by alarming symptoms." Liebman compares the accident to paracentesis, to exploratory punctures of organs, procedures which are generally considered harmless. Lenoir (45) says: "These perforations have proved interesting to us not only on account of their frequency but also on account of their innocuousness." Dawson Tait (33) had never seen any ill result follow perforation of the uterus by a uterine sound. In not one of our tabulated case, in which the perforating instrument was a sound, did death result. The aforementioned authors concluded from their study of the literature and from their personal experience, that perforated wounds of the uterus are relatively benign, are unattended with danger. Their opinion is erroneous and is completely disproved by the perusal of the tabulated cases that are to be found at the close of this article.

The dangers of perforating wound of the uterus are manifold. Independent of the danger of shock, there is the danger of hemorrhage into the pelvic and general peritoneal cavities, into the pelvic connective tissues; of infection of the peritoneum, of the intra-abdominal organs, etc. In twenty-three of the fatal cases, it is definitely stated that a diffuse suppurative peritonitis was present. There is the danger of traumatizing the intestines, of traumatizing the omentum. In 35 cases, it is stated that positive injury was inflicted to the intestines or to the omentum. Any of these dangers can prove fatal. In Donald McCreae's case (10 b,) the patient bled to death. She died three hours after the infliction of the perforation. The uterus, in this case, showed practically no pathology.

Several months before, patient had had a miscarriage. At the time of the perforation, twenty-eight inches of intestines were pulled through the perforation and twisted off by actual force. Shock, hemorrhage, visceral injuries and infection may be associated in the same individual case. If a large tear has been made in the uterus, there is danger of a loop of intestine or of a part of the omentum slipping into the rent and becoming strangulated. (Case 11, 20.) The gut may only be incarcerated, not strangulated, in the rent (case 46.) In Kuestner's case (34, a, b,) the omentum escaped into the uterine cavity. Following these two (Kuestner's) unrecognized perforations, prolonged and irregular uterine bleeding occurred. Eventually, vaginal hysterectomy was done in both cases, and on section, each uterus was found to contain grape-like pieces of omentum. In Hartmann's (91) case there was a prolapse of the mucous coats of the sigmoid colon through the uterine perforation.

The omentum may plug the uterine perforation (cases 21, 47). In cases of perforation of the posterior wall of the uterus near the fundus, if the omentum hangs low into the pelvic cavity, it is very liable to become entangled in the curette and drawn through the perforation into the uterine cavity, even into the vagina. If the patient recover from the perforation, the scar at the site of the cicatrix, apparently, does not interfere with the subsequent development of pregnancy, does not add to the dan-

gers of a subsequent pregnancy as evidenced by cases 22, 27, 28, 47, 48, 49, 50. In case 27 though the uterus had been perforated at seven different places, patient subsequently became pregnant and was delivered of a living child. In case 47, the site of perforation was sought after delivery in a subsequent pregnancy. No trace of it could be found. Henck's case (51) is the only case reported in which the perforation is said to have enlarged at a subsequent pregnancy and to have complicated delivery.

How can the frequency of these perforations be lessened? How can the morbidity and the mortality incident to their occurrence be lessened?

a. By the non-employment of inappropriate or of defective instruments.

b. By never entering the cavity of the uterus in the absence of indications.

c. By never entering the cavity of the uterus in the presence of contra-indications: such as, pus in the tubes, in the ovaries or around the uterus, as in acute gonorrhoeal endometritis, in acute septic endometritis, etc. Never curette the uterine cavity until you have excluded, from a diagnostic standpoint, extra-uterine pregnancy.

d. By perfecting our surgical technique.

e. By familiarizing ourselves with the conditions that predispose to the occurrence of uterine perforation. For instance, in removing pedunculated uterine submucous fibroids, the peritoneal cavity, is liable to be opened as in cases 46, 52 a, b.

In a few words, by keeping in mind, in connection with intra-uterine work, that there are:—dangerous instruments, dangerous uteri, dangerous maneuvers.

The use by inexperienced hands of placental forceps, in the uterus, is always dangerous. It is needless, as the finger can do more intelligent work. Even the finger has difficulty, at times, in differentiating between placental tissue, bloodclot and intestines. The uterine sound or hystero-meter is an instrument of very little usefulness. In most cases, the size, the mobility and the position of the uterus can be better and more safely determined by bi-manual vagino-abdominal examination. Laminaria tents should always be as long as the uterus; otherwise, the lower end of of laminaria, instead of projecting a little below the external os, is liable to slip into the uterine cavity. Should then the long axis of the laminaria not remain exactly in that of the uterine cavity, the lower end of the tent becomes impinged against the uterine wall. The uterine contraction may drive that end partly or entirely through the uterine wall. The use of laminaria tents produces a more gradual dilatation of the cervical canal. This is an advantage which, in our opinion, is counterbalanced by the fact that the patient has 16 to 24 hours of pain. We believe that the ~~tupelo~~ tents can with advantage be banished from the gynecologist's

armanent. The danger of infection from the use of tents is great. (Dudley, Chicago; Kelly, Baltimore).

The three-bladed steel uterine dilator is considered dangerous. It has been nicknamed the "perforating dilator," case 53. Its use is to be discouraged. Hegar's graduated metallic dilating bougies are serviceable instruments. They should not be introduced much beyond the internal os. Their function is to dilate the cavity of the cervix uteri, not that of the corpus uteri. It would be advisable that they be marked off in centimeters so that the operator would know at all times how deeply they are introduced. Whenever the fundus uteri is perforated by a Hegar's dilator, the operator is to blame.

As to uterine curettes, there does not seem to be any pattern which can not, suitable conditions being present, determine a perforation of the uterus. The blunt and the sharp, the fenestrated and the non-fenestrated curettes, the even-margined and the sinuous margined curettes are each reported as having perforated the uterine wall. It is better to use a curette, the shaft of which may be bent like a probe, so as to be made to conform to the direction of the uterine canal. A curette which is pliable and curved and broad above is less liable to cause perforation than one which has a narrow upper end and which is rigid and straight. Some models of fenestrated curettes are very apt to catch muscular tissue.

The introduction of the finger or of instruments into the uterine cavity should not be regarded lightly. With but few exceptions, all these perforations have occurred during the operation of dilatation of the cervical canal or during that of curettage of the uterine cavity. These two operations, cervical dilatation and uterine curettage, are, relatively, of great simplicity of technique, of great benignancy and of great efficiency when performed with due precautions, as to asepsis, as to pre-operative preparation of the patient, such as emptying of the lower bowel and catheterization of the urinary bladder. After these operations, judicious after-treatment is of great importance and should not be overlooked. They should not be performed indiscriminately.

They are better performed with the aid of an assistant.

The indications for dilatation of cervical canal are :

1. As a preliminary measure to (a) intra-uterine exploration. (b) Uterine curettage and other intra-uterine maneuvers.

2. As a therapeutic measure in dysmenorhea.

Dilatation or divulsion alone is not to be considered a specific for dysmenorrhea. A considerable number of cases of dysmenorrhea are not in the slightest degree benefited by this operative procedure. In the marked dysmenorrhea, at times, associated with uterine anteflexion, Dudley's operation for anteflexion will be found very serviceable. In dysmenorrhea due to stenosis of the external os, Pozzi's operation is valuable. Dilatation alone is valueless in the treatment of dysmenorrhea due to any of the

various malpositions of the uterus. We must treat the cause or causes which determine the occurrence of the symptom, dysmenorrhea.

The indications for uterine curettage are :

1. To remove placental debris, etc. In this connection let us state that, in the opinion of such men as Coe, Pinard, etc, the aseptic finger, is the best instrument to introduce into the puerperal uterus for the purpose of removing decidual remnants and blood-clots. Pinard, for the post-abortion or post-partum removal of placental debris, rejects the use of the curette and teaches that in all cases of retained secundines, the finger should be employed. He considers it safer and more thorough. There are limits, however, to the power of the human digits and, at times, the curette will be found a valuable auxiliary to the finger. For the exploration of the uterine cavity the finger, by virtue of its tactile sensibility, is far superior to any instrument. The curette is a blind agent. (Le Page, Pinard, Budin).

2. As an aid to diagnosis, as in decidual endometritis, tubercle, carcinoma, chorion-epithelioma and other intrauterine growths. In these conditions the use of the curette as a diagnostic aid is a recognized and sanctioned procedure.

Where carcinoma of the corpus uteri is suspected, the curette must be used with great caution and only to remove small pieces of tissue for diagnosis. Again, in these cases where curettage has been previously performed, great care is necessary because it sometimes happens that the uterine wall has been deeply scraped and then the danger of perforating it is imminent, (cases 35, 88, 67).

3. Removal of abnormal endometrium, causing dysmenorrhea and sterility ; to induce involution of the uterus. As to whether it is wise to curette an empty septic uterus following on labor or abortion, clinicians differ. Naturally, if the uterus contains retained placental tissue, this must be removed. If the curette is used, venous sinuses and lymphatic channels are opened and the protecting barrier of leucocytes is interfered with and possibly removed in places. Further, the fallopian tube may also become infected.

4. To remove the remains of a mole pregnancy.

5. In the treatment of inoperable carcinoma of the cervix, where septic absorption is one of the common causes of immediate distress, curetting the fungating mass and subsequent treatment of the raw surface with strong formalin, frequently does away with sepsis, hemorrhage and pain.

C. What are some of the contra-indications to uterocervical dilatation or to uterine curettage ?

a. The absence of positive indication.

b. The presence of pelvic suppurative processes, either in the uterus, in the uterine adnexae or in the parametrium.

c. The presence of such conditions as phlegmasia albadolens, of uterine or of peri-uterine thrombo-phlebitis. The curette is liable to disturb the thrombi in the uterine veins, at the placental site, or in the plexus pampiniformis. (Byron Robinson, 56).

D. By perfecting our surgical technique, the occurrence of this accident; perforation of the uterus will become a rarity. Before undertaking any intra-uterine maneuver: Determine,

a. by vaginal examination

b. bi-manual vagino-abdominal examination,

1. The presence or absence of adnexial or peri-adnexial disease. Curettement has determined the rupture of tubal, peri-tubal, ovarian, peri-ovarian and peri-uterine pus collections. Even the pulling down of the cervix towards the vulvar outlet by tetaacula has ruptured pus collections.

2. The size, the shape, the mobility and the consistency of the uterus. If the uterus be bound down, or be immobile, as a result of adhesions due to previous pelvic inflammatory processes, it is far more liable to be perforated. Under such conditions, it does not yield to the impact of the uterine instrument, it does not accommodate itself to the pressure exerted by the sound, curette, etc.

3. The presence or the absence of tumors upon or within the uterus.

4. Some operators further recommend that the depth and the direction of the uterine cavity be determined by the careful use of the graduated uterine sound or by the hystrometer, and that any deviation from the normal be noted. Many operators condemn the use of the uterine sound or hystrometer as a means of ascertaining the depth and direction of the uterine cavity. They rightly claim that the same information can be more safely determined by bi-manual vagino-abdominal examination. In case 57, the uterus was anti-flexed; in cases 12c, 67, 58ab it was retro-flexed. In case 59 it was retroverted; in case 45 it was anteverted; in case 11 lateroflexed. All mal-positions, congenital or acquired, of the uterus, if unrecognized, predispose to perforation during the course of intra-uterine maneuvers. Malposed uteri are most frequently perforated opposite the point of angulation. The nutrition of the uterine tissues being impaired at the point of flexure explains the also not uncommon occurrence of perforation at this point. In a retroflexed uterus the anterior wall is the one which is more liable to be perforated; in an ante-flexed uterus, the posterior wall.

5. Get as clear as possible a mental picture of the pelvic organs. Having a definite mind-picture of the pelvic conditions existing in the individual case, if uterine perforation occur, it is more immediately recognized and one desists from further instrumentation. For instance, suppose that in a given case the uterus has by examination been determined to be normal in size, in volume and in position, and that during the introduction of the uterine instrument the latter slips much to one

side of the median line and to a depth greater than that of the uterine cavity, perforation will then immediately be diagnosed.

6. Observe the most rigid asepsis during the course of the operation and see that from the standpoint of asepsis and antisepsis, the patient has been prepared as carefully as though you were going to perform a laparotomy. A complication necessitating a laparotomy may suddenly arise. In uterine wounds, be they inflicted by the sound, by the uterine dilator, or by the curette, you must minimize, you must avoid the liability of implantation of infection. Not much can be done to cure existing infection. Much can be done to prevent the occurrence of infection. The endometrium sits directly on the myometrium with no intervening sub-mucosa to check endometrial infectious invasion.

Chief among the pathological states that predispose to the occurrence of perforating wounds of the uterus are the following :

a. The changes (hyperaemia, softening, etc.) present in menstruating, in pregnant, in puerperal and in post abortum uteri. Perforation is favored by the peculiar state of the muscular tissue of the puerperal uterus. In curetting congested, softened uteri, such as are met after abortion and after childbirth, no attempt should be made to elicit the uterine "cry" (*le cri uterin*) 61, that is the peculiar creaking noise due to the forcible scraping of the uterine wall by the sharp curette. Owing to the softness and friability of the uterine wall, in these cases, this sound is not obtainable.

Perusal of the tabulated cases, at the close of this article discloses that 14 puerperal uteri were perforated, 7 deaths resulting ; that either in the attempt at abortion or in efforts to overcome some of the accidents following abortion, the uterus was perforated 65 times, 25 deaths resulting. After delivery at term, the thickness of the muscular wall, according to Tarnier, is from 2-5mm. 63.—*The Medical Advance*, March, 1909.

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[No. 5.

A CLINICAL PAPER ON INFANTILE WASTING*.

By EDMUND HUGHES, M.R.C.S. ENG., L.R.C.P. LOND.

Medical Officer to North Homœopathic Dispensary, Liverpool.

MR. CHAIRMAN AND GENTLEMEN,—This is a very large subject. Perhaps all diseases in infancy cause wasting. The word wasting means to us getting thin, and implies loss of weight. I am merely going to take a few kinds of wasting which are very common in practice. Probably when I have said something about each of these, there will be more than enough for one evening's consideration; and I shall hope, by presenting the subject clinically, to be of some service to you in the course of daily work.

The kinds of infantile wasting I am going chiefly to deal with are the severer forms. The infant swiftly or slowly becomes emaciated, and the thinness is the striking feature of its case. I will limit myself still further by taking the case of a baby, aged 3 months, and we will suppose that it is not at once clear why it has wasted to this great extent.

Confronted with such a case, several possible causes occur to the mind. *One is syphilis, another gastro-enteritis, a third general tuberculosis, and the last—but not by any means the least likely—an obscure cause which we may style *x. X* is a useful symbol, for it is always helpful to the mind to confess

, * Presented to the Liverpool Branch, January 14, 1909.

its ignorance. I shall, I hope, have more to say later on about this obscure cause—*x*. Before we decide that *x* may be the cause, there must be undertaken a clear clinical process to exclude the other possible causes. I cannot help thinking that some make this clinical process a kind of mechanical process, as may a student when taking notes of a case under obligation, or, like the detectives in an American tale, who exhausted every device suggested by a stereotyped method, and overlooked the obvious. But a clinical process should be directed by a reasoning mind, bent on making its discoveries in the most rapid and most efficient way. I should say that this is the way to diagnose, while the way to make original discoveries is to note even the pettiest details, like prisoners seeking for a mode of escape; and one finds many notable examples of that method in such books as the clinical memoirs of Richard Bright.

We examine the infant's abdomen first. The reason for that is to anticipate the crying which is likely to occur during the examination. The abdomen of a crying baby is hopelessly hard, and even when a baby is at all restive its abdomen has a deceptive feel. The infant is brought near the fire, if fires are needed, placed on its mother's lap half reclining, its head and trunk being well supported. The abdomen is gently uncovered. The examiner sits behind, and to the right side of the mother, so as to be hidden. The infant is shown something to divert its attention. The right hand, thoroughly warmed, is brought round and the fingers placed with the utmost gentleness on the abdomen outside the borders of the rectus muscle, and the spleen and liver felt for. If this simple technique is observed, the abdominal examination is often at once successful; but if crying occurs a little chloroform is required, and the abdomen is then left to the last.

Needless to say, babies of three months hardly ever have tumours or lumps in their abdomens. A few lumbar or inguinal glands are made out, perhaps. Often we are able to feel the inguinal and lumbar glands enlarged on both sides, and then it is almost certain that if we proceed further and examine other

groups of lymphatic glands about the body, they will be found a little enlarged as well. The meaning of that is not quite so obvious as some seem to think, but it is of no great practical importance either to the child or to his medical adviser to know it. Some one took the trouble lately to note the percentage of children of the dirtier classes who had enlarged glands about their bodies. I forget the precise figure he got, but it was somewhere about 80 or 90 per cent., and perhaps half a dozen other writers have recorded a similar result. At this age the chief point is nearly always the size of the spleen and liver, and we may expect enlargement of these organs to be due to a syphilitic change in them. Thus, if they are found somewhat enlarged, one or both—sometimes one is more enlarged than the other—that is very important evidence in favour of syphilis. But it is not enough by itself to settle the diagnosis.

The whole body is next uncovered, and the general appearance noted. When the clothes are all removed we are able to note the shape of the body, the attitude of the body, the degree of muscular power shown, and the condition of the skin. I have often wondered what may be the importance of a prominent abdomen. Sometimes one infers that it is due to distension of the stomach and intestines with gas, and sometimes it is due to an enlarged liver and spleen, rarely to abdominal tuberculosis. It seems to me that in general a prominent abdomen is a bad sign. The presence of visible surface veins is often overlooked. Hitherto I have been unable to find in the literature any study of these veins. I have seen them when the liver was enlarged, and then they are doubtless due to portal obstruction. I have also seen them very clearly in simple "colic."

The bones must be examined. Possibly some of you may fear that I am dealing with trivialities. But the osseous system of young babies affords an excellent example of the actual difficulties confronting the clinical observer of infancy. For you know that changes frequently found in the bones are put down by one school of opinion to syphilis, while if we took our baby over to France we should be told that it might

or might not have syphilis, but it was certainly affected with rickets. It may be that both schools are blinded by a preconception, but no doubt the opposition is partly due to the clinical difficulty. And here I will only say that the fontanelle, its borders, the edges of the sutures, and both parietal and occipital bones should be examined—the last two for craniotabes, the fingers for dactylitis, and the epiphyses for enlargement and inflammation.

Attitude usually tells little beyond the amount of muscular power. A baby of this age, which lies relaxed when awake, and which cannot in the least degree raise its head on its neck, is necessarily extremely ill. I think one usually sees this complete relaxation of the muscles in the severe toxæmia of gastro-enteritis. Perhaps attitude might tell us very much more if doctors—and especially if nurses—became close observers of it and took the trouble to record their observations. So with behaviour in general. It is the language of infancy. The skin needs careful attention. Moderate or great pallor is often seen. Many syphilitic infants at this age have assumed the bronzed or yellowish tint which is familiar to us. Trousseau compared this tint with *café-au-lait*, and with the stain on the fingers seen in cigarette-smokers. But I prefer, myself, to liken it to the sunburn or tan on youthful skins which is *nearly faded off*. At times this colour is so faint that it can only be perceived by comparison with the skin of a healthy infant—and often it is not present at all. Less often syphilis causes a waxy colour, varying from a rather striking waxiness to the severe anæmia of von Jaksch's type, which is seen in later infancy. The mucosæ are then paler than normal mucosæ. All this is intelligible when we reflect that the earlier stage of syphilis is accompanied by a low standard of hæmoglobin as well as by a diminution in the red cells. The nature, and the distribution, of a *past rash* should be enquired into. Mothers are close observers of their children's skin, and, indeed, are very suspicious and anxious about the most trifling appearances on the skin. So they are a great help to us in

this respect. I am in this paper dealing with the non-obvious cases, and as regards the skin these are the cases where a rash has never existed, where a rash has existed but has disappeared, or its traces are not very distinctive, and where a rash exists but needs differentiating. In a wasted baby it is extremely common to find an abnormality of the skin round the anus and on the napkin area generally. Sometimes there has been an eruption of some kind, and the mother or nurse has been dusting it or rubbing ointments into it, and it has gone away and left no traces. I should not like to say that all syphilitic affections of the skin at this age have left distinctive traces, or even any traces at all. In our half-immunized Liverpool population I firmly believe that syphilides on infants may leave no traces, and the number of undeniably syphilitic infants which I see presenting rashes distinctive neither in their colour nor their distribution make me believe that there is no infallible test based on colour and distribution.

There is no evidence that I know of that syphilitic infants do not have non-syphilitic rashes; but it is often quite impossible to say at once that a rash seen on them is not due to their syphilis. But sometimes it is, or ought to be, easy to say that an eruption on a wasted infant is not due to syphilis. There is a large number of cases where the diagnosis has to rest on an existing eruption, and this is the class which compels accuracy. Some excellent studies of the "napkin" rashes of infants exist. Diday's monograph on the syphilides is almost as valuable to-day as when it was written. Parrot devoted much care to the subject, and in 1905 Dr. Jacquet wrote a treatise upon it, and the results of his work have been well transcribed for us by Dr. H. G. Adamson. Speaking generally, syphilitic rashes assume sooner or later a brownish-red or coppery colour. They are apt to involve the flexures, and the palms and soles, and the face round the mouth. Non-syphilitic erythema avoids the flexures, and occurs on the convexities of the whole napkin area, including the inner sides of the thighs, and the calves and heels, which

are apt to touch the napkin. It is pink red or dull red. It may occur in discrete patches, and may show erosions and even shallow ulcers in very bad cases. Feeble young infants often have pustules, occasionally crusts and bullæ of impetigo—all of post-natal origin and due to streptococci. There is a syphilitic "impetigo" which is at once distinguished in this way: Round it is a coppery-red areola, and on removing the crust an ulcer is found, instead of the red, moist surface familiar in impetigo proper.

Some years ago a fat baby aged 6 weeks was brought to me because a severe rash on its buttocks had been getting worse with white precipitate ointment which a capable doctor had prescribed for it. There were two circumstances enabling me to alter the diagnosis. This baby was not wasting—it had not even begun to waste. A rash so intense, if due to syphilis, would not have been seen on a baby which was at once fat and gaining weight. And then there was the other circumstance, that this rash had the dull yellow exudate of seborrhœa. Ointment on Lassar's formula quickly cured it. Seborrhœa has a yellow exudate, and, of course, it often occurs in other parts—the scalp, forehead and face, behind the ears, and on the umbilicus. It should be looked for on the mother's scalp. I think in this kind of case there need be no obsession about syphilis.

Then occasionally syphilitic roseola occurs. Lately I had a case in an infant under three months certainly infected with syphilis, and for a few days the whole body was covered with a rash of this type, which went away as quickly as it came. The exudation and the mucous tubercles or papules in syphilis are whitish, and when dry the exudation is silvery. It has been said that the psoriasis-like lesion is seldom found in babies, and I cannot remember having seen a syphilide in a baby which was very like psoriasis.

Now I have no intention of placing before you a complete summary of all possible rashes before dentition, but merely to offer a few practical ideas; and I think the matter ought

to be put this way, that in many cases we can make up our mind about these rashes, but in some it is impossible to do so. Even the test of treatment is not always a sufficient test, and I repeat my belief that among partly immunized populations it is not always possible or wise to allow diagnosis to rest on the colour and distribution of a rash.

There is one more help in examining this atrophied infant. Since Hess published his paper on the epitrochlear glands I have made a rule of testing these glands for enlargement. Those who have read his article will recall that he says when these glands are bilaterally enlarged to at least the size of a pea they are syphilitic, provided there is no other evident cause for their increased size. In one of my cases the right gland was half an inch across, and was softer than the left which was probably rather smaller than a pea and very hard. These glands may give most important evidence.

The age-incidence of congenital syphilis, is, speaking quite roughly, in inverse ratio to that of tuberculosis. Syphilis has its greatest intensity as a rule in the first month, and post-natal wasting from syphilis commonly begins in the first and second month, at times in the third, but it is quite rare to find clinical evidence of tuberculosis so early as the third month. This is easily explained when we reflect that, according to most careful research, tuberculosis is nearly always a post-natal infection; so that the chances of infection will theoretically be the greater the longer the child is exposed to them. Moreover, a large proportion of the hand-fed have been suckled during the first month or two after birth. Again, though the rule seems to be that the bacillus of Koch rapidly gets generalized over a young infant's body, yet even at this age it may conceivably remain latent, as in the bronchial or cervical glands. This view is justified by experiments of Harbiz. The latency of this bacillus in the European body is indeed one of the most remarkable facts brought out by recent investigations. I cannot myself recall having seen a case of tuberculosis,

clinically verified, at the age we are considering. My last four cases of tuberculous meningitis have all been in infants at the breast, which, according to the parent, were exclusively breast-fed. The youngest of these, in which diagnosis was confirmed by lumbar puncture, was in its fifth month and entirely breast-fed, both parents being in good health. There are certain other instances of the kind showing, like the above, that exclusive breast-feeding by a seemingly healthy mother is not a certain argument against the existence of tuberculosis in a young infant. It is interesting here to note that Heubner (Berlin) observed 844 children under three months of age without finding a single case of tuberculosis, and of 486 autopsies on infants from birth to end of first month (collected by Cornet) tuberculosis was not found in one. For all that, no atrophied baby of three months ought to go without examination with that object in view.

Now Calmette's reaction ought to be done, though it is likely to be negative in any case of advanced or miliary disease, and von Pirquet's reaction is generally found to fail in this class of cases. So we are usually left to our clinical acumen. The main test should be a thermometer in the rectum. A normal morning temperature is negative, but a normal evening temperature (not over 100° F.) for several days is probably positive against tuberculosis. I say "probably" because I remember Soltau Fenwick wrote a decade ago that chronic infantile gastro-enteritis complicated by miliary tuberculosis may have apyrexial alternating with pyrexial periods. He also found that uncomplicated chronic gastro-enteritis might cause a remittent pyrexia reaching to 101° F. in the rectum. But *in general* we may take it that tuberculosis in a child aged 3 months would show pyrexia if tested as I have described, while chronic gastro-enteritis would not. Moreover, an evening temperature of *over* 101° F. would be quite the rule in tuberculosis. There are other tests. Smith pointed out the frequency of oedema of the

feet, and I have several times noted this œdema in my own cases. Sometimes the liver and spleen are considerably enlarged. Now, supposing that only the spleen is enlarged, the abdomen is swollen, the stools are very loose and green, the temperature is raised, there are moist sounds in the lungs, and rapid loss of flesh. Then a Widal reaction should be done. If that is negative, we have, if possible, to exclude syphilis. Now at this age syphilitic spleens are not usually very large, but in tuberculosis also the spleen may only be just palpable, so that the spleen is not likely to help us. Calmette's reaction, let us say, has been tried, and has failed. An effort should be made to obtain sputum. Holt's plan of doing this is exceedingly practical. The child is inverted, and coughing is then apt to bring down sputa into the mouth. His other way is to introduce a piece of sterile muslin into the pharynx. That excites a cough, and the sputa are caught on the muslin. The best kind of sputum is, of course, the thick, muco-purulent kind. There is an important defect in these experiments, and that is the absence of control cases. This obliges one to say that a positive result from the sputum may be confirmatory (if there are other reasons for thinking the child has tuberculous disease), but if there are no good reasons then a positive result is ambiguous.

To sum up, we have the temperature test, the eye reaction, and the sputum test, and the physical signs and family history may also help. I now pass on to other kinds of atrophy.

Some cases are obscure. We have to say, "There is x the matter with this child." To say a baby has been starved is often ambiguous. The term starvation ought to be restricted to cases where not enough food is being given. But it is not always used with this meaning, and if not it implies a power of diagnosis none possess. As I shall say when I speak of diet, the idea of starvation as a hindrance to recovery is a very important and helpful idea. But that is not the same as to say that starvation caused the wasting in the first place. The reason for the initial wasting is not seldom mysterious.

There are some facts and many conjectures. A curious fact to my mind is that, though infants are nearly all constituted alike in their power of digesting breast milk, yet they do not all respond in the same way to the same artificial food, but show much idiosyncrasy. Lately a suggestion has been made. It is that any artificial food causes a feebler secretion of gastric juice than breast milk; that the gastric contents then passing into the duodenum are only able reflexly to excite a feebler secretion of the duodenal juices, and that the contents of the small bowel are in their turn only able to excite a feeble secretion of the succus entericus throughout the intestine. Then we know that after an acute gastro-enteritis parts of the mucosa of the digestive tract are destroyed and permanently replaced by fibrous tissue (Fenwick). We cannot expect a complete recovery in that case. There may be a special micro-organism at work. Ballantyne suggests that ante-natal maternal toxins may pervade the foetal tissues so as to lessen the general metabolic activity throughout the body of the newly born. Then there is the heredity of the subject, which is almost totally unexplored. Drugs, such as alcohol, have been credited with influencing heredity in this direction. But I feel very incredulous about that, because the habit is so common that alcohol has been called "the people's food." We find alcohol in heredity credited with producing more than one defect in the offspring, such as idiocy (Langdon Down), and deficient mammary secretion (Von Bunge). Indeed, if we cared to make out the argument, it could easily be credited with many more. So could caffeine, tobacco, and opium. Perhaps infant wasting is sometimes due to the union of certain germ-characters, a parallelism being found in those hereditary nerve-atrophies and dystrophies which Gowers has called the abiotrophies; the obscure type of wasting alluded to by G. F. Still may conceivably form a hereditary variety. Some cases, again, are clearly made worse by bad "hygiene." A good atmospheric environment helps them to grow into normal children. Space does not allow me to dwell further on these interesting facts and speculations.

We have, finally, to consider the management of these cases of severe wasting; and let me say at once that they demand from us great care and often much knowledge. There are no more prominent examples than these of the success which may follow unwearied attention to detail. Somebody said that the good physician is he who treats each case on its own merits. It is truly unfortunate that the day has but twenty-four hours, and so we cannot always do that. Still, there is a peculiar importance in that saying when we are dealing with infants who are severely wasted. And for that reason I shall not try to sketch out a particular course of treatment, and what I am going to say must be understood as applying only to some cases. Probably there will only be time to make a few remarks and allusions.

First, there is the wasting associated with congenital syphilis, and here there are usually signs of gastro-intestinal complication. Very often, indeed, a great amount of flatulence is present, and the stools are green, showing—one would suppose—maldigestion going on in the small intestine, if no higher. We have to be clear in our minds about the frequency of a coincidence of disease. If the syphilis is not clearly bad, no genii is there to tell us that the wasting is due to it. I have not the smallest doubt that many cases are lost through ignoring this idea. It ought to be in our minds when treating wasting associated with syphilis. The first thing is to be certain that syphilis is there at all. If so, it ought to be treated; but this is sometimes of secondary importance, and some cases do very well without a single dose of mercury. These are the cases doubtfully syphilitic which recover weight by being dieted, &c., and which afterwards show a syphilitic process of some kind. A superstitious faith in mercury, as though it were going to do some conjuring trick at short notice, is often disastrous and so is a routine method of feeding. It is, perhaps, not the least of the offences of what is called "sterilized milk" that it gives a handle to routine.

A word now on mercury. I shall be glad to have your experiences with mercury in high triturations. My timidity is such that I seldom use these triturations. There seems an agreement that mercury should be given in rather large doses of course for short periods; say, 1 gr. of grey powder or $\frac{1}{2}$ gr. of calomel two or three times a day; an inunction of blue ointment two or three times a week may be combined. Mercury is not contraindicated, of course, by the presence of gastro-enteritis, and Ringer long ago showed that vomiting at times ceased when mercury was given. "Snuffles" should certainly be specially treated. The nasal obstruction interferes with sucking, and the infected mucus, often full of streptococci, gets into the stomach and causes a gastritis, and is absorbed into the blood and may cause a broncho-pneumonia. I usually start with glycerine tampons. The nostrils are dealt with alternately three or four times daily for three or four days together. The glycerine must be thick and anhydrous. Koplik and some others advise a $\frac{1}{2000}$ solution of sublimate in a nasal syringe. A recent plan is to insufflate calomel. The 1x trituration comes in here, and 10 gr. of this are blown up each nostril three times a day. I believe no case should go without the experimental use of potassium iodide. It is noteworthy that this drug is often withheld from syphilitics of any age, but it is quite certain that, if this practice were questioned, no rational excuse could be found for it. I consider the facts about syphilis at all ages prove in a perfectly conclusive way that iodide should be started not later than six months after infection. The subject of syphilis is quite confused by the arbitrary terms secondary and tertiary. Such terms impress upon the medical student a notion that the one stage has to precede the other; and that is a pathological error of the first magnitude, which has cost many people their health, if not their lives. In treating children we must beware of this notion; and I suggest an evening dose of 5 gr. or more of KI in early infancy. Dr. Carter (of this city) not long ago showed that iodide took about fortyeight hours to be eliminated, if no longer; but a daily dose seems to

me wise to ensure a continuous effect, and it often, in my experience, stops the incessant crying of these unfortunates. Reverting to mercury, I cannot find that infants in this country have had hypodermic or intramuscular injections. Here and there an isolated case may have been reported, but the method seems not to have been used on a large enough scale to command attention. Lewin, that ardent advocate of sublimate under the skin, did not risk his plan on babies. But the results of weekly intramuscular injections are very brilliant. Fournier uses, among other preparations, a fine 5 per cent. calomel emulsion in sterile olive oil for adults. Colonel Lambkin's formula is mercury 1 part, lanolin 4 parts, liquid paraffin 5 parts. For a child, 2 or 3 minims $\frac{3}{4}$ in. in the gluteal region weekly, or bi-weekly, would be suitable. Occasionally these insoluble mercury preparations have caused inflammation and poisoning, but this is very exceptional, and I believe the experiment is worth a trial.

In atrophy of any kind nux vomica seems to help. I use the 3rd centesimal tincture before each feed. Another favourite of mine is iodine, especially when the stools are loose and yellow. In cases of marked pallor iron is valuable, and I am fond of the ammonio-citrate and saccharated carbonate, 3 gr. of either for a dose. Iron with me has been more helpful in the cases for which calc. phosph. and calc. carb. are often given than these calcium salts themselves, unless they are very strongly indicated. Both human and cow's milk contain an amount of the phosphate in suspension which makes any addition on our part redundant. The above are the medicinal measures I suggest, but in no dogmatic spirit.

Probably hypodermoclysis has a future in these cases. The usual solution is normal saline (.3 to .5 per cent.), and it may be given twice a week. Baginsky (*Folia Therapeutica*, 1907) has reported some fine results in severe atrophy with gastroenteritis, and injected as much as 100 to 200 cc. Quinton's method with isotonic sea-water is more highly spoken of, and has been used on the Continent for some years in these

atrophies. Unluckily there is no Liverpool syndicate engaged in supplying the profession with this mixture, but I shall be happy to furnish any enquirer with the details. It is injected in doses of about 10 cc. into the scapular region every two or three days.

The following case illustrates another recent idea in treatment of atrophy, and is based on the discovery of vacuolation of the thyroid in certain autopsies on the atrophic. If special attention were directed to organs usually unexplored in the *post-mortem* room, curious finds might be made. On May 7, 1907, I saw a little girl (out-patient) at the breast, aged 3 months. The last five out of the eleven children of these parents had wasted and died in infancy. They had nearly all been breast-fed. This infant promised to be the sixth of the series, for it had already begun to waste. No clear cause could be elicited on enquiry and inspection of the parents. The infant slept well and was contented, digestion was normal, and evidence of syphilis past and present was lacking. There was considerable loss of fat, and to great pallor. The initial weight was not ascertained, but Pfeiffer's tables give an average of nearly 12 lb. for the age. Nothing was done except to order thyroid in mucilage, $\frac{1}{2}$ gr. three times daily. Breast-feeding, in spite of its possible defect, was continued. By May 17 we felt certain that improvement had occurred. On May 21 weight was 10 lb.; on June 10, 11 lb.; June 26, 12 lb.; July 9, 13 lb. The treatment was then stopped. Steady progress ensued, and the child is now a sturdy two-year-old. No diarrhoea occurred during the thyroid feeding, which lasted for two months.

One other case may be given to show an occasional cause of serious atrophy, and the right way out. Some two years ago I was consulted about a 6 months old boy who had been breast-fed for the first four or five months, and then placed on municipal milk. He had grown fairly well till his mother's milk gave out and then had developed a habit of vomiting after his bottle. This by now had become constant after every

feed, and the infant was greatly wasted. He was said to have a cough. In order to find out the nature of events I visited the house, and saw him given a small feed of corporation milk which was greedily taken. He then lay contentedly for five minutes, during which time careful scrutiny failed to detect any visible peristalsis. A little dry coughing then occurred, after which the milk was vomited. I passed a catheter into the stomach to exclude stricture of the œsophagus. The problem was solved on noting some nasal obstruction and on looking at the other children; they both had adenoids and the characteristic physiognomy. This infant was at once referred to my friend, Mr. R. Craig Dun, who was of my opinion and wished to operate, but this was refused. Drosera was then given without effect. A few days later death occurred from malnutrition.

An instructive chapter might be written on incessant vomiting in babies. Adenoids is a most important cause; another is pyloric spasm. I do not refer to pyloric hypertrophy, but to the spasm which probably occurs there when too large or too hard curds are formed in the stomach of the bottle-fed. This is a very serious matter, and it is one for the physician and the nurse. I may say that if the nurse does not know the right technique of stomach lavage it will probably fail, and death be attributed to the means for averting death. The infant is held half reclining, the head a little forward; the tongue is slightly depressed, a No. 12 E rubber catheter compressed at the proper part is passed gently to the back of the pharynx and thence 7 in. from the lips; 2 oz. of warm water are introduced and returned, and this goes on till the water comes out clear. The infant then has absolute rest for half an hour, when it can be fed. Lavage is done once a day, and curd-free diet given. These cases are of gastritis, with superadded spasm; they often pass from doctor to doctor, because the vomiting resists bismuth and soda and somebody's brand of potato-flour. And that is unfortunate.

(To be continued).

EDITOR'S NOTES.

The Digestive Ferments in the Infant.

An interesting paper was read before the German society for Children's Diseases by Dr. J. Ibrahim of Munich giving the results of his own study of 12 newly born and 22 premature infants, as well as a review of the literature of the subject. Trypsin was found to be present in the pancreas of the foetus in the form of trypsinogen, which could be rendered active by enterokinase. This substance could be extracted from the intestinal mucous membrane in the newly born. Secretin was present in the newly born and also in the foetus in some cases. An amylolytic ferment could be demonstrated in the parotid and the submaxillary glands as well as in the pancreas in premature infants in the later months as well as at term if it was allowed to act on starch for 12 or 24 hours. It was found to appear in the parotid distinctly earlier in foetal life than in the submaxillary gland or pancreas. Maltase, lactase and invertin were absent from the salivary glands and from the gastric mucous membrane. Maltase was sometimes found in the pancreas of the newly born, but lactase and invertin were never found in that organ even in older sucklings. Lactase was found in the intestinal mucous membrane of the newly born, but it appears to develop late in foetal life and is often wanting in viable premature infants. Maltase was earlier in its appearance and invertin is one of the earliest ferments to appear in the human embryo. In regard to fat-splitting ferments or lipases peculiar results were obtained. No ferment with this property could be separated from the mucus membrane of the intestine, but, on the other hand, a lipase was found in the gastric contents and in the mucous membrane of the stomach both in full term and premature infants. Dr. Ibrahim in some experiments carried out in conjunction with Dr. Kopeé found that even with a diet free from fat or containing but little fat the gastric contents of sucklings contained a powerful fat-splitting ferment.—The *Lancet*, March 20, 1909.

Radium.

The Royal British Radium Institute has accentuated the interest in radium and a firm of medical and scientific instrument makers is supplying tiny tubes of radium bromide for internal therapeutic work. As glass absorbs some of the emanations the radium bromide is enclosed in a small dome about a quarter of an inch in height by three-sixteenths of an inch in diameter, made of quartz. The tube is hermetically sealed to a rod and can be introduced into an incision or into the interior of the body. The quartz holds only about the sixth of a grain of radium bromide, but it costs \$500. At the French Academy of Sciences M. Dastre, professor of physiology at the Sorbonne, recently described a new process of sterilized milk. The milk is exposed to the ultra violet rays of a mercury vapor lamp. A funnel is used and the milk poured slowly on its interior surface, which is illuminated by the rays, as the action is limited to a small radius. The chemical composition of the milk is not affected.—*The Medical Counselor*, April, 1909.

X-ray Cancer.

Prof. Cecil Rowntree, F.R.G.S., of the Middlesex Hospital cancer research laboratories, in the course of a lecture before the Royal College of Surgeons on the X-ray cancer stated that there had been in England eleven cases of cancer arising among X-ray workers. Prof. Rowntree said it was probable that this form of growth was not of so malignant a nature as other kinds, and that therefore extensive operations, which would be the appropriate procedure in cases of ordinary cancer, would be unnecessary. Evidence shows, he said, that X-rays have two separate and distinct actions upon animal and vegetable cells. In relatively large doses they have a destructive or paralyzing action upon the cells' activity, whereas in small and oft-repeated doses they bring about exactly the opposite condition and stimulate the tissues to abnormal activity and increased growth. Prof. Rowntree is of the opinion that these observations may have an important practical application.—*The Medical Counselor*, April, 1909.

Overcrowding of the Profession.

The overcrowding of the profession, with reduction of professional income, to which we recently referred in these *Notes* as causing anxiety in America, is now exciting apprehension abroad, as well as in the States and in our own country. Many medical associations in France are issuing letters of warning to parents, guardians, schoolmasters and others, pointing out the unsatisfactory future that awaits the young medical graduate. It seems that increasingly large sums of money are spent annually in helping the families of doctors in distress by the Association Générale des Médecins de France. From 1891 to 1904 the amount so donated rose from 39,490 francs to 318,000. It is stated that 45 per cent. of French doctors make no more than £100 a year from practice. In our own country matters are, fortunately, not quite so bad. The *British Medical Journal* estimates the average income of the practitioner as from £200 to £250 a year. The Joint Committee of the Manchester and Salford Divisions of the *British Medical Association* has been considering the propriety of following the example of our French *confrères*, and adopting some means of warning young men who think of adopting a medical career. Accordingly, a circular letter has been drawn up with this object, and sent by this Committee to the head masters of the public schools and grammar schools in Lancashire. This letter is given in the *British Medical Journal* for February 27. It is forcibly, but temperately worded, and ought to have the desired effect. We hear that the same trouble is also being experienced in Germany, and similar warnings are being issued there.—The *British Homœopathic Review*, April, 1909.

The causes of Overcrowding.

No doubt much the same causes obtain in each country concerned, the greatest being the increased number of graduates turned out by the colleges, which is far in excess of the demand. But there is also the fact that during the last decade or so the influence of preventive medicine has made itself increasingly felt—to the great advantage of the community—and sickness is lessened, and when it occurs is more rapidly recovered from, whilst the mortality is diminished. In Paris in 1886, the death-rate was 24·3 per 1,000, and the number of cases of illness was estimated as 243

per 1,000 inhabitants; whilst in 1904 the death-rate was only 17.6, and the cases of illness 176 per 1,000. Similarly, in England, we are gradually showing a greatly decreased death-rate, as all who observe the Registrar-General's figures, frequently given in the daily press, will have noted. Our French colleagues also complain of the great and uncontrolled increase of illegal medical practice. We doubt whether this obtains here to a like extent, though judging from the advertising columns of our papers, there would seem to be an increase in the amount of patent medicines sold. These, however, are largely taken by healthy people who would not otherwise consult a doctor. Another cause, which doubtless affects both countries equally, is the great increase of clubs, and more especially the uniting of these into single associations attended solely by their own medical men, who are usually much underpaid. A few years ago these clubs were distributed amongst the various medical men of each town, who now necessarily have lost this source of income.—The *British Homœopathic Review*, April, 1909.

Cytological and Bacteriological Examination of Sputum.

In order to carry out by means of one film a cytological as well as a bacteriological examination of sputum, Dr. K. E. Eckenstein has described in the *Gazette Hebdomadaire des Sciences Medicales de Bordeaux* of Feb. 7th a combined method of staining which he claims to be of considerable value. Films are carefully made from recent sputum, precautions being taken to avoid crushing; they are stained with carbol-fuchsin and gently heated in the usual manner. Decolourisation is effected by means of 20 per cent. sulphuric acid and the specimen is washed in 95 per cent. alcohol and in distilled water. It is counterstained for one or two minutes in a solution of the precipitated stain of Giemsa dissolved in methy-alcohol, then a few drops of distilled water are added, and the specimen is shaken for about a minute, and then washed in distilled water. The stains of Jenner, of May and Grunwald, and of Leishman give similar results and they may be combined with ordinary Giemsa stained diluted to 1 in 20. By this means the various cells, such as lymphocytes, polymorphonuclear leucocytes, and epithelial cells, found in sputum can be differentiated and their percentage determined. Mucus is stained violet, fibrin greenish, and albuminous exudates bluish, while tubercle bacilli are stained red and other organisms blue. The same

process may be applied to other pathological exudates and fluids.—*The Lancet*, March 13, 1909.

“ One aim.”

Every now and then some one reads a paper deploring the hostility that exists between the schools, condemning the “pathics” and urging brotherly love, and so on, because “all are animated by one aim,” that of curing humanity. All that they say is true, in a general way, the sentiments expressed are Christian, but can hardly be termed scientific. In olden times the mariner steered by his knowledge of the coast line and largely by guess work when he got out of sight of land. Then some one discovered the compass. It always pointed to the north, no matter who used it. It revealed a law of nature and revolutionized navigation. Probably the majority of the mariners at first refused to believe in it or even use it. They were honest old salts as honesty went in those days, but the man who understands the compass would hardly let their conservatism influence him in navigating his vessel. He might meet with disasters even as did the mariners who stuck to the coast line, but this did not prevent the needle, always, in all hands, on all lands and seas, pointing to the north. A pirate might use it skilfully or a good man go on the rocks while using it, but always the needle pointed to the north. Hahnemann stumbled on, or discovered the compass of the drug law, and brotherly love, charity, oneness of aim and all that sort of thing bear on it just as they do on the sailors' compass. Neither has any one ever “improved” the power that points the needle.—*The Homœopathic Recorder*, April 15, 1909.

Cancer Cured by Kali bichromicum.

The intense public interest, and the state of expectancy in the profession, on the question of cancer treatment, is producing a crop of papers and letters on the subject in both medical and lay journals. Following the recommendation of cocaine in place of morphine, to which we referred in our “Notes” last month, the *British Medical Journal* for March 6 has three papers on cancer, of which one—by Dr. James Fenwick—is of considerable practical interest. This gives a series of twenty-one cases of undoubted cancer, chiefly tumours of the breast and epitheliomas, cured by

injections of a saturated solution of *bichromate of potash* in water into the growths. From 7 to 15 minims were injected every two or three days, the number of injections required being from six to twenty, according to the size of the tumour. The effect appears to be to produce sloughing out of the tumour, leaving a healthy granulating surface which rapidly heals over. Three of the cases were treated by Dr. Pilkington, of Philadelphia. Rodent ulcer seems to be especially amenable to this method; several cases of extraordinarily rapid cure are reported. The paper is noted as a "preliminary communication," so we await further details with interest. The injections seem to cause some pain, and but little is said on this point. Superficial sores are treated by the application of the solution in absorbent wool left *in situ* for twenty-four hours. Photographs are given of several typical cases before and after treatment. The resulting scar seems to be soft, white, and healthy. Whether *kali bichromicum* has any further action on cancerous tissue than that of a caustic seems to be doubtful; if it has not, the treatment will probably prove to be little better than that of the old arsenical paste or formalin pads, or other escharotics, which have deservedly fallen into disuse.—The *British Homœopathic Review*, April, 1909.

Our Bleached Daily Bread.

There is reason for believing that the practice of bleaching flour to suit the eye of the un instructed public is largely on the increase. It may be at once stated that the whiteness of bread is not symbolical of its purity and that when this whiteness is almost spotless a suspicion that bleaching chemicals have been used with the flour may fairly be entertained. It would be well if this false criterion of whiteness were disestablished and a return made to the old and sensible preference for a bread retaining the natural slightly brown colour of the ground wheat berry, colour which is probably significant of a palatable, nutritious, and digestible loaf. It cannot surely be advanced that the treatment of flour with chemicals improves its qualities as regards its suitability for human needs. The chemical itself may be innocuous, but that it has a powerful action upon certain constituents of the bread is evident from the fact that the colouring matters of the flour are bleached. Bleaching, in fact, commonly implies a strong chemical action. It is important, therefore, to determine whether the action of a chemical which

bleaches the colour of a flour does not also unfavourably affect the nutritive constituents of that flour. At all events, it is well known that chlorine renders protein-stuffs insoluble, and that being the case their digestibility is not likely to be improved by chlorine treatment. The favourite bleaching agent, however, appears to be nitrous acid fumes. Medical men need not be reminded of the powerful physiological effect of the nitrites, and, indeed, it is doubtful whether any group of agents in the *materia medica* show such an intense action on the circulation as does this class of drugs. It may be urged, however, that although nitrous acid is used for bleaching the flour, yet all trace of it would be removed when the flour was cooked, and that not a particle could persist in the finished loaf. If we accept this the question remains as to how far the food value of the loaf is depreciated. Judging from the powerful oxidising action of nitrous acid as shown in a series of reactions well known to chemists, the extreme probability is that nitrous acid would affect the most important dietetic constituent of the flour—viz., the gluten—in such a way as to make it less digestible, and we can say the same of chlorine and of ozone. The remedy is in the hands of the public who, for the sake of their health and bodily well-being would be well advised to abandon the fallacious notion that the whiteness of bread is a mark of its quality. On the contrary, it nearly always means an insipid, unpalatable bread, and an attractive flavour is a factor of considerable importance in connection with the digestibility of food. The destruction of the natural colour of flour by bleaching agents synchronises with the destruction of its attractive flavour. Such tampering with “the staff of life” should be made illegal.—*The Lancet*, March 20, 1909.

Medicine among the Hill Tribes of Sumatra.

In a paper sent by Dr. Römer, a Dutch colonial surgeon who practises at Médan on the east coast of the island of Sumatra, to the Academy of Medicine of Paris on “Medicine among the Bataks” (and published in *La Semaine Médicale* on February 17th) some interesting particulars of these hill people, who are the last representatives of Sumatra cannibals, are given. They are very insensitive to pain and they live together with pigs and dogs in a state of filth and immorality. Married women are, however, faithful to their husbands. Although incest is, generally speaking, looked

upon as a serious vice there are tribes in which a father is permitted to cohabit with his daughter the day previous to her marriage. They are very gluttonous and will eat putrid meat and rotten eggs. Their "medicine" is, like that of many other savages, largely dominated by their endeavours to propitiate evil spirits. They do, however, use massage, medicated baths, and drugs of various kinds. Unfortunately, their superstitions will not allow them to utilise the various hot and sulphur springs which are close at hand. Scabies is treated by means of poultices of curcuma and lime, and pruritus is soothed with poultices of cacao oil and lime or the leaves of cassia alata. Leprosy, of which frambœsia is looked upon as a precursor, is much dreaded, and sufferers are obliged to live at a distance from villages, the inhabitants of which take them food. Hare lip and goitre are common, though cretins are not often met with. In epidemics of cholera and small-pox the people desert their villages. Much has, however, been effected by the missionaries who have introduced the practice of vaccination. Rabies is said to be common. Wounds are treated by tobacco or other leaves or by applying the juice of a species of polygonum. Abscesses are opened and fractures are bandaged with splints. Syphilis is said to have been introduced in 1817. For this the juice of the root is also employed. Gonorrhœa is very common. Although parturition usually gives very little trouble some midwives are said to be able to diagnose a transverse presentation and even to turn by external manipulation, and even embryotomy is occasionally performed. Abortion is practised both on girls and married women who do not like having too many children; the means employed include massage, some reputed abortive drugs, and perforation of the sac by means of a piece of bamboo. Failure in the case of young girls often leads to suicide for fear of ridicule. Poisoning is tolerably common upas antiar, different kinds of strychnos, solanacæ, and euphorbiacæ being used. Sometimes sulphate of copper and alum are introduced into the pot in which rice is being cooked, and as arsenic is freely sold under the name of "Death to Rats" it may be occasionally employed for the removal of an obnoxious person—*The Lancet*, March 20, 1909.

Metchnikoff.

This gentleman, who is so much in the public eye, who is "the successor of the great "Pasteur," is, at least, original in his ideas, though whether those ideas are anything more than original is open to discussion. His favorite hobby, or discovery—according to your point of view—is that nature, or the Creator—again, according to your point of view—made a mistake in the matter of the "large bowel," which it is the duty of men of his class to correct. This large bowel is a source of danger, and the cause of that disease (which an ignorant world has hitherto foolishly re-garded as an inevitable condition) known as "old age." This bowel is the habitat of a numerous horde of microbes which "ex-crete poisons which are taken up by the circulation" and thereby produce arterial changes, *alias*, "old age." It is a brilliant speci-men of what, with many, passes current for science. But nature has the whip-hand, for the present, and holds to her "mistakes." A disciple of Metchnikoff, a man of Indiana, U. S. A., recently determined to prove nature's error and incidentally circumvent old age, had his large bowel cut out. The operation was successful, but the man, who was a doctor, died. He escaped old age, however, and thus far proved the truth of his master's discovery.—The *Homœopathic Recorder*, April, 15, 1909.

Leprosy.

M.M. Gaucher and Abrami have been working at Hansen's bacillus in the hope of arriving at a serum diagnosis of atypical forms of leprosy. The technique used by the author was as follows: "After removing, with the usual antiseptic precautions, a subcutaneous leproma in a patient affected with undoubted tuberculous leprosy, we removed from this leproma all apparently healthy tissues adhering to it. The nodule was then chopped very fine and dried *in vacuo* for sixteen hours. At the end of this time the diseased tissues form a sort of brownish paste, of fatty appearance, but perfectly dry, which can be preserved in a sealed tube in the ice-chest. It is with this paste that we made the emulsion used in our research for the *reaction de fixation*. For this purpose 1 gramme of extract was mixed with 10 grammes of 8 per 1,000 sterilized solution of sodium chloride. The tube containing the mixture is strongly

shaken, then placed for two days in the ice-chest in order to avoid contamination of the emulsion. At the end of this time the liquid is turbid, of a milky-white appearance, with a supernatant greasy ring which must be decanted and rejected; at the bottom of the tube are found the broken-up fragments of the leproma. It is with the supernatant liquid that our series of researches have been made. A drop of this liquid examined under the microscope shows the presence of Hansen's bacilli, debris of cells invaded by these bacteria, and numerous cellular remains. We have, therefore, to deal with an antigen of mixed composition containing at the same time a large quantity of specific bacilli and the products of tissues infiltrated by them.

"The search for the reaction of fixation, effected with the antigen thus prepared, after a contact of four hours at 37° C. between this antigen and the various serums tested, furnished results of remarkable precision. In eight patients attacked with tuberculous leprosy, the reaction, repeated many times, was constantly positive and very intense. On the contrary, with the serum of thirteen patients suffering from divers acute affections, of sixteen syphilitics, two cancerous patients, three lupus cases and seven cases of pulmonary consumption, the reaction was constantly negative. Three tuberculous cases alone gave a slight fixation.

"Applied to the differentiation of syringo-myelic conditions and the nervous forms of leprosy, this method gave the following results: In eight patients attacked with typical syringo-myelia whose serum was obligingly furnished by M.M. Marie and Claude, the reaction of fixation was entirely negative. The same was observed in a case showing all the symptoms of Morvan's disease. On the contrary, in a patient suffering from tropho-neurotic leprosy, the reaction, tested for on repeated occasions, was always positive and very intense. The serum of another patient with analgesic panaris of the Morvan type furnished also a strongly positive reaction. In both cases it was impossible to affirm on clinical grounds alone the leprous nature of the ailment.

"Complementary researches showed, furthermore, that the serum of these lepers possessed a very energetic anti-complementary power in presence of very different antigens; placed in contact with emulsions of *Bacillus typhosus*, of Friedländer's pneumobacillus, of staphylococcus, &c., a very intense reaction of fixation was obtained."

—The *Journal of the British Homeopathic Society*, April, 1909.

CLINICAL RECORD.

Foreign.

SCROFULOUS INFLAMMATION OF THE GLANDS.

BY DR. STROHMEYER, FRANKFORT a. M.

About five weeks ago the wife of one of the higher officials of the railroad here came to my office with her boy, three years of age, and asked me to treat him for a glandular swelling in the corner of the left jaw, about the size of a hen egg, and to endeavor to master the case without the knife, of which he was afraid.

The child had been under treatment from the first beginning of the swelling until a few days before it was brought to me; the Eclectic physician was acknowledged to be a good doctor; but in spite of the compresses, packings, teas, vegetarian diet, and the occasional prescription of cod liver oil, the symptoms had been aggravated, until they caused great anxiety to the parents. According to the opinion of the father the child had been perfectly sound and well up to the day when it was vaccinated; but some time after that it had been attacked with various eruptions, which at a later period were followed by frequent, very small glandular swellings.

I could still notice that besides the greatest swelling, there were, at least, ten small glandular nodules on both sides of the throat and in the region of the neck. On account of the hard swelling on the corner of the jaw, the boy was compelled to hold his head crooked, quite a depressing position for a boy fond of games and sports. I assured the mother that she need to have no fear as to any eventual disfigurement by an ugly cicatrice from the swelling; I omitted all external applications, only ordering it covered with raw cotton and rubbing it with warm lard every evening; I continued the vegetarian diet and open air, and prescribed internally the never failing *Natrum phos.* in the 6 decimal trituration, a small quantity every three hours. In about three weeks the swelling was reduced to the size of a walnut and is now of the same size as the other nodules which showed no change from the use of the *Natrum phos.* But I am sure they will not long be able to resist the effects of *Kali chlorat.*, in alternation with *Calcareea phosphor.* From this simple cure it may be seen that it is no great thing to

master certain diseases—if we have the specific remedies and do not depend on water alone.

CHRONIC BRONCHIAL CATARRH.

BY DR. STROHMEYER, FRANKFORT a. M.

The little boy of a butcher here has been suffering since the third year of his life—he is now five years old—from bronchial catarrh. This, at first, consisted of detached attacks followed by periods when there was a considerable improvement; but within a year it has become stationary, and the little boy has been most of the time confined to the house. When he was examined, there were rattling noises all over the different lobes of the lungs, and these in most cases completely cover the natural sounds due to respiration. Occasionally there is some dyspnoea, the appetite is bad, the complexion pale, sallow, and he looks bloated. When undressing the boy, I perceived a disagreeable, musty smell, and this became somewhat intelligible when I saw that the whole skin of the body was in an unhealthy condition and showed a number of places where it had been scratched open. Being asked whether there was a severe itching with aggravation in the warmth of the bed, the mother affirmed this, and I naturally first thought of itch, but because of a different opinion when I heard that the other three children of the family, one of whom even slept in the same bed with the patient, had never been troubled with the eruption. But the matter was cleared up when, on further examination I found that the child had had in his second year an eczema all over the hairy scalp, also behind the ears, on the cheeks, and in the corners of the mouth; this moist eczema had been driven away violently by means of Zinc ointment and other salves. "It took the physician a long time before he had cured it all," said the mother. I had my own thought about it, and was glad that thoughts are still untaxed, and the "physician" could not look into the pigeon-holes of my mind. Prescription: *Psorinum* 30. C. in pellets; directing the mother to give him one for three days in succession every evening before he went to bed. After two weeks I again called on the child, and heard that there was much less of the irritating itching, and that the skin was much cleaner; I could see this myself when I looked at the chest and the legs of the boy, I could also hear by auscultation, that the normal vesicular respiration could again be heard, and that the

many painful, whistling noises had diminished in intensity. No medicine was given this time. In two weeks more, the skin was healthy, and the respiration had improved some more. Prescription: *Psorinum* 200., four powders, each with ten pellets, to be taken every two weeks dry. In the course of nine weeks the disease had disappeared, all but some minimal remains, and I advised the parents to let the boy go to the Soden Springs in springtime, and to take the treatment there, so as to confirm his health —The *Homœopathic Recorder*, April 15, 1909.

CHRONIC INFLAMMATION OF THE FAUCES.

BY DR. G. SIEFFERT, PARIS.

The wife of my porter came to me in great alarm and said: "Please, Doctor, examine my husband carefully. He coughs every night so wretchedly, that I am afraid he is consumptive, the more so, as every fit of coughing is followed by copious expectoration."

So I had the patient come into my office, and according to the wish of his wife, I examined him carefully from top to bottom.

He is a well built man, thirty-seven years of age. There is no headache, no fever, no lack of appetite, a normal stool, no weariness, and his life is quite regular. The man complains of nothing except his severe spells of coughing, which also, he says, occur during the day time.

An examination of his chest to my great astonishment, showed no results. But when I examined his buccal cavity I found on the posterior walls of the fauces very numerous puriform granulations extending downwards, which, of course, had caused a pronounced inflammation of the fauces.

I questioned the patient more at length and he confessed, that he thought the matter of no importance, and that in secret he is a smoker of cigars, and in order to satisfy his pleasure in smoking he was accustomed to swallow the smoke.

Now the whole matter became clear. It was an inflammation of the fauces caused by smoking. First of all I forbade smoking cigars. As treatment I prescribed atomizing the wall of the fauces with mineral sulphur water, and internally I prescribed twice a day four drops of *Arsenicum album* 6., to be taken in a tablespoonful of water. With this I prescribed a pretty strict diet. No salt-water fish, no pork, neither fresh nor smoked, no sharp cheese, no sausage, no alcohol.

The patient faithfully followed my prescription and in four weeks all symptoms had disappeared.

ABSCESSSES ON THE LABIÆ OF THE PUDENDÆ.

BY DR. G. SIEFFERT, PARIS.

Whatever may be their origin, such abscesses are, as a rule, very obstinate, *i. e.*, hardly is one abscess healed up, before another appears, and the series is often a long one. Thus I was called in last spring to see a woman forty years of age, who had every year a recurrence of such abscesses. Domestic remedies, poultices as also surgical incisions, had given no relief, and the patient then decided to call in a homœopathic physician.

There was a tumor the size of hen-egg on the right labia, attended with much fever, violent pains and complete failure of appetite. The tumor was near bursting open, and I prescribed cold water compresses, moistened with a solution of *Corrosive sublimate* 3. D. Internally I prescribed *Silicea* 6., two drops in a tablespoonful of water, morning and evening.

"I am quite sure that the tumor will burst open," said the patient. "But as soon as it is healed up another will follow, and what can your drops help me?"

"Just be patient and wait," was my answer.

The tumor actually burst open next day, and soon healed up under treatment: but that *Silicea* proved effective may appear from the fact that no other tumor has appeared since. The patient continued using *Silicea* for some time, and there does not now seem to be any likelihood of a return of these tumors. The cure caused her to become a warm adherent of Homœopathy.

PSORIASIS LINGUÆ.

BY DR. G. SIEFFERT, PARIS.

There is one ailment in which therapy has not usually been able to do anything, except where lues are the cause of the disease. Though I gladly give an account of the following case, I would not assert that the remedy used by me will in all cases prove effective. Nevertheless the case is too astonishing not to be reported.

A man, thirty years of age, consulted me on account of a congestion of the liver, which was readily removed. But on examining his tongue, I had found that there was psoriasis of that member.

There were numberless hills and valleys on this morbid member, so that I urgently requested the patient to tell me, if he had ever suffered from syphilis. But he denied almost formally my question, and added :

“ You would do me the greatest service in the world, if you could free me from this ailment. I have had it now for many years, and have tried everything imaginable for it. I am ready for any remedial measure, but I do not want any caustics used, as these have in every case aggravated my ailment.”

“ After curing the liver we shall pass over to the tongue, without using any caustics,” was my answer.

Immediately after the cure of the congestion of the liver, the patient asked me to treat his tongue.

But in vain I prescribed one after the other, *Arsenicum*, *Nitric acidum*, *Thuja*, *Lycopodium*, *Kali bichromicum*, *Kali phosphoricum*, and still other remedies, when I finally bethought me of *Castor equi*, since this remedy acts in a general way on the thickening of the skin and of the epithelium.

So I first of all prescribed *Castor equi* 3., one-fifth of a gram dissolved in two hundred grains of water, giving one tablespoonful every morning and evening. Although the patient showed impatience, I quietly waited two weeks. Finally, to our surprise, there appeared a slight improvement, and in two more weeks the right side of the tongue was quite free.

But now it seemed as if all progress in the case was at an end. So I made use of higher potencies, proceeding gradually to the 6., 12., and the 18. potencies, and gradually the hills and valleys disappeared, so that there is not now anything of psoriasis left. The treatment from beginning to end lasted for four months, and there has been no appearance of a relapse during the last three months.

Of course, strict diet was observed ; smoking, alcoholic beverages and irritating food were strictly prohibited.—The *Homœopathic Recorder*, April 15, 1909.

Gleanings from Contemporary Literature.

THE MORPHOLOGY AND VARIATION OF THE SKULL.

Delivered before the Royal College of Surgeons of England on February 22nd, 24th and 26th, 1909,

By WILLIAM WRIGHT, M.B. VICT., D.Sc. BRIM., F.R.C.S. ENG.,
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LECTURE I.

Delivered on February, 22nd.

MR. PRESIDENT AND GENTLEMEN.—A moment's reflection will show that a singular and abiding interest lies in and around the skull, that portion of our poor anatomy which in life shelters in dark recesses the brain and sense organs, the things whereby we live and move and have our being; which after death possesses all the mystery proper to the emblem of mortality. Such a subject for inquiry and meditation must needs have created a great and remarkable literature which it is no surprise to find takes us back to Hippocrates himself whose contribution is of peculiar interest and value. He tells us that in wounds of the scalp the sutures of the skull are liable to be taken for fractures, an error he himself had committed. Celsus approves this candour, which he observes is "after the manner of great men, for whereas small men permit no detraction, to the great, a simple confession of error is only natural." After Hippocrates many writers of different race and in different ages were busily engaged in building up that Science of Systematic Human Anatomy which must surely be regarded as one of the most lasting and signal memorials ever raised to human industry and perseverance. In this subject the skull occupied a foremost place: its literature steadily grew at the cost of labour which for the most part posterity has neglected to recognise. The names of Herophilus, Vesalius, and Fallopius no more make up the list of these workers than the discovery of a torcular, a foramen, or a hiatus can be regarded as the outstanding successes of their respective careers. Here, as elsewhere, "Oblivion has blindly scattered her poppy."

Up to the year 1790 the work on the skull was purely descriptive. In that year the German poet Goethe saw the skull of a Jew in the cemetery at Venice and was greatly struck by certain resemblances which it bore to a vertebra. He elaborated the view that the skull was formed by the fusion of vertebræ in a letter to Madame de Herder; the letter, however, obtained no general publicity. Seventeen years later Oken arrived independently at a similar conclusion from an examination of the skull of a deer. On taking his chair at the University of Jena he gave his theory to the world. A fresh stimulus was thus given to workers at the skull and much ingenuity was shown in discovering homologies and, in

determining the number of vertebræ represented. The theory was particularly associated in England with the name of Sir Richard Owen. It was not allowed to pass, however, without criticism, which was forcibly expressed by Huxley in the Croonian lecture to the Royal Society in 1858. In this lecture he somewhat rashly affirms "it is no more true that the adult skull is a modified vertebral column than that the vertebral column is a modified skull." Within recent years the more precise embryological and morphological work of Gegenbauer, Kolliker, Froriep, and Gaupp has done much to reinstate in a modified sense the vertebrate theory, for there can now be little, if any, doubt that the posterior portion of the skull is formed from the fusion of vertebræ.

Turning from the morphology of the skull to the variation of the skull we shall find that it will open up the whole subject of evolution, a theory which is as old as Anaximander and Archelaus, and which on embryological and geological grounds is established beyond all possibility of doubt. The manner in which evolution has occurred affords, on the other hand, unwonted opportunities for speculation and permits of wide divergence of opinion. As evolution results from variation the theories of variation may be first briefly considered. They are three in number—viz., Lamarck's, Darwin's, and the mutation theory. Lamarck's theory states that if an animal by continual effort strives after a certain result, nature responds by producing a variation adapted to the desired end. An example makes it more clear. According to this theory the giraffe by constant attempts to reach the higher leaves of trees or the heron by repeated efforts to raise its body above the water in which it wades, have been so far abetted by nature that she has conferred upon them the long neck and long legs which are their most striking characteristics. The theory has the distinction of being the earliest and has the merit of recognising in nature a power which is capable of effecting adaptive variations. The error probably lies in the unnecessary and improbable assumption that the animal itself controls this power.

The Darwinian theory is one which according to a recent utterance of Dr. Russel Wallace is much misunderstood. This regrettable state of affairs seems to be due to the fact that its two chief exponents since Darwin's time—viz., Huxley and Wallace—are men of a widely different philosophic outlook. Huxley waged incessant war against "those barren virgins, the Final Causes." Wallace, on the other hand, always deeply imbued with a sense of the mystery of nature, may almost be said to be enamoured of them. Darwin's position seems to me to have been nearer Wallace than Huxley. The latter makes no allowance for purposive or adaptive variation. He accepts variation as the result of accident and finds an adequate explanation for the various forms of life in the action of natural selection upon these accidental variations. It should be clearly understood that natural selection cannot directly produce anything; it can only encourage or suppress. According, therefore, to

Huxley's interpretation the whole world may be considered the direct outcome of accident—surely a strange theory in a world in which law, order, and intelligence silently yet ceaselessly appeal for full recognition, a world in which accident is of rare occurrence and of minor import. According to Wallace's interpretation variation must be regarded as due to the mysterious powers of life. If such be so—and I see no possible alternative—it then becomes a question whether the origin of species itself should not be ascribed to these same powers, the part which natural selection plays being of quite secondary and almost insignificant importance. Artificial selection does not seem to be dissimilar from natural selection; it may even be more rigorous and more ingenious, yet we know that artificial selection is not able to produce specific variations in even the lowest micro-organisms.

The third theory is chiefly associated in this country with the name of Bateson, on the continent with that of de Vries. It states that variation is not always slow and continuous but occasionally discontinuous, at which times we get so-called "mutations." According to this theory natural selection plays a minor role. The difference between Wallace's and Bateson's points of view is not, to my mind, fundamental. They each accept or imply a mysterious power in nature as the source of variation. Wallace, however, still retains natural selection as an adequate explanation of the origin of species. Without discussing these theories further I now propose to consider the skull, its morphological divisions and its variations, in order that you may see the lines along which and the principles according to which variation has occurred and so may arrive at your own conclusions as to which theory is most deserving of support.

I begin with a brief consideration of the human skull since no doubt it is the skull best known to the majority of my hearers. It may be divided into the following morphological divisions: (1) the brain capsule; (2) the sense capsules for the organs of smell, sight, and hearing; (3) the jaws; (4) the suspensorium of the jaws; (5) the hyoid arch; and (6) the cheek plate.

1. The most interesting features of the brain capsule are (1) the number of bones forming it; (2) the uneven upward slope of the median portion of the base; (3) the communication with the olfactory and auditory capsules through cribriform plates; (4) the discrepancy between the points where the cranial nerves arise, where they pierce the dura mater and where they leave the cranium; and (5) the base of the cranium ossifies in cartilage, while the vault ossifies in membrane. It might here be pointed out that, although the optic nerve leaves the orbit through a single aperture, it like the olfactory and auditory nerves, passes through a cribriform plate (the lamina cribrosa) as it enters the eyeball. In a paper on Sensation and the Unity of Structure of Sensiferous Organs Huxley makes no mention of these singular and interesting parallels. They probably

indicate that the sense organs are compound in their origin, a view borne out by other structural features.

2. The olfactory differs from the other sense capsules in that it lies anterior to the cranium. It communicates anteriorly with the exterior through the anterior nares and posteriorly with the pharynx through the posterior nares; the former apertures are bounded above by the nasal bones, below by the premaxillæ; the latter apertures are bounded mesially by the vomers. These particular relations, as also the plication of the lining mucous membrane, will be found to be acquired very low down in the zoological kingdom and to be with very rare exceptions constant throughout. The orbit is surrounded by a ring of bones which secondarily take part in the formation of the cranium and nasal fossa, and which help to support the upper jaw. The auditory capsule lies deep, being separated from the surface of the skull by the cheek plate. The position of the sense capsules with respect to each other and with the cranium is remarkably constant and due to the following facts: (1) the olfactory mucous membrane in the lower forms of animals, such as fishes, can only be stimulated by the animal "pushing its nose into things," and as this is a procedure fraught with a certain amount of risk, the organ of smell is most conveniently situated at or near the extreme anterior end of the head; further, since smell and food are closely associated it is important that the nose and the mouth should be near each other; (2) the eyes being bilateral, protective, and of peculiar help in feeding are advantageously placed far forward and near the mouth; and (3) the ears, which it should be remembered, are balancing as well as auditory organs, and which in fishes, for example, are only represented by the internal ears of higher forms, and so only acted upon by vibrations conveyed through relatively compact tissues, are appropriately placed in a central position.

3. The upper jaw consists of a maxilla which includes a premaxillary element, two plates—viz., the palate, and internal pterygoid bones placed mesial to the maxilla, and a detached bone, the iucus—the quadrate of fishes, amphibia, reptiles, and birds. The lower jaw consists of two portions, a primary and a secondary; the primary portion is continuous through fibrous tissue with the malleus, the os articulare of the lower vertebrata. The secondary portion is continuous inferiorly with the primary but passes upwards and outwards to articulate with the cheek plate.

4. The suspensorium which connects the upper jaw, the primary lower jaw, and also the hyoid arch to the skull is represented by the small stapes.

5. The hyoid arch is represented by the small cornu of the hyoid bone, the stylo-hyoid ligament, the styloid process, and a piece of cartilage (Reichert's) which in the fœtus continues the styloid process to the stapes.

6. The cheek plate, easily recognised in ganoid fishes, in stegocephalic amphibia and reptilia, extends over and hides from view in mammalia

the auditory capsule, between which and the plate are included portions of the upper and primary lower jaws, and of the hyoid arch as well as the suspensorium certain muscles, vessels, and nerves. It is to be recognised in comparative anatomy by the feature that it always lies external to the quadrate bone, in fact in its inception it would appear to serve as a shield to the quadrate joint.

I now leave the human skull to trace the steps and to study the nature of the processes through which it has been evolved. The evolution of the vertebrata from the invertebrata was shown by Kowalevsky in 1866 to be through the ascidia. He found that though the adult ascidian, or sea-squirt, has a typical invertebrate appearance sufficiently explaining why for long it was classed among the molluscs, the larval ascidian is a distinct vertebrate possessing a notochord which supports a central nervous system in connexion with which definite sense organs are developed. In process of development the freely swimming larva, as though under the baneful spell of a Circe, sinks to the dark bottom of the ocean where its higher faculties decline and where it spends the remainder of its allotted span in a state of vegetative monotony. I mention the life-history of this lowly organism because it is convenient to hand and because I wish to emphasise the importance in considering variation of keeping the phenomena of retrogression equally in mind with those of progression.

Unlike the ascidian, the amphioxus, although it probably suffers some degenerative change in connexion with its sense organs, retains its notochord and vertebrate character throughout its life. It is in the larval ascidia and amphioxus that we find the beginning of a cranium in the form of a membranous sac inclosing the anterior end of the central nervous system.

The next step in the evolution of a skull is seen in the cyclostomata, of which I choose the petromyzon, or lamprey, as my example. Here we find in front of an elaborate branchial basket a series of cartilages among which can be identified a cranium with a single olfactory and bilateral ocular and auditory capsules. The jaws are absent or degenerate, the mouth being surrounded by an orbicular cartilage. Some doubt exists as to the relation of the cyclostomata to other craniata. Haeckel is quoted as saying that the difference between the lamprey and the fish is greater than that between fish and mammals. Although this may be so, a study of the development of the lamprey appears to show that its skull is formed according to the same plan as that of the other craniates. We have, for instance, a notochord with parachordal cartilages, in front of which lies a pituitary fossa surrounded by trabeculae cranii. Moreover, two cartilages have been identified by Huxley and Kitchin Parker respectively, as representing the palato-quadrata and mandibular arches of higher forms. If this identification be maintained, we have, as Gaupp points out, reason for regarding the cyclostomata as degenerative derivatives of the gnathostomata. The

most interesting feature of the lamprey's skull, apart from the single olfactory capsule, is the absence of any occipital region, the vertebral column beginning immediately behind the auditory capsules. This has led Fürbringer to distinguish in the crania of the gnathostomata two portions, a portion in front of the foramen for the exit of the vagus nerve and a portion behind; to the former he gives the name palæocranium, to the latter neocranium; he holds that the palæocranium is alone present in the cyclostomata.

Although, therefore, there are considerable differences between the skulls of living cyclostomata and gnathostomata, the differences do not seem to me to be fundamental, the crania in both cases appear to have been evolved along similar lines. In the case, however, of certain extinct fishes, such as drepanaspis and pterichthys of the Old Red sandstone rocks, a quite different plan seems to have been followed. These early fishes are of peculiar interest, for they afford good evidence of an early abortive attempt of Nature to produce craniata, as though Nature was feeling her way, herself undergoing an evolutionary process. If this appears a strange doctrine to those who only hold by a material evolution, I would reply that no one has proved, no one ever now is likely to prove, that matter itself is other than subjective.

I now pass to the true fishes, beginning with the lowest, the elasmobranchii, or the cartilaginous fishes. Here we find at once a highly evolved skull which constitutes a type from which all other skulls can be traced. Taking the morphological division already mentioned seriatim, we find:

1. The cartilaginous cranium incomplete above and in front, where it is closed by a membrane in the recent state. This membrane has the pineal gland in close relation to its under surface. A pituitary fossa is present in the otherwise even and horizontal base.
2. The sense organs are in their usual position, except that the olfactory capsules open on the ventral aspect; the olfactory nerves enter the capsule through a fenestrated membrane. The orbits deeply excavate the cranium on either side. In development the olfactory and auditory capsules are at first separate from the cranium.
3. The jaws are upper and lower, the posterior portion of the upper jaw furnishing the articular surface for the lower jaw and so containing the quadrate element.
4. The suspensorium varies; the upper jaw may be fused with the cranium as in the chimæroids, it may be strongly attached to it by groove and ligament as in the Port Jackson shark, it may be slung to the cranium through an attachment to the upper portion of the hyoid arch as in the dog-fish.
5. The hyoid arch reaches the cranium, its upper segment constituting the hyomandibular cartilage.
6. The cheek-plate is absent.

Before leaving these fishes it may be well to add that they have only ten cranial nerves, the spinal accessory and hypoglossal being absent. Moreover, the first, second, third, fourth, sixth, and eighth are, in their main relations and in their distribution, identical with the corresponding

nerves in man himself ; further, in the case of the remaining nerves, fifth, seventh, ninth, and tenth, the differences are of minor importance. The close relationship and communications between the fifth and seventh, the Jacobsen anastomosis between the seventh and ninth, are already evident. It is not a little singular that so very early Nature should have found an arrangement of nerves from which she has scarcely ever and only slightly departed.

Although from the remains of teeth, spines, and skin tubercles we know that elasmobranch fishes were very numerous during the Silurian, Devonian, and Carboniferous periods, we only rarely, on account of the imperfect calcification of their skeleton, obtain well-preserved specimens from the rocks. Dog-fishes, sharks, and skates were early represented ; the chimæroids were not certainly present until the Jurassic period.

Leaving the cartilaginous fishes, I now pass to the teleostomi, or "complete mouthed," so-called because bone forms a complete border to their jaws. The term includes the ganoid and teleostei fishes. As the latter are of late date, not appearing until the Trias, whereas amphibia are already present in the Carboniferous period, they are obviously a late offshoot from the main stem of vertebrate descent and so of minor interest. The ganoids, on the other hand, are Devonian and in the direct line. The name "ganoid" was given to these fishes because of the brightness of their scales ; it is applicable to three orders of the teleostomi—viz., the crossopterygii, the chondrostei, and the holostei, of which three orders polypterus, the sturgeon, and lepidosteus may be taken as living examples.

The most remarkable change which the skull has undergone in its transition from the elasmobranch stage to the ganoid is that a large number of dermal bones have been added which lie over and to some extent replace the still important and almost complete cartilaginous cranium. Some of these bones are clearly continuous with the scales or scutes constituting the "armour" covering the rest of the body ; others, on the other hand, seem to have sunk beneath the surface and to be plainly homologous with bones occupying similar positions in the higher vertebrates. As the late Professor W. C. Williamson of Manchester showed in a very important paper in the Philosophical Transactions of the Royal Society in 1851, a similar histological process seems to underlie the formation of scutes, membranous and cartilaginous bones and teeth. Although the dermal skull bones of the ganoids are very numerous and often extremely small, many of them are large and by their constant position and relation to certain parts can be readily seen to have homologies with the cranial bones of higher types. The base of the cranium is, for instance, supported by a strong parasphenoid reinforced anteriorly by two vomers, the vault is covered by large tabular bones, the clear prototypes of the frontals and parietals. The anterior nares are bounded by nasals and premaxillæ ; the orbit is surrounded by bones, among which are those which will become the lachrymal and malar. The upper

jaw is strengthened by premaxillary and maxillary plates, while ossification extends into the palato-quadrato cartilage and beyond, forming new pterygoid elements; the lower jaw may show dentary, coronary, splenial, angular, and supra-angular dermal plates, as well as articular and mento-Meckelian cartilaginous bones. Basi-occipitals, exoccipitals, and supraoccipitals make their appearance while the organ of hearing is inclosed in a series of periotic bones. The interorbital region of the cranium may be surrounded by a tube of bone, the sphenethmoid as in polypterus, or by two pairs of bones which have been rather unfortunately termed the orbito and ali-sphenoids. The suspensorium may consist of two elements, a symplectic being added to the original hyomandibula, which still remains continuous with the hyoid arch. One of the most remarkable features, however, of the ganoid skull is the well-formed cheek plate which extends downwards from the cranium uniting anteriorly with the circumorbital bones and posteriorly with the operculum. It covers the suspensorium of the jaws. The variations which occur within the group chiefly concern the jaws and are attributable to different methods of feeding. The sturgeon and lepidosteus afford examples of jaw mechanisms as widely contrasted as is possible.

We thus find in the ganoid fish a form of skull which in many particulars and in marked degree conforms with that of later type. There are, however, important points of difference which will be considered in the two following lectures. Before, however, leaving the subject of the ganoid fishes I should like to emphasise the peculiar interest which attaches to them on account of their position on the main vertebrate stem. Of the three orders it is probable that the crossopterygii are the most central and the least specialised. These fish are to-day only represented by the polypterus which it is interesting to find possesses characters such as a persistent spiracle, a spiral intestinal valve, and a multivalvular conus arteriosus which link it on with the elasmobranch fishes, while by the form of its skull and by an air bladder which acts as an accessory respiratory apparatus it is a natural ancestor of the dipnoi.

Lastly, it may not be without interest to direct your attention to the fact that the few elasmobranch and ganoid fishes living to-day are the scanty survivors of a rich and varied fauna which alone upheld the cause of the vertebrata through the long Silurian and Devonian period in a world in which the silence was only broken by the sound of the moving waters breaking on desolate and uninhabited shores.

LECTURE II.

Delivered on Feb. 24th.

MR. PRESIDENT AND GENTLEMEN,—In my last lecture I traced the evolution of the skull to the condition found in the ganoid fishes. I showed that in them a great advance is made through the addition of dermal and cartilaginous bones, many of which are clearly homologous with similarly situated bones of higher types. This homology is expressed, sometimes a little unfortunately, by the application of identical names. The regions of the skull which we shall see suffer most change in later developments are (1) the anterior portion of the cranium, the so-called sphenethmoid region; (2) the basis cranii where a strong dermal bone, the parasphenoid, is the main support; (3) the quadrate portion of the upper jaw; (4) the articular element of the lower jaw; (5) the suspensorium; and (6) the cheek-plate.

Before leaving the subject of the ganoid fishes it is of interest, in view of the next fish under consideration, to note that in some of the present-day survivors of the group—e.g., polypterus and lepidosteus—the air-bladder has taken on a secondary respiratory rôle in addition to its primary hydrostatic function.

THE DIPNOI.

We have evidence that towards the end of the Devonian period another class of fish is present along with the elasmobranchs and ganoids, a fish particularly noteworthy in its fossil state for the peculiar nature of its teeth, which have the form of corrugated plates. Such teeth are only now found in fish which breathe by gills and air vesicles and which are in consequence known as double breathers or dipnoi. The dipnoi are represented to-day by the ceratodus of Australia, the protopterus of Africa, and the lepidosiren of South America. The wide distribution of these interesting animals is in keeping with their importance as the connecting link between the water and land fauna. They live in the mud along the marshy banks of rivers and from this habit are known as mud fishes. Their skulls are of peculiar interest since side by side with certain features which they possess in common with elasmobranchs, are others which are confined to them alone among fishes, features which place them in certain respects even above the amphibia. In the dipnoi more than in the ganoids the cartilaginous cranium of the elasmobranch is retained. The upper jaw, as in the chimæroids, is fused with the cranium. On the other hand, the dipnoi are peculiar among fish in having posterior nares opening into the mouth; further, the upper vertebræ can be seen fusing on to the skull with the consequence that the spinal accessory and hypoglossal nerves are added on to the cranial series. The quadrate bone is a very strong bone in keeping with the powerful jaws and teeth. The cheek-plate is present in protopterus and lepidosiren in the form of a splint lying external to the quadrate and known as the squamosal; in the ceratodus the plate is as well developed as it is in the chelonia, a wide space intervening

between it and the cranium. It is probable that the living dipnoi are descended from a more heavily armoured type, such as the dipterus of the Old Red sandstone. Before leaving the dipnoi reference may be made to the light which they throw on the development of a land vertebrate fauna. Long before such a fauna existed we may believe the land with all its possibilities was in readiness for it. The great obstacle which Nature had to surmount was the provision of a respiration suitable to a life out of water. She overcame the difficulty by the aid of the air vesicle, an organ with which, as we have seen, she was experimenting in some of the ganoid fishes. It will thus be seen that in all probability the land fauna has come from the water fauna through the slime, in which every encouragement would be given to the development of a respiration other than by gills. A deep irony lies in the reflection that the large elasmobranch and ganoid fishes little thought as they pushed their small companions into the mud what a rod they were putting into pickle.

THE TELEOSTEAN FISHES.

The teleostean fishes form the vast majority of present-day fish, and, with the exception of the ray and the sturgeon, are the only fish with which we have any dietetic acquaintance. They are of relatively late origin, arising as an offshoot from the ganoids after the amphibia had already appeared in the Carboniferous period. They are thus not of supreme interest, since they are not in the main line of vertebrate descent. Despite this undoubted drawback they are, however, of considerable interest to the student of variation, for they exhibit almost all possible varieties of skull shape without, however, departure from type. The morphological elements of the skull already detailed can be readily recognised, while the knowledge of the way in which the upper jaw is formed of premaxillary, maxillary, palatine, pterygoid, and quadrate elements and suspended by a hyomandibula which may suffer subdivision acts as a very Ariadne thread guiding us through the seeming labyrinth of piscine craniotomy. The causes governing the variation of skull shape seem to be particularly the manner in which the fish feeds and the position in which it lies. The latter determinant is well seen in such flat fish as the plaice and sole, and affords an admirable instance of the way in which the shape of the body can influence the shape of the head.

Before leaving the fish mention is plainly due in any consideration of the subject of variation to the singular parallels which they exhibit to what obtains in land animals. We have, for instance, fish which are viviparous and oviparous. The mustelus, one of the elasmobranchs, actually possesses a placenta, umbilical cord and amnion, a placenta, moreover, which, as in mammalia, is constituted of a maternal or uterine and a foetal or yolk sac portion. In pteroplatea long filamentous processes grow from the mucous membrane of the uterus and pass through the spiracle into the mouth of the embryo. In that they secrete a nutritive fluid the fish may be said actually to suckle its young. After these striking parallels such

common habits as the building of nests and the formation of cocoons, such common attributes as the possession of electric organs, poison glands, and phosphorescent lights are hardly worthy of more than passing mention. Perhaps a final reference is permissible to the peculiar habit of the butter fish which coils its body round its eggs, for here it may be we have the beginning of that protective maternal instinct which leads the hen to gather her brood under her wings, the prettiest scene in nature and the most attractive simile in literature.

THE AMPHIBIA.

The difficulty of respiration solved, we can readily understand that the earliest land vertebrata would have every opportunity to multiply and flourish. A singular interest attaches to this early fauna, which had literally discovered a new world. Of this fauna, however, we at present unfortunately possess no knowledge, the earliest amphibian forms which are known to us from the Carboniferous strata having already advanced far upon the way to the reptiles. These forms, so far as their skulls are concerned, are characterised by wellmarked cheek-plates which roof over the lateral surface of the cranium and account for the name *stegocephalia*, "roofed heads," which has been applied to them. Their skulls possess a pineal foramen; slime tubes similar to those of fishes are found on the dorsal surface of their snouts. Many exhibit a remarkable complication of their dentine, from which they are known as labyrinthodonts. They are now extinct but are believed to be in the construction of their skulls most nearly related to the cecillidæ and among higher amphibia to *Ceratophrys dorsata*, both of which are still more or less *stegocephalic*. It is important to remember that the common frog has largely from economical reasons come to be regarded as a typical representative of the amphibia, whereas in many respects it must be considered highly specialised.

The skull of the amphibia, it is not surprising to find, differs considerably from that of fishes—a difference to be associated with the alteration in the manner of living. The portion which suffers least change is the cranium; the base is supported by a strong parasphenoid, the anterior portion is surrounded by a short tubular bone, the sphenethmoid, both of which bones are to be found in ganoid fish, particularly in polypterus. The chief change is in connexion with the suspension of the jaws, for we find that the quadrate is directly attached to the cranium while the suspensorium now rendered free becomes as the *columnella* secondarily related to a tympanic membrane. This improvement in the auditory mechanism is no doubt attributable to the air-conducted nature of the stimulus.

One of the most variable bones of the amphibian skull is the squamosal; in one respect, however, it is constant—viz., in its close relation to the quadrate bone. It well deserves the name given to it by Gaupp, the *paraquadrate*. It may, as in *Ichthyophis*, form with the quadrate and jugal a complete cheek-plate. In amphibia generally, however, the cheek-plate by deficiencies possibly of economic origin becomes transformed into a series of arches inclosing the so-called temporal fossæ. These fossæ are even better marked in reptilia and particularly in *Sphenodon* where we can distinguish a superior, a lateral, an epiparotic, and a hypoparotic fossa. Much emphasis has been laid upon these arches and fossæ as being characteristic of the reptilian skull but an examination of the skulls of amphibia will show that there is none of these arches or fossæ which cannot be found in the lower class. The superior fossa is present in *Tylotriton*, the lateral fossa is present in *Discoglossus pictus* and *Ceratophrys dorsata*, the lateral fossa and an almost complete superior fossa are found together in *Nototrema marsupiatum*, and while a hypoparotic fossa is present in many, it is associated with an epiparotic fossa

in *racophorus maculatus*. The arches and fossæ cannot therefore be said to possess any particular morphological value. The squamosal or paraquadrata seems to serve in most instances, if not in all, as a support or splint to the quadrata. Its close relation to the tympanic ring in many instances is suggestive of its possibly helping to support that structure, but this cannot be the case in such an animal as *siren lacertina* where a wide interval lies between the two. That it may, on the other hand, protect the tympanic ring and relieve the columella from pressure is more than probable.

It will be now convenient to consider the history of a few other bones. The parasphenoid, which appears in the ganoid fishes, is a very important bone in the amphibia, serving as the chief support to the cartilaginous basis cranii. Among reptiles it only attains importance in the snakes. Its disappearance seems to be associated with the formation of an interorbital septum and the consequent pushing back of the cranial cavity. Howes and Swinerton have shown that it becomes replaced in the skull of the embryo sphenodon by ossification of the cartilaginous basis cranii to form the basisphenoid and presphenoid; it fuses with the former of the two bones. The vomer also appears in ganoid fishes and seems at first to supplement the parasphenoid in supporting the anterior portion of the base of the skull. In amphibia it is closely related to the posterior nares, but this relation is clearly secondary, for, as I have already said, the bone is found in the ganoids, whereas the posterior nares only appear in the dipnoi. In fish, amphibia, and sphenodon the vomer may bear teeth. The palate, also present in the ganoids, in which it passes from the basis cranii to the quadrata, becomes less important in the amphibia; in them it is quite secondary to the maxilla, to which it appears to serve as a support; it is occasionally absent. The pterygoid arises in ganoid fishes as a wing-like expansion from the upper jaw, and in one—viz., *lepidosteus*—it reaches and articulates with the cranium. In amphibia it is, on the whole, triradiate with a maxillary, cranial, and quadrata process; its purpose seems to be the support of the maxillary arch. In *menopoma*, which is characterised by a wide mouth, the pterygoid is flattened and tubular, and thus strengthens what would otherwise be the weak roof of the oral cavity. The palate and pterygoid may, like the vomer, bear teeth. These three bones will thus be seen to be primarily in close relation to the basis cranii; it is a relation which is retained throughout and which is readily recognised in the human skull. The morphology of the sphenethmoid is not easily determined. The bone appears in the polyterus among ganoids; it is present in all amphibia. It surrounds in a tubular manner the anterior portion of the cranium lying above the parasphenoid. The fore part of the bone is in close relation to, and to some degree encloses, the olfactory sac. In most reptiles the formation of an interorbital septum almost destroys the continuity existent between the anterior and posterior portions, the anterior part being represented by the prefrontal and ethmoid, the posterior part being laterally compressed to form the septum. Possibly, as Gaupp suggests, the upper border of this interorbital septum may with the later forward extension of the cranial cavity become the ala orbitalis of the sphenoid. One of the most remarkable features of the amphibian skull is the fact that, as in fishes, the cranial nerves only number ten, the hypoglossal nerve of higher vertebrates being the first cervical nerve of amphibia. The fact is interesting, since it suggests that the hypoglossal nerve has passed from the spinal to the cranial series of nerves in consequence of the union of the first cervical vertebra with the cranium. The question is, however, far from simple, for in the amphibia there is only one cervical vertebra.

Again, although exoccipitals are present in the amphibian skull there is no distinct basi-occipital. In these respects it will be seen that the amphibian skull and skeleton are well below the reptilian, while in the absence of an eleventh and twelfth cranial nerve they are even lower than the dipnoi. The explanation of this last somewhat surprising state of affairs lies probably in the fact that the dipnoi and amphibia are related to each other through a common and remote ancestor whose cranial nerves only numbered ten, and that while in most respects the amphibia have advanced farthest, in one feature the dipnoi have surpassed them. The comparative absence of a neck and lack of odontoid process must be held largely accountable for this defective occipital development, since the growth and expansion of the occipital region are closely correlated with the presence of a moveable neck and the need of an area for the insertion of muscles. The peculiar nature of the occipital region of the amphibian skull renders the value of its approximation to the mammalian type in the possession of two occipital condyles, whereas reptiles and birds have only one condyle, almost if not entirely negligible. As already indicated, the cheek plate in the amphibian skull shows large deficiencies. It is represented by the squamosal and jugal bones. The squamosal is very variable in shape, possessing in certain instances clear and well-marked occipital, post-orbital, and maxillary processes. The jugal is, with the exception of *tylototriton*, absent in all tailed amphibians.

From an amphibian skull of a stegocephalic type it is not difficult to pass to the reptilian and mammalian condition. It would appear, however, that evolution progressed along two distinct lines; the first leads through the rhynchocephalia, of which with the single exception of *sphenodon* all are now extinct, to the dinosaurs, ichthyosaurs, plesiosaurs, and pliosaurs, on to the immediate ancestors of the chelonians, crocodilia, locertilia, and ophidia of our present fauna. Somewhere from this important vertebrate stem, possibly from the dinosaurs, our bird fauna seems to have sprung. The other line leads through the anomodontia to monotremes and mammals.

SPHENODON.

A singular interest thus attaches to the *sphenodon* since it survives from so high an antiquity and forms so important a link between the amphibia and reptiles. Its low central position among vertebrates is shown by the presence of pineal foramen and eye which latter is apparently functional for some time after birth, by the occurrence of vomerine teeth, and by the fact that the maxillary teeth are not inserted in sockets. Its skull differs from that of all living reptilia in that the maxillary arch reaches backwards through the jugal bone to the quadrate and that the latter bone is apparently perforated by a large "quadratic" foramen. I say "apparently" because a study of the development of the skull has shown that the foramen lies between the quadrate internally and the so-called quadrato-jugal externally. In the complete condition of the maxillary arch the skull of *sphenodon* is shown to be closely related to that of the tailless amphibia and the dinosaurs. Further, in some of the latter — e. g., *iguanonodon* — a "quadratic" foramen is also present, while it is interesting to note that in the flattened quadrate bone of *ceratophrys dorsata* — an amphibian — the central portion is markedly thinned, translucent, and almost perforate. The cheek-plate in the *sphenodon* skull is represented by the post-frontal, post-orbital, the squamosal, jugal, and quadrato-jugal bones. The latter is to be regarded as more closely associated with the squamosal and quadrate, than with the jugal, a statement based upon the important paper

already mentioned in which Howes and Swinnerton describe the development of the sphenodon's skull.

Before leaving the sphenodon mention may also be conveniently made of the fact that Howes and Swinnerton have shown that the fibres of the hypoglossal nerve first leave the skull through four paired foramina, that these foramina are ultimately reduced on each side to two. This history suggests that the hypoglossal region of the skull is formed in sphenodon by the fusion of four or five vertebrate segments.

DINOSAURS.

The dinosaurs, or "terrible lizards," are perhaps the most remarkable animals that have ever lived. They attained an immense size; the *diplococus* is known to have been 80 feet in length. Some were herbivorous, others carnivorous; some walked after the manner of quadruped animals, others had long hind legs upon which they stood in a marsupial-like attitude; many were heavily armoured. Despite, however, their widely different appearance it is interesting to find that their skulls are all of a single type, a type which is represented to-day by the small sluggish lizard-like sphenodon of New Zealand. Perhaps no more striking instance could be adduced of the way in which anatomical structure can survive through untold time and changed circumstances than the marked resemblance which obtains between the skull of the little sphenodon and the gigantic dinosaurs of the Secondary period.

(To be continued).

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A CLINICAL PAPER ON INFANTILE WASTING.

BY EDMUND HUGHES, M.R.C.S. ENG., L.R.C.P. LOND.

Medical Officer to North Homœopathic Dispensary, Liverpool.

(Continued from page 195.)

Coming now to diet, there is one rule, and it is that a certain high caloric value must be maintained, the rule being that whereas in average infants an average number of calories need be given for each pound of body-weight, in the atrophic this number must be exceeded. The most scientific way of going about this is to be aware of the caloric value of various food-stuffs, and to know that we are giving a high enough value in the preparations we order. Time will not allow me to say very much about this matter of caloric value, but it has been found that the average number of calories needed is about forty-five to the pound, or about 100 to the kilogramme, so that our food ought to exceed this figure—say 50 to 55 and 110 to 120, as we reckon in pounds or kilogrammes. Also it is well to know that cow's milk has a somewhat higher caloric value than human milk, and the value of fats is more than double that of proteins. Great care must be taken to avoid over-feeding these infants; but at the same time I have repeatedly found that an atrophic infant will bear a food of high caloric value—a "heavy" food, to use the popular phrase—even though its digestion is clearly "out of order" at the time when this food is

prescribed, and not only does it gain in weight but its digestion improves as well. Of course, that does not always happen, and in many cases it is more prudent, especially if the state of the digestive tract is very unsatisfactory, to withhold milk of any kind for a few days. A good number of alternative foods are known, but I shall merely mention the most popular, such as broth and barley-water, albumen-water, and whey. All these may be disliked, but the chances are that the child will take at least one of the three for the time required. Whey is best made with the pepsin of Fairchild and Foster; it may be boiled to destroy the sourness, and boiling, though it coagulates the lactalbumin, may be useful if there are milk curds already lying in the patient's digestive canal. After this, if the behaviour, the appetite, absence of vomiting, and improvement in the stools seem to warrant, one of the partly dextrinized starch preparations may be tried. Though I have spoken of caloric values, there is, I think, no doubt whatever that starch partly converted has a power independent of caloric value to bring these children on. A cheap and excellent food of that sort is Moseley's food; another is the old-fashioned Liebig's Malted Food. Yet another is the well-known mixture advised by Keller sixteen years ago: About 3 oz. of Liebig's malt extract, containing a few grains of potassium carbonate, is dissolved in a pint of water (solution 1); $1\frac{1}{2}$ oz. of wheat flour is suspended uniformly in a pint of milk, and this strained through cheese cloth (solution 2). Solutions 1 and 2 are mixed in a saucepan, and stirred over a slow fire not too hot to destroy the diastase. In twenty minutes the mixture is brought to the boil; of this from 3 to 6 oz. are ordered for each feed. This method is more easily remembered than that of Sir William Roberts, which may be found in his text-book, and needs rather more exercise of the understanding. Both these formulæ for a fresh malted food are of great excellence in practice. After a week or more of this diet a great change is often noted. The infant is stouter, more contented, and appears to be digesting its food well. If that is the case the

diet is kept up for one, two, or three months, after which it is changed for a fresh milk formula, such as milk with equal parts of malted barley-water, or a milk, water, and cream mixture.

I cannot miss out even in an abridgment the case of the baby wasting because of deficient breast milk. There is seldom any difficulty if the mother knows that she has too little milk or if the infant has the recognized signs of hunger. But at times the signs of hunger are interpreted as signs of pain, and it often happens that the mother thinks she has little milk when she has enough, or that she is unaware of a real deficiency. If her infant is quiet, sleeps much, and digests well, the true state of affairs may be missed by her as well as by the doctor, though she has copious milk deficient in solids. Unluckily milk analyses are still expensive, but the first thing to think of is analyses, and it is bad practice to try and do without it.

Sometimes a converted starch mixture disagrees. I am not prepared to give any reasons for that. The physiology of starch-digestion in infancy is not completely understood. For example, there is no agreement as to the times required for digesting different kinds of starch. Some years ago starch digestion up to the second month was supposed to be a function only of the parotid saliva, a discovery associated with the name of Zweifel. But since then Moro, of Munich, has found a diastatic ferment in the pancreas of the newly born, and a wasted infant aged 6 weeks also possessed it. There is some reason, too, for thinking that as at a more advanced age so in infancy the large intestine possesses this function to a slight extent.

Returning to practice, when these foods disagree or fail, I am fond of ordering the pēptogenic milk powder of Fairchild and Foster. It is prepared with milk by the full process, and taken in this way a number of severely wasted infants under my care have got on very well, and have been successfully reared. Then, of course, there are other ways of helping digestion, such as by putting pepsin and HCL into the stomach, and since there is a lessened natural output of these substances, that is good practice ;

$\frac{1}{4}$ gr. of pepsin with two drops of dilute HCL are enough for a dose after each feed.

A short time after improvement begins I always order ten or fifteen drops of cod liver oil three times a day. There is some reason for thinking this oil superior to other kinds of animal fat, and one must remember the high caloric value of fat in general.

Constant warmth of the whole body must be insisted upon. If the legs are cold, they must be warmed by artificial means day and night. Binders and conventional costumes are extremely bad, first because they entail much handling and therefore muscular exhaustion, second because they restrict the intake of air. Atelectasis is to be expected and need not be courted. The body is swathed in cotton-wool. Many of these babies have bronchitis, and the air they breathe must be warm. Formerly we had no doubt about the value of warm air, and even now the case against it is not serious. However, you know that Dr. W. P. Northrup has what are called extreme views on this matter. An extremist is not necessarily too extreme. First the contemporary mean has to be proved better, and this has not yet been done. According to Northrup, if I understand him rightly, a feeble infant of this age would be eminently fit to breathe outside air night and day, cold, hot, moist or dry, so long as the air was pure. All I can say is, that I have not tried it, but that cold air certainly increases the amount of coughing. My present ideal is, to have the window of the room where the infant lies wide open all day and, if not objected to, all night as well; a strong fire is kept up and the invalid screened from violent draughts.

Every instruction should be written down, and no detail omitted. It is the details which matter. Under the conditions of our existence one thing may be as important as another, it may be the most important thing, however small, at some moment when it is least considered, and only the thing called the human mind, which I for one am literally ashamed of possessing, fails to carry this knowable fact into practice.

Regarding prognosis, some parents expect us to reckon chances with the facility of a sharper at cards. Though the game of life is played with loaded dice, we do not know on which number the odds must be laid, because we did not arrange the game, or choose the players. So here I do not believe there is any means of foretelling the chances of wasted 3 months children, in most cases, when they are first seen. Later on a shrewd guess may be made. Some gain weight in a curious way, gaining half a pound one week, and not at all the next. I should say if a child behaves in that fashion let the diet be continued and no alarm be felt. Also I think very wasted syphilitic babies on the bottle who have a bright expression and fair muscular activity at the fourth month are hopeful subjects. But we cannot reckon with intercurrent disease. At times an intercurrent disease is taken mildly; and that is strange. But even when taken mildly other diseases may supervene and kill the patient, perhaps because the resistance is lowered, or perhaps it is merely a *post hoc* matter. For example, I treated an atrophied baby for several months with success. At the fifteenth month it took measles rather mildly, with moderate bronchitis. Convalescence fairly began, but was interrupted by very severe ulcerative stomatitis, nearly the whole buccal cavity being involved in a confluent ulceration. Under vigorous measures this entirely went away, but before it had quite gone a left-sided pleurisy supervened, probably the same infection in another place. Five days after this began I withdrew 12 oz. of rather turbid serum. Three days later I resected a rib and evacuated a large amount of very turbid serum. The next event was broncho-pneumonia, and the child died a week after the resection. On the other hand, one of the worst cases of wasting I have yet succeeded with went through whooping-cough in its sixth month without very great trouble.

Perhaps 30 per cent. of these dreadful cases may be saved. But sometimes we have cause to regret that we have saved them. Two of my cases developed epilepsy after growing fat. One has an epileptic mother, so the psychosis may be

supposed inherited. Epilepsy is inherited with great frequency. The other has apparently normal parents, and has epilepsy of a severe kind, and will no doubt become demented and die. This child was once very greatly atrophied, but even if it was syphilitic, which I have reason to doubt, the weight of evidence is against the two diseases being cause and effect in young children. Many are killed in later infancy by broncho-pneumonia. A few develop hydrocephalus. Some have malformations of the heart, which, like hydrocephalus, one suspects to be a sequel of development under syphilis. The majority are slow in their advance, some do not walk till the fifth year, and are liable not only to infections, but to a lifelong habit of maldigestion and to a pallor uninfluenced by iron. In the case of the syphilitic especially, no one can say how late their morbid manifestations will continue, and how great a burden they may prove to those interested in their welfare.

THE RATIONALITY OF HOMŒOPATHY.

BY J. F. P. LEWIS.

There is no subject which can be of more importance to the human race than the cure of disease. So near is it to us, that few people of intelligence could be found who had not given a certain amount of anxious thought to the *rationale* of medical administrations. This being so, and considering the boundless collections of medical records, and the constant opportunities for observation, which are available, it is perhaps one of the strangest things in history that to-day, thousands of years after the commencement of the chronicled history of man, two methods of cure should be professionally exercised, differing so fundamentally from each other as to contain each a first principle absolutely destructive of the other—cure by similars and cure by dissimilars. It must be presumed that both methods are founded in some sort upon formulated data of a logical, theoretical, or experimental nature, but it is always open to those interested to examine those data and to question their validity.

It is hardly credible that the same person could rationally believe that if it were good to take for the cure of an ulcer, say, of the stomach, a drug which itself proximately tends to produce ulcers, it were also good to take a drug which proximately tends to assuage all the manifest symptoms of ulceration. If, therefore, we reflect at all upon such matters, we shall be faced at some time or other with the necessity of deciding as to which medical doctrine we will pin our faith to—homœopathy or allopathy. The majority up to now have chosen allopathy, because it is the easier, certainly not because it is the best. The average mind works in the easiest grooves, and follows the line of least intellectual resistance. There are certain instinctive orders of thought, and to these man is predisposed. Many mental traits still persist which have their origin in a far more primitive mental development than that which rules to-day. This is intellectual primordialism; not the deliberate choice, but the instinctive habit of the ordinary mind. Serious reflection is required to lift the mind out of the primordialism of thought and judgment, and it is this serious reflection which is, unfortunately, both difficult and distasteful to the ordinary person.

The conception of an antidote is wholly aboriginal. It is simultaneously developed in the mind with the thing to be antidoted. I am hungry; I eat. I am cold; I warm myself. I am tired; I rest. Out of one hundred children to-day, ninety-nine, if they had burnt their hand, would immediately seek to apply something cold to it, and would do so if not checked; and many people of maturer years and judgment would have the same impulse. Nearly every hand that is burned to-day in the kitchen goes instantly under the cold water tap, and even if this step were prevented, much harder persuasion would be required to bring the injured person to test the efficacy of holding the burned hand near the fire. Such a proposal violently opposes primordial instinct.

A heavy burden has been assumed by homœopathy in seeking to overthrow the belief in treatment by antidote; but much

progress has been made. But the progress would probably have been much greater if the homœopathic faculty had brought more prominently to public notice a more easily comprehended and better formulated *rationale* of the principle of curing by similars; a kind of manifesto containing centrally some suggested explanation of the beneficial action of similars which should appeal immediately, and with great force, to the person of ordinary intelligence. It is this lack of apparently *rationale* that keeps homœopathy out of popular favour, and this in spite of the fact that it seems to be possible to set forth the homœopathic conception in a form which is quite as logical and readily admissible as the idea of cure by antidote.

The human body is a highly complex organism composed of many different organs or constituent parts, the functions of which are specific and separate, but which are mutually dependent on one another in a greater or less degree. Where every organ or constituent part is perfect and functionates perfectly, that is perfect health. The failure through any cause of any organ or constituent part to functionate perfectly weakens the whole organism. By the partial failure of one working part, a strain may be put upon some other organ, causing it to over-functionate (hypertrophy), or the function of some organ or part may entirely cease (atrophy); but in any case, functional failure or over-function will both mean, in some direction or another, an extra expenditure of vitality, placing a strain upon the heart, which is the fountain and origin of all vitality. Perfect organic vitality is only possible where there is perfect action of the heart, and the heart cannot vary qualitatively or quantitatively in its action except at the expense of the whole organism. All things, therefore, which derange the functions, consequently affect the heart and lower the vitality. We must therefore lay it down as an axiom that in all cases of disease, but in vital diseases particularly, it is in the last degree inadvisable to cause by treatment any further and sudden functional disarrangement (such as contraction of blood-vessels by digitalis, violent stimulation of the bowels

by strong aperients, &c.), as this must inevitably mean an additional strain upon the patient's vitality.

When the function of one or more organs or constituent parts becomes impeded by disease, phenomena occur which are called symptoms. These symptoms are essentially Nature's own manifestation; they are a law and an invariable process of Nature. It can be laid down without great stretch of fancy that these symptoms, however deleterious, are necessary to Nature's plan, *i.e.*, to the natural course of the disease. It seems essentially rational to suppose that Nature will strongly object to a sudden and violent attack being made upon those symptoms with the object of destroying them, as long as their cause remains in the organism.

Here we come at the root of the difference between allopathic and homœopathic treatment. The allopath attacks those symptoms immediately with a powerful drug; he strikes a blow at a process which is detrimental, it is true, but he strikes a blow at Nature. Nature says: "I am dealing with the disease in this way; this is my way. I may be unsuccessful in restoring health—no blame to me; this organism has transgressed my laws in many ways, and has now become inoculated with a poison which is entirely foreign to my scheme—but do not interfere with my operations any more than you can help." But the allopath takes no great heed of Nature's voice; in goes his drug, which itself is capable of greatly disarranging natural organic processes and lowering vitality; and the already sorely tried tissues are called upon to cope with the effects of the drug, as well as to withstand the shock caused to the system by its enforced abandonment of the processes set up by Nature. And here you have a premisable mischief wrought by allopathy, *i.e.*, a further considerable functional derangement added to that already caused by the diseases (which cannot by any known method be instantaneously removed by artificial means), which means a further strain upon the vitality of the patient. There are, of course, sufferers who are strongly constituted, and have

great reserves of vitality to withstand the first shock of allopathic treatment. If they can weather that they can doubtless reap a benefit later from the corrective action of the antidote administered; but it may be said that they are cured in spite of, not by reason of, allopathic treatment.

The homœopath observes the symptoms of disease and ascertains their cause. His idea is to help Nature out. He knows a drug which, if applied in certain quantities, will produce similar manifestations to those which the disease is naturally producing. By applying that drug in small quantities he hopes to sweetly and gently dispose the tissues affected to that condition into which the disease itself will bring them. The disease in its attack upon the tissues involved is, as it were, partially disarmed by finding those tissues already manifesting the same type of disorder as it (the disease) itself will convey to them. An artificial process has been superimposed by an at any moment terminable and in reality harmless drug treatment. It is probably true that what is most truly upsetting and dangerous to the human organism is abrupt change in or interference with existing plasmic processes, *i.e.*, shock. The homœopathic method tends by preparation of the tissues to nullify as much as possible the shock delivered by the disease. Forewarned is forearmed. Surely if ever anything was rational, homœopathy is; not to set up a further cellular conflict in the already harassed organism, but, as it were, quietly to prepare the way for Nature, and to assist her to wear out and expel the disease in her own way.

The most apparent objection to homœopathy will be this: if you have a person suffering from a disease which is producing dangerous symptoms, and you administer a medicine which is known to produce similar symptoms, however insignificant the dose, the treatment will increase the symptoms *pari passu* with the dose, and the danger *pari passu* with the symptoms. In reply to this, it may be said that the homœopathic dose is adjusted merely to dispose tissues to the condition produced by Nature. Taken by itself during perfect health the cellular

disturbance caused by a homœopathic dose would be so slight as to be negligible. Further, it must be remembered that the disturbance caused by a drug, unless given in very large quantities, differs radically from the disturbance caused by true disease, since drug disturbance is artificial and ceases if the drug ceases to be administered, which is always optional. The process is therefore purely temporary, and to all intents and purposes harmless; and it is arguable that the heaviest of the shock dealt to the body by the attack of disease on certain tissues is warded off if the disease finds that those tissues are undergoing a mild, artificial, and essentially harmless excitation like in character to that which the disease will produce. By aid of a drug artificially to set up a mild condition of the affected tissues similar to that manifested by Nature—that is homœopathy. By aid of a drug artificially to set up a condition of the affected tissues directly contrary to that manifested by Nature—that is allopathy.

It may be said that all this is purely conjecture, but the answer to that is: What arguments are there of a less conjectural nature which can be advanced to show that the specific action of allopathically administered medicines on the human body is more beneficial.

If it be admitted now that homœopathy has established some rational theoretical basis on which to stand, it is at once possible to go further and carry the war into the enemy's camp. The homœopath starts out in all his practice in a profound belief in the homœopathic law, and the whole of his operations are inevitably governed by that. His administrations have ceased with him to be an experiment, in the outcome of them he sees the pre-ordained manifestation and triumph of a great scientific law. The feeling in the minds of those treating disease allopathically must always lack this element of security and certainty by virtue of the very nature of the treatment itself—a treatment which admits of the administration of fifty different drugs for one disease, the practitioner being at liberty to feel his way through the whole gamut of pharma-

ceutical preparations in the hope of alighting on the required drug. This is very much on the principle of throwing a large quantity of mud in the hopes that some may stick. He has no basic law governing his operations and constraining pathologically an invariable treatment, but a principle of antipathy which leaves so wide a toleration in prescription that it constitutes not law but chaos.

It has been said that homœopathy is quackery, but there was never a more worthless or thoughtless criticism. It is homœopathy that has its root in science, its sanction in logic and its mirror in Nature; it is allopathy which finds no scientific resting place for the sole of its foot, but ranges incessantly over the boundless fields of empiricism. There are many allopathic doctors to-day who try even homœopathy as a variant on their other forms of treatment, but without professing it and probably disbelieving in it. They will play it as a bad whist player will lead a card, having no recommendation or sanction in the game except that derived from blind trust in a beneficent providence. This is not the use but abuse of homœopathy, where the name is borrowed to describe one amongst many of an ignorant practitioner's alterative experiments.

Let us now consider the main objections which are raised in medical and other circles against homœopathy. There are only two of importance. Firstly, a rejection of the prime conception of cure by similars, and secondly, ridicule of the power of infinitesimal doses. As regards the first, seeing that little is really known concerning the reason of the actual constructive or destructive organic processes set up by drugs or disease in the tissues of the human body, it would appear that knowledge of or belief in the results accruing from the administration of drugs must rest almost entirely on observation and experience. We must therefore judge homœopathy by its results, not by a predilection derived from the fact that the law on which it is based is, *primâ facie*, a paradox. Cures may be effected by any method which for unknown reasons operates beneficially. Homœopathy is a method which for unknown

reasons operates beneficially. Therefore homœopathy may effect cures. As a mere statement of fact, therefore, the power of cure by homœopathy is as logically demonstrable as the power of cure by allopathy. But underlying the logical demonstration and the proofs furnished by practice it will be found that the law on which homœopathy is primarily grounded, though it be apparently paradoxical, has a fundamental and incontrovertible sanction in Nature. The whole realm of Nature provides striking testimony to the correction of like by like. It would be possible to multiply instances indefinitely, but one or two will suffice. Marshall Hall's method of softening hard lime water is to add a very little more lime, upon which the whole or nearly so is precipitated. The sun puts out the fire by adding just a little more light and heat. To close this argument, it is sufficient to say "that the phenomena of the law *similia similibus curantur* are "before, behind us, and on every hand."

We now come to the vexed question of the infinitesimal dose. The corrective and alterative action of like on like is found illustrated in Nature, but the action unlimited potency of the infinitely small occupies a place of cardinal importance in the general scheme of Nature. In practically every branch of science and knowledge the search for origins and reasons is led backward from what is most manifest to the infinitely minute; but medical science itself furnishes the strongest evidence of that very thing which most allopathic doctors ridicule. The history of the germination of disease contains all the arguments to satisfy the homœopathic doctor in his method of dosing, and that history has yet to be enlarged. If by the inhalation or contagion of some intangible and invisible germ, or unnamed agent, such serious physical cataclysms as malarial fever are induced, how easy, then, is it to credit the influence on the human organism, for good or evil, of a potent drug which is administered in a measureable and visible, though so-called infinitesimal, quantity. In some diseases of the eye, the same harm may be done to that organ by the admission of light

through the merest pin-point aperture and for the duration of the thousandth part of a second, as by the flooding of the entire retina with the full light of day. It is the infinitely small that counts as well as the infinitely great. Having regard to what has been said, it should not be asking too much of a thoughtful man that he should grant, at any rate, that homœopathy is not mere charlatanry, but a theory of cure based on phenomena manifested widely throughout the physical world. To get the critic thus far is really all that is needed, for at this stage he will be ready to test the value of it in actual practice, and the result of his enquiries or experiments in that direction may be awaited with absolute confidence.

If a 'direct appeal were made to the writer of this article (a layman pure and simple) as to the grounds on which his confidence in homœopathic treatment were based, the answer would be as follows: That "like cures like" is a law of Nature and can be interpreted in medicine just as it is found interpreted in other branches of science. That it is more rational to devote the attention to the maintenance of vitality and function in those organs and tissues which are not directly affected by disease and to support Nature in her local manifestations, than to impose a further shock on the organism by suddenly and violently opposing Nature and reversing her processes by the administration of powerful antidotes. The allopath may grant that there is some logical force in this, but he may try to corner you by some such further question as this: If then, a patient is *in extremis* and is at the point of death, there is much evidence to show that the administration of a certain antidote will save his life, would you, as a homœopath, refuse your consent to such an administration? 'The answer to that is simply, No. Where the dissolution of life is imminent, the homœopath takes no cognizance of any of the imperfect laws or systems which man, in his limited powers, has established. The homœopath and the allopath stand then on common ground, and that specific which will save life must be administered. But it is administered by the homœopath as an urgent necessity

of the moment and without regard to the case in perspective from the commencement of the disease or to its possible progress or manifestations in the future. Homœopathy cannot be compressed or expressed within the compass of a single medical operation performed at a moment of vital urgency, it must have continuity of observation and treatment and cumulative and compound in its effects. No theory of cure can be comprised in a single prescription. In medicine as well as in most other things, it is the first step which counts. The great problem, how to cure, commences with the first manifestations of disease, and the paramount importance of medicine lies in the first methods or principles upon which that first manifestation is treated. It is in this first method and principle that homœopathy differs fundamentally from all other existing medical schools, and it has been the aim of this article to show that homœopathy is not a fortuitous and far-fetched conception, but has claims upon the earnest consideration of the public on the grounds of reason and logic. But far beyond that there are unimpeachable records which prove that homœopathy has more than justified itself in actual results wherever it has been intelligently and confidently practised.

In conclusion, let the sceptic ask himself whether a system of medicine based on the principle of the administration of a drug known to produce symptoms similar to that of the disease itself could have been submitted to the consideration and judgment of the world, and have become in any sort established in the schools of medicine of a highly civilized race, if it had no substantial warrant in the history of disease, but were simply a fantastic excogitation of medical charlatany. The answer will be, that it is in the highest degree improbable that a proposition so apparently paradoxical could be made by one man, far less by great numbers of people of trained intellect and scientific habits of mind, unless it were based originally on uncontroverted and incontrovertible fact.

EDITOR'S NOTES.

A Fatal Allopathic Dose of Quinine.

“An inquest was held on Saturday on a Marylebone woman who died from an overdose of quinine, having taken twenty-five grains, instead of one to three grains. A jurymen asked if quinine had ever been known to cause death before, and the doctor replied that there were three or four cases on record.”—*The Homœopathic World*, April 1, 1909.

X-Rays Cause Cancer—and Cure Cancer.

The *Daily Mail*, which has been rather busy with Homœopathy of late, gave a good example on the 18th inst. Side by side with the notice of the Lord Mayor's meeting it inserted the following paragraph on X-ray cancer—X-rays being one of the most popular cancer-cures in the allopathic hospitals at present—together with a note on opposite actions of small and large quantities.

“X-RAY CANCER.

“Professor Cecil Rowntree, F.R.C.S., of Middlesex Hospital Cancer Research Laboratories, in a lecture yesterday before the Royal College of Surgeons, stated that there have been in England eleven cases of cancer arising in X-ray workers, and in a large proportion of cases more than one malignant growth has occurred. In several instances the patients were quite young men, whereas ordinary cancer is a disease of late adult life.

“An investigation of the influence of X-rays on animals showed that in relatively large doses they have a destructive or paralysing action upon cell activity, whereas in small and oft-repeated doses they bring about exactly the opposite condition and stimulate the tissues to abnormal activity and increased growth.”—*The Homœopathic World*, April 1, 1909.

The Milk in Wet Nurses.

Porcelli (*Riv. di Clin. Pediatr.*, February, 1909) discusses the quality of the milk in the case of consecutive nursing from the point of view as to its nutritive value. His material is not large, as he has only examined the milk in the case of two healthy nursing mothers, one nursing up to the seventeenth month after the birth of the child (the milk was examined for the last four months), and the other up to the eighteenth month. The milk in each case was examined as to density, amount of water, dry residue, density of dry residue, salts, fat, proteids, and lactose. In one case menstruation reappeared at the sixteenth month. The weight of the child was also taken at regular intervals. His general conclusions are that the nutritional state of the infant is best in the following order: (1) When nursed by its own mother; (2) when nursed by a wet nurse with the first milk; (3) when nursed by wet nurse with the second milk, provided that this milk is not too old and the milk be given, as in the first case, in the child's own home, or at least the wet nurse lives so near as to be watched daily. Artificial feeding gives the worst result as compared with any of the previous alternatives.—The *British Medical Journal*, April 17, 1909.

Homœopathy and Overcrowding.

Taking all these facts into consideration, there can be no doubt that a gradual diminution of the professional income has been taking place for some years in this and other countries, and that the movement is likely to continue. We do not believe, however, that homœopathic practitioners are suffering to the same extent as others. A conscientious and capable homœopath can always work up a practice, in a sufficiently large locality, in the face of the keenest old school competition. Good work always pays in the long run. Short illnesses, quick cures, and especially the curing of other men's failures, cannot remain hidden, but bears fruit after a reasonable time. This is especially the case in working-class districts. The intelligent mechanic is far quicker in grasping the value of a treatment than many in the higher grades of society; these are frequently blinded by prejudice against what is at present not "in fashion." Whilst these cries about overcrowding are in our ears is the psychological moment for capturing the discouraged young graduate, and persuading him to enquire into a method of

treatment which offers not only an honourable stipend, but the still greater distinction of utilizing to the utmost the curative properties implanted by a beneficent Creator in the products of Nature.—*The British Homœopathic Review*, April, 1909.

Hereditv in Diabetes Mellitus.

In a reprint from the *Medical Chronicle*, January, 1909, R. T. Williamson publishes his observations upon the hereditary tendency in diabetes mellitus. In a series of 100 hospital cases recorded by him ten years ago a family history of the disease was obtained in 13, and this present publication is the result of his investigations in 250 cases (157 male, 93 female) occurring in private practice, and in which on careful inquiry a family history of the disease was obtained in 47—that is, 18·8 per cent., while in 100 of these more specially investigated such a history was obtained in 22 cases, and this may be regarded as the minimum percentage. As a control to these statistics a family history of the disease was inquired for in 50 cases seen in consulting practice in which the patient was not suffering from diabetes, and none of these presented any history of the disease. Grouping these cases with regard to age a family history was obtained more frequently in patients under 40 than in those over 40 (30·6 per cent. and 13·7 per cent. respectively). On an examination as to the relatives most frequently affected by the disease, they were in order of frequency—brother, father, mother, sister, and in 5 instances among the 250 cases (2 per cent.) the husband or wife of a diabetic patient also suffered from the disease; but such instances cannot, of course, be included in any tables of heredity. Some striking examples are recorded of this family tendency—for example, in a family consisting of two sons and two daughters, two sons and one daughter became diabetic. Each had lived in different towns, and several years elapsed between the onset of the disease in the three cases.—*The British Medical Journal*, April 17, 1909.

Early Diagnosis of Syphilis.

Geraghty, in *Johns Hopkins Bulletin*, says the spirochaeta pallida can usually be found in a few minutes in primary sores. The spirochaeta were found in a number of sores that did not resemble cancers, cases which subsequent development proved to be syphilitic.

Technique.—Sore thoroughly cleaned with soap and water and surface rubbed with piece of gauze until small bleeding points appear. Firm pressure between thumb and finger until bleeding stops and almost clear serum exudes. A clean slide then rapidly swept across exuding serum.

“Cleansing is necessary to eliminate as far as possible *s. refrigens*, which is a surface grower, while *s. pallida* is a true parasite and lies more deeply in the living tissue.

“In earlier work the Giemsa stain was used, fixing smears in absolute alcohol for twenty minutes, then staining from twelve to eighteen hours. At present the Hastings stain is used, the slides being air-dried and covered completely with stain; after one minute distilled water is added and staining continued for five minutes, then washed in running water and dried. *S. pallida* are stained faint blue, while *s. refrigens* are stained deep blue.

“Results.—In all about 150 cases were examined, of which 30 were syphilitic. Of these 30 cases, in 27 the *s. pallida* were demonstrated in smears from the primary lesions. Where primary lesions have begun healing it is difficult to demonstrate the spirochæta.”—*The North American Journal of Homœopathy*, April, 1909.

“Tea” Veniente Die.

It is often asked whether the early morning cup of tea is permissible having regard to the chemical qualities and physiological effects of that beverage, especially under the particular conditions of the human organism after a night's rest. The early morning cup of tea is a source of comfort and refreshment to a good many persons when the mental and physical faculties are in a more or less lethargic state. To them a cup of tea is helpful in giving them, so to speak, a species of courage to face once again the demands and tasks of the day, and that being so it is superfluous for physiology and chemistry to preach that the practice may be beset with troubles connected more or less with the gastric machine. It can hardly be supposed that people who habitually enjoy their early morning tea suffer from any unpleasant symptoms or effects or they would discard the luxury, but, on the other hand, it is conceivable that in some cases mischief in the long run may ensue. It appears to be generally admitted that when tea is harmful at all (and we assume that it is a delicately infused and not long-boiled preparation that is chosen) it is when it is taken without food—that is

to say, when the stomach is empty. That is a period when obviously the astringent substances of the tea may act more effectively as irritants to the mucous lining of the stomach and therefore excite a condition of chronic gastric catarrh. Happily, however, it is the custom of most persons to take milk with their tea, which, unless the tea is objectionally strong, neutralises the tannin substances and thus precludes their acting as irritants. *The most cogent argument against the early morning cup of tea is that, as in so many cases at all events, the tea is swallowed before the mouth and teeth are cleansed, the septic potentialities accumulated in the mouth overnight are washed into the stomach and a poisoning process in the system might thus easily be begun. This is not improbably a source of gastric catarrh in some individuals who drink their early morning tea before they leave their bed. The mouth, of course, should be clean before food, and especially before warm drink is indulged in. There is, perhaps, another reason why the institution of the early morning tea is popular, and that not a physiological one. Its preparation implies the stirring betimes of the domestics of the household, but this is a side of the matter which hardly calls for attention in our columns.—*The Lancet*, April 3, 1909.

The Intellectual Achievements of the Blind.

Three months ago the centenary of the birth of Braille, the inventor of special type for the use of the blind, was celebrated. Braille had been blind from the age of three. In 1828 he was appointed professor in the Instruction Royale des Jeunes Aveugles. The pioneer in the education of the blind by development and training of the sense of touch was Valentin Hürty, who founded a school in 1784. For reading purposes he used only ordinary type printed in relief. Reading by this method was a tedious process and no greater benefit was ever conferred upon these afflicted people than the invention of the Braille system. How great a success it has been and how much it is appreciated is shown by the fact that the Bibliothèque Braille now contains over 25,000 volumes. An instance of extraordinary intellectual development and achievement in spite of loss of sight, hearing, and speech is the now well-known case of Helen Keller. Another noteworthy achievement by a blind young man is a book in three volumes, comprising 1250 pages, entitled "Les Sources et l'Evolution des Essais de Montagne," by

Pierre Villey (Paris : Hachette, 1908). The author has been blind since the age of four and a half years. At the age of eight he commenced the study of Braille type. He was educated at the Institution Nationale des Jeunes Aveugles in Paris and at the Ecole Normale Supérieure. Attracted to the study of history and literature, he undertook the important task of trying to arrange Montaigne's "Essays" in chronological sequence and to trace the thoughts and allusions, so far as these were borrowed, to their original sources. With the help of a secretary he wrote out the whole of the essays in Braille type. With these 20 volumes at his disposal he compiled three annotated indices of the chief ideas presented by the author, the characteristic images, expressions, and so on and the historical examples and anecdotes. He then obtained and had read to him all the possible contemporary sources of Montaigne's inspiration. That the result is a worthy contribution to literary history is shown by an appreciative criticism in the *Revue des Deux Mondes* of February 1st last. The number of the same review of March 15th contains an interesting article by M. Villey upon Intellectual Work amongst the Blind which will well repay perusal by those who are concerned in the alleviation of these afflicted people.—The *Lancet*, April 10, 1909.

The Incubation period of Syphilis.

An interesting research into the phenomena of the incubation period of syphilis is recorded in the *Annales de l'Institut Pasteur* of October 28th, 1908, by MM. C. Levaditi and T. Yamanouchi. They find that the development of a syphilitic chancre is preceded by a period of incubation, the duration of which varies with the origin of the virus and with the animal infected but which cannot be shortened beyond a certain limit. They investigated the histological features of the primary lesion in the monkey and of a specific keratitis induced in the rabbit. The suggestion that the incubation period may be due to the occurrence of a definite cycle in the evolution of the *treponema pallidum* is negatived by their demonstration of typical organisms at every stage of the incubation period. They conclude that it corresponds to the slow but progressive development of lesions produced by the multiplication of the micro-organism, which is at first slow owing to defective nutrition caused partly by change of medium and partly by the local conditions being at first unfavourable to the supply of nutritive

materials. As soon as the vessels and newly formed cellular elements supply the treponemata with adequate nourishment their rapid multiplication puts an end to the period of incubation. The paper is illustrated by some excellent plates showing the invasion of the tissues of the cornea by the parasite at various stages of the incubation period. It is interesting to note that the parasites show a predilection for the newly formed vessels which spread into the cornea from its margin. In like manner the growth of the treponemata in the tissues of the monkeys after inoculation under the dermis with a fragment of cornea containing them was found to be intimately associated with the organisation of the piece of cornea, and the appearance of newly formed vessels was accompanied by an active multiplication of the parasites. The specific process spreads from the deeper parts towards the surface, following the blood-vessels in their course. The appearance of the ulceration of the chancre coincides with the localisation of the parasites in the epidermis and in the papillæ, causing epidermal and papillary lesions.—The *Lancet*, April 10, 1909.

The Gastric Secretion during Menstruation.

Dealing with the gastric functions during the menstrual period, I. M. Wolpe (*Dent. med. Woch.*, December 17th, 1908) briefly recalls the effects which have been noted on the mental state, the sight, the liver and secretion of bile, the intestine, peritoneum, metabolism generally, as well as on disturbances of a febrile nature, of the heart, etc.; on tuberculosis; and, lastly, on disturbances of the stomach. The author has studied the secretory and motor conditions of the stomach in 12 women in Ewald's clinic. The observations were made in the præmenstrual period, during the menstruation, and also in the interval between two periods. He found that the difference exhibited during two periods in the same subject were so small that they need not be taken into account. Certain differences were noted between the conditions during the præmenstrual and the menstrual period; but these again were slight, and do not indicate any marked characteristics of the two periods. His 12 patients include 5 who were suffering from nervous dyspepsia, with normal secretion and motility, 2 with anacidity, 2 with gastric ulcer and pronounced gastrosucorrhœa, 2 with hyperacidity, and 1 with subacid gastritis. These cases he compared with women whose digestive organs were normal. After describing the precautions

which he took in order to avoid falling into error, he records his results. With regard to the secretion of gastric juice, he found that in all the conditions named the acidity is distinctly increased during menstruation, both when tested with an empty stomach and when tested after the trial breakfast. This menstrual hyperacidity consists of an increase in the secretion of hydrochloric acid, and also an increase in the total acidity. The acidity of the gastric secretion has apparently no connexion with the acidity during the interval, as was shown in cases of anacidity and hyperacidity; but the author supposes that it is produced by a reflexory action of the irritated genitals on the secretory nerves of the stomach. The amount of secretion during fasting was increased during menstruation, even in a case of gastrosuccorrhoea. This was tested in 11 out of the 12 cases, in all of whom no motor insufficiency was present. With regard to the motor functions of the stomach, he found that the motility was distinctly diminished during menstruation. Normally, one hour after the trial breakfast there are 150 c.cm. of gastric contents. When this quantity is diminished there is evidence of weak uses of the stomach muscle. After testing by Mathieu—Remond's method, he concludes that a weakening of the stomach takes place during menstruation. These differences between the gastric functions during the intramenstrual and intermenstrual period cause him to warn physicians not to base a diagnosis of gastric disturbances on tests carried out during menstruation.—The *British Medical Journal*, April 10, 1909.

Intestinal Massage in Heart Disease.

Max Herz (*Monats. für die phys.-diät Heilmethoden in der ärztlichen Praxis*, I Jahrgang, 1 Heft) recommends a system of intestinal massage for the treatment of chronic constipation in cases of heart disease. Even though the explanation of the intimate connexion between affections of the gastro-intestinal tract and the symptoms of heart disease may vary from time to time, the fact of the connexion is undoubted. Thus in cases of heart disease the severity of the subjective symptoms is seen to vary with the changes in the course of a chronic constipation. The combination of chronic constipation with the symptoms caused by arterio-sclerosis, and especially by arterio-sclerosis of the coronary vessels, is so frequent that it is claimed that constipation is a cause of the arterio-sclerosis, and it

is probably not accidental that anatomical diseases of the circulatory system are usually found with atonic constipation, but the so-called heart and vessel neuroses with spastic constipation. Experience also teaches that treatment of disease of the circulatory system is most effective when normal intestinal action can be restored. Intestinal massage for conditions of intestinal atony is in general use, but it has been objected to for cases of heart disease on the theoretical ground that the emptying of the abdominal veins as a result of massage may momentarily increase the work of the heart, and at the same time lead to an increase in the amount of the circulating blood. On this theory abdominal massage would be obviously contraindicated in cases of abnormally high blood pressure. Herz testifies that these fears are altogether without foundation, at any rate for the simple form of intestinal massage which he advocates. Most systems of abdominal massage are complicated, and include manipulations intended to strengthen the abdominal muscles, others to help to push on the contents of the intestine in the desired direction, and a third group to remove the supposed accumulation of venous blood in the abdominal vessels. Herz, on the other hand, attacks only those parts of the large intestine which are found on palpation and percussion to be pathologically changed, these parts being the caecum, which is often much distended; the ascending colon, which can be felt as a firm cylindrical body; and the sigmoid flexure, parts of which are palpable as hard, sometimes spindle-shaped, sometimes knotty, masses. The affected parts are treated by a very light kneading, while with the finger tips pressure is made on the median side of the abdominal wall to push the palpable masses outwards until they slip of themselves inwards again under the fingers. At the beginning this manipulation is often painful, but the pressure is then reduced, and only increased again as the patient becomes accustomed to the treatment. Herz likes to end up with light vibration, either manual or with the usual apparatus, applied to the same regions. Such treatment carries with it no danger of injury to a weak heart from emptying of the abdominal veins; and since, in an overwhelming majority of the cases, a spontaneous evacuation of the bowel very quickly ensues, Herz maintains that the more complicated and severe methods are superfluous.—The *British Medical Journal*, April 10, 1909.

Will Artificial Synthesis ever supply the World with food ?

The advance in the price of bread last week, due to financial operations which no one can approve, revives in the minds of chemists the possibilities of synthesis when applied to food production. It must be admitted that triumphant as are the very numerous synthetic processes which have been devised by chemists, yet very few of these relate to the building up of food materials from their elements. It is true the sugars have been so fashioned, but how long, laborious and expensive does the process prove! The most vital constituent of food, the nitrogenous portion, or protein, is a building yet uncompleted by man's effort, although excellent foundations have been laid by the masterly work of Fischer. The simple adjustment of materials in the plant which furnish the important starchy foods is understood to some extent, but no man has been able to imitate it successfully, "albeit carbon, hydrogen, and oxygen surround him on every hand. Bricks there are everywhere, but he cannot group them. Yet another important factor in diet is fat, but no chemist has dreamed of a mill which will serve out fat on an intake of grass. The fact is, chemistry succeeds better in the work of destruction than in the work of construction, and analysis must necessarily precede synthesis, so that composition and constitution must first be learned. The forces which determine this composition and constitution are the crux of the whole question, and this is where man is beaten. His food so far can only be produced through the natural synthetic mediums, the plant and the animal; agriculture is a practicable matter, but the artificial synthetic factory is not. Will it ever be? There are not a few eminent scientific men who predict with confidence that the world's supply of food (it may be at a distant day) will be produced abundantly and constantly by humanly devised processes which will place questions of quantity on more certain bases than agriculture can promise to do. It is difficult not to be sceptical about such a contemplated consummation of man's ingenuity, and certainly much of the joy and romance of the world would be taken out of it if the rearing of plants and animals ceased to be a necessity of its existence. Still, the triumph which would imply that albumin, starch, sugar, and fat could be fashioned out of the mineral elements, carbon, hydrogen, nitrogen, oxygen, sulphur, and phosphorus is not beyond the bounds of imagination, only we must not wait for it to put an end to the "cornering" of the people's food.—*The Lancet*, April 24, 1909.

210. Tobacco Poisoning in an Infant.

Jules Lemaire (*Ann. de Méd. et de Chir.*, March, 1909) relates a case of acute tobacco poisoning. The accident occurred to an infant of 1 year of age. He prefaces the story by referring to the fact that classical authors describe two forms of acute tobacco poisoning: (1) The acute, evanescent form with malaise, nausea, vomiting, headache, vertigo, and cold sweats; (2) the grave form, with excitement, headache, vertigo, affections of the sight and hearing, slowness of pulse, dyspnoea, vomiting and diarrhoea, extreme weakness with coldness and stupor, ending in collapse with intense dyspnoea, failure of the pulse, and death by asphyxia. The case in point occurred on December 12th, 1908. The infant, 1 year and a few days old, swallowed a cigarette made by W. D. and H. O. Wills, known as Three Castles brand. This occurred at 6 o'clock at night, after which the infant had its usual meal and went to sleep. After a quiet sleep of about an hour the infant woke and began to cry and vomit; he turned pale, the face was covered with a cold sweat, and diarrhoea followed. Dr. Lemaire saw the patient at 9 p.m.; he was collapsed and sleepy, pale, with cold extremities, but the pulse and respiration were not interfered with; there was much yawning, and the vomited matter contained much mucus and pieces of the cigarette. Pieces of the tobacco were also found in the stools, and were more numerous there than in the vomited matter. The infant was given two cups of warm tea with one teaspoonful of cognac, and kept warm with hot water and cotton-wool. Towards midnight the child went to sleep and next morning was quite well. The clinical picture presents a case of acute tobacco poisoning in a mild form, but the diarrhoea and collapse would lead one to classify the case as one intermediate between the grave and mild forms of poisoning. Inquiry led to the fact that the kind of tobacco the cigarette contained was pure Virginia and weighed slightly over 1 gram. The case was of special interest on account of the age of the patient—namely, 1 year and a few days.—The *British Medical Journal*, April 24, 1909.

CLINICAL RECORD.

Foreign.

A CASE OF FACIAL PARALYSIS.

(REPORTED BY DR. J. HERVEY BODMAN.)

T. M., age 31, glass engraver, first consulted me on February 17, 1908, and gave the following history of his illness:—About a fortnight ago he was taken with a severe cold in the head; there was much stuffiness and sense of swelling at the root of the nose, and in a day or two a thick, yellowish (presumably purulent) discharge from the left nostril. About the third or fourth day of the cold he began to have severe pain deep in the left side of the head, and also in the left parietal region, where it felt like a thick piece of wire being pushed deep into the head; with this there was also a similar pain behind the left ear (points to the base of the mastoid process), and also in the nape of the neck on the left side. These pains came and went, and were often “jumping” in character; they continued severely for about a week (*i.e.*, until about three days ago), but are now present in a much slighter degree.

Eight days ago he noticed that the left side of his face was motionless, and that the left angle of the mouth drooped; this has continued, and there is now complete facial paralysis. The left eye cannot be completely closed; when eating, food collects between the gums and the cheek on the left side; the movements involved in frowning, whistling, &c., cannot be performed on the left side. The sense of taste was tested with salt and sugar, and was found normal on the right half of the tongue, but almost entirely lost on the left half. There was no impairment of hearing on the left side.

The only treatment ordered was to take *silica* 30 three times a day.

February 26.—There is great improvement in the facial paralysis; in fact there is now only a slight deficiency in the mobility of the left side of the face as compared with the right. The nasal stuffiness and discharge and the pain in the head are practically gone.

Repeat.

April 14.—Reports to-day, by request, as follows:—the facial paralysis was quite well within three or four days of the last visit. No pain. Sense of taste normal.

REMARKS.

Etiology.—The question of the causation of the paralysis in this case is one of considerable interest. There was no history of chill or traumatism, and there was no evidence of otitis media. On the other hand, the symptoms which preceded the development of the paralysis (viz., purulent discharge from the left nostril, and pain deep in the left side of the head and in mastoid region) point strongly to suppuration of one or more of the deeper nasal accessory sinuses, probably the sphenoidal or posterior ethmoidal. The following quotation from Dr. Watson Williams's recent Long Fox lecture on "Suppurative Disease in the Nose and Ear" may be of interest in this connection: "In sphenoidal sinus empyema the pain is often deep and very severe, and yet its situation difficult to describe. . . . But there is one symptom which is very misleading—pain in the ear. It is not often present, even in sphenoidal sinus disease; but if it is the only pain the patient experiences, the seat of the trouble is liable to be completely overlooked." Two cases are then referred to where this symptom led to the mastoid being opened to no purpose, and another where this operation was at one time contemplated.

Later in the same lecture cases are referred to in which sphenoidal sinus suppuration has caused optic neuritis and paralysis of the ocular muscles, through extension of the infection and inflammation to the various nerves in and around the cavernous sinus, which lies in close relation to the sphenoidal sinus. One case is also referred to in which there was paralysis of both sixth nerves, but no other changes, and no pain in the eye.

But I have never yet come across any reference to the association of paralysis of the facial nerve with sphenoidal or posterior ethmoidal suppuration; and the possibility of this association in the present case seems to make it worth recording.

Pathology.—The associated loss of taste on the left side of the tongue clearly proves that the lesion of the facial nerve involved that part of the nerve which runs through the aqueduct of Fallopius in the temporal bone, as it is only in this part of its course that it contains the taste fibres which reach it by way of the chorda tympani nerve. How this portion of the nerve could be affected by inflammation in and around the sphenoidal sinus is not quite clear, but it might be brought about by dissemination of toxins through lymphatic channels.

Treatment.—The prescription of *silica* 30 was largely the result of the view that possibly the causative factor was sinus suppuration, as it has so frequently served me remarkably well in such cases. The result was a complete recovery in a much shorter time than was anticipated.—The *British Homœopathic Review*, May, 1908.

A CASE OF ASTHMA.

BY LAWRENCE M. STANTON, New York.

One day as I was turning into my office I met a man whom I had known many years ago in Germany, where we had been fellow students, he in art and I, a "stud med." After renewing in conversation the old days, and talking of art and the artist's life in New York—he had risen to recognition in the years that had passed—I naturally asked him about himself. He confessed to having been in poor health for a year or more, and I learned that he suffered much with difficulty of breathing, and that he feared heart trouble. He told me that he had consulted several physicians and had taken a number of drugs; had had heart, lungs, urine and blood examined—in short expressed himself as having come to the end of hope and medical resource. Finding that he was not at present in the care of any physician, I asked him, after just a moment's hesitation, whether he had tried homœopathy. "No," he said in surprise that I was of this persuasion and that there might be help in that direction. I told him of the many wonderful remedies of which nothing was known beyond our school and that there might be help for him in them. I would be glad to see him in my office, I suggested, and talk the matter over at greater length. When he came to see me a few days later I obtained the following information. About two years ago the patient began to notice slight difficulty in breathing. This had increased, and for the past six months he had suffered almost constantly. The paroxysms of dyspnoea lacked some characteristics of typical bronchial asthma; they did not occur at night and there was no wheezing, coughing or gelatinous expectoration. His paroxysms occurred after eating, unless the meal were a very light one, and in the latter part of the afternoon. He rarely suffered in the evening, providing he ate little dinner, and during the night he was wholly free. He could walk and climb without increase of trouble, and he was not conscious of much discomfort while painting. Increased heart action accompanied the paroxysm, but the

shortness of breath preceded the palpitation by some moments—never the inverse order. Examination showed heart and lungs healthy; the heart little feeble but no murmur.

Other features of the case, some of which were important in making the prescription, were: Tongue dirty and showing the imprint of the teeth along its border; had always had this tongue. Sour taste after eating. Has often an evening movement of the bowels in addition to the normal morning stool; considerable straining with the evening movement, accompanied by a fluttering sensation in the left side of the abdomen (descending colon). Lameness and muscular soreness of ankles, heels, (especially) thighs and ribs, and more marked on the right side. Some years ago upon reaching home one evening and hearing that his son had come down with appendicitis, the patient was suddenly seized with severe pain in his appendix region: a pain as if it were pressed upon, and extending through to the back. After suffering with this, with more or less intensity, for several months, the patient spoke of it to his physician. On being assured by him that his appendix was all right and that the trouble was entirely "nervous" it promptly disappeared.

Treatment—Lycopodium was given, then arsenicum, with no very decided result, and finally chelidonium. Within a few days the patient showed improvement, and in a short time recovered.

The symptoms most decidedly suggesting *chel.* were:

1. Dyspnoea better during the night. Hering has it "respiration improved in the evening in bed." Kent's repertory gives under amelioration lying down: *bry.*, *calc. ph.*, *chel.*, *dig.*, *hell.*, *laur.*, *nux v.*, *psor.*

2. Aggravation the latter part of the afternoon and amelioration in the evening, provided the evening meal was light.

3. Coated tongue showing the imprint of the teeth.

4. Lameness and soreness to touch in ankles, heels, thighs and ribs, especially marked on the right side.

Less important but corroborative of *chel.* were:

1. Difficult respiration after eating.

2. Sour taste.

3. The fact that the symptoms pointed to some portion of the intestinal tract as the seat of irritation.

I don't know whether it is stretching a point to include here the pressing pain in the right iliac region, extending through to the

back, which the patient suffered from at the time his son had appendicitis. Chelidonium has many pains in the abdomen and chest, extending to the back, and pains in the back coming through to the front of the body. The fact that the pain was a "sympathetic" one, caused by hearing of his son's sudden illness, is not against its genuineness. Had there not been some predisposition to this particular kind of pain the shock would not have produced it.

The amelioration of the asthmatic breathing at night is interesting, and how human the homoeopathic materia medica is to be able to meet the many phases of suffering with such nicety.

Many chelidonium symptoms are better after eating, but its difficult respiration is worse then, as this case illustrates.

It is perhaps worth mentioning that the patient has kept his coated, teeth-imprinted tongue, and in face of the fact that it was an important indication for the remedy.

Once again, of interest in connection with this case is the following: A few weeks ago the patient was mentally upset by some occurrence, and a severe attack of indigestion followed. The remedy was Bryonia. Speaking of the attack afterwards he said, "it went alike that," snapping his fingers. Now bryonia and chelidonium are compatible, one often following the other with benefit as it did on this occasion, after an interval of many months. While I gave bryonia upon its symptomatic indications only, it was, then, the right remedy in a threefold sense; the symptoms indicated it: chagrin or mortification caused the attack, and the compatible relationship with chelidonium.

Lest it might be thought that the case was perhaps cured psychotherapeutically instead of by the homoeopathic remedy I add that such a supposition is quite unwarranted. Granted that the patient was impressionable and open to suggestion as shown by his experience at the time of his son's illness; and granted that he had considerable faith in the untried, in homeopathy, as I had with some force presented it to him—granted all this, and yet it is not likely that these things played more than the usual part in his recovery. The patient had believed in his former physicians and their medicines, and without benefit. Then, you remember, I had given two remedies with unsatisfactory result, but upon the patient receiving chelidonium a striking recovery ensued. It is far from my purpose to argue against the psychic treatment of disease, believing in it as I ardently do. It is the distinction I want kept

clear, the distinction between therapeutics and psycho-therapeutics. In practice there is no need for confusion; also in crediting the one there is no reason to discredit the other. In the present case we must credit homoeopathy. Even "the ox knoweth his owner and the ass his master's crib." No, it was a *chelidonium majus* case and cure, and to the greater celandine belong the laurels.—*The Medical Advance*, April, 1909.

NOTES OF A *PHYTOLACCA* CASE.

By ALFRED J. PEARCE.

The following reached us too late for our March issue, but is a case well worth attention:—

W—, *æt* 19, in the year 1878, was sent home from a West-End hospital as a hopeless case of albuminuria, after several weeks of orthodox treatment. My father, the late Dr. Charles T. Pearce, M.R.C.S. Eng., and I visited the poor patient. The dropsy was fearful. I wished to try *Phytolacca*, as I had seen good effects from its administration in cases of albuminuria while assisting for seven years a homœopathic practitioner in the North of England. My father consented, saying that the case seemed almost hopeless, and that if no improvement were shown within forty-eight hours we must either stop the *Phytolacca* or alternate it with another remedy. Five-minim doses of the first decimal tincture were given every two hours. The cure effected by this valuable remedy alone was rapid and almost marvellous.

In Hering's *Condensed Materia Medica*, published in 1877, the following symptoms were given: "Urine: albuminous, scanty" &c. I have found *Phytolacca* very useful in cases of dropsy following scarlatina.—*The Homœopathic World*, April 1, 1909.

Gleanings from Contemporary Literature.

THE MORPHOLOGY AND VARIATION OF THE SKULL.

Delivered before the Royal College of Surgeons of England on February 22nd, 24th and 26th, 1909,

BY WILLIAM WRIGHT, M.B. VICT., D.Sc. BIRM., F.R.C.S. ENG.,
Lecturer on Anatomy at the London Hospital Medical College.

(Continued from page 224).

LECTURE III.

Delivered on Feb. 26th.

MR. PRESIDENT AND GENTLEMEN,—In my previous lecture I stated that from the stegocephalic amphibia evolution progressed along two distinct lines, the rhynchocephalic or beak-headed and the anomodontine, so called from the anomalous dentition of the members of the series. The former had its origin in the Permian period and is best represented in England by the hyperodapedon of the Elgin Trias; the latter does not appear until the Trias, and although imperfect specimens of its representatives have been obtained from Elgin the best examples are from the Karoo formation (Trias) of Cape Colony.

REPTILIA.

Taking the rhynchocephalic line first we find that it leads through a long series of extinct species to living reptilia. Of these reptilia the chelonia appeared first before the end of the Trias; they were closely followed by the crocodilia, whereas the lizards and snakes are not definitely known until long afterwards in the tertiary period. It is of interest and may be of value to the morphologist to know that among reptiles the chelonia are oldest and presumably nearest the main line of vertebrate descent. Since amphibia, as their name implies, lived more or less indifferently in water and on land it occasions no surprise to find that the two main branches which sprang from them are associated with the two different environments. The geological evidence shows that the earliest reptilia were adapted to a life in water, while even to-day their living representatives with few exceptions show a marked preference for moist situations. It is more than probable that we here have some part of the explanation of their cold-blooded condition.

The skull of the reptiles is not very different from that of sphenodon. As in the latter, the cranium lies except in snakes and a few lizards further back than it does in amphibia. This condition is clearly correlated with the presence in reptiles of an interorbital septum. It also effects a change in the form and development of the parasphenoid, the anterior portion of which becomes unnecessary with the backward shrinkage of the cranium. It appears that the amphibia and snakes find it advantageous

to have a strong flattened roof to their mouth anteriorly as posteriorly. We can understand the importance of such a condition to the snake from its known manner of feeding; to the amphibia from their peculiar method of breathing in which they raise the floor of their mouth, compress the air against the roof, and so produce a backward current to the lungs.

The reptilian skull which most resembles that of sphenodon is the lizard's. The temporal arches and fossæ are well represented with the exception of the maxillary arch which bounds the lateral fossa inferiorly and which is always absent. The pterygoid is more important and complicated than in amphibia; it sends a strong process upwards to the parietal region of the cranium and an equally strong process outwards to the maxillary arch; these processes become during development separate entities, the so-called epipterygoid and transverse bones. Their purpose appears to be the support of the upper jaw. Another process of the pterygoid passes inwards and articulates with the basiptyergoid process of the basisphenoid. These basiptyergoid processes are of importance since they are probably the beginnings of the alisphenoids of the mammalia. It is interesting to find that they are at first entirely extracranial and only become incorporated in the cranial wall as a result of cranial extension.

In sphenodon and reptilia we also see the beginning of a hard palate which is of variable construction. In sphenodon it is formed by the vomers, palate, and pterygoid bones; the latter take a large part in its formation, extending forwards to meet each other and the vomers in the middle line. In the chelonia it is formed by the premaxillæ, maxillæ, vomers, and palate bones; the pterygoid in them lies at the junction of the maxillary and palatine arches. In crocodilia we find a very long well developed palate which closely resembles that of mammals; it contains however a pterygoid as well as premaxillary, maxillary, and palatine elements; in this respect, however, a parallel is found in myrmecophaga jubata, one of the edentates. No attempt is made towards the formation of a palate in snakes and only rare and imperfect efforts in the lizards. The palate entirely absent in amphibia is thus seen to be slowly and somewhat tentatively evolved in reptilia. By its formation, which is to be correlated with a change in the method of respiration, the basis cranii becomes hidden and a new roof is formed for the mouth. Before leaving these bones it may be remarked that while vomerine teeth are only present in sphenodon, pterygoid and palatine teeth are retained in certain snakes and lizards. The cheek-plate, as in sphenodon, is largely broken down to form arches; it is, however, complete and well marked in certain turtles and tortoises in which a wide space intervenes between the plate and the cranial wall. In other reptiles it is represented by postfrontals, jugals, squamosals, and supratemporals. The exact homology of these bones in different reptiles and in amphibia has proved a very vexed

question and one barren of results. It is not improbable that too high and equal a value has been set upon sutures, that a distinction should be made between sutures occurring within and outside a morphological unit such as I take the cheek-plate to be, that the former sutures should be regarded as of minor and even questionable importance, while the bones which they limit cannot be always deemed capable of precise homological adjudication. One of the most important features of the reptilian skull is the increase in size, strength, and importance of the quadrate bone, which is fixed to the wall of the skull by a strong parotic process, except in lizards in which a small squamosal intervenes and in snakes in which it is loosely but securely attached to the cranium by a strong squamosal—an adaptation to the large size which the mouth of the snake has sometimes to attain in the swallowing of its prey. Despite these changes the quadrate still retains its close relation to the tympanic membrane. Other features may be briefly mentioned. A basi-occipital is present, the spinal accessory and hypoglossal nerves belong to the cranial series, while a ring-like atlas and an axis with odontoid process constitute the anterior elements of the vertebral column. As already indicated, it is not unlikely that these features are correlatable. The mandible as in fish and amphibia is compound, comprising splenial, dentary, angular, supra-angular, coronoid, and articular elements.

BIRDS.

The bird's skull need not detain us long, for birds even more than reptiles are highly specialised and lie distinctly apart from the main line of vertebrate descent. The earliest bird which is known is the archæopteryx of the Jurassic period, whereas the remains of mammals are found in deposits of the earlier Trias. The bird's skull is, however, interesting in that we find the cranium rounded in a truly mammalian fashion, while the quadrate bone already lies under an overhanging squamous process of the temporal bone. This process, which in the hen unites with a post orbital process, is, in my opinion, to be regarded as a portion of the cheek-plate, the other portion being represented by the jugal and quadrato-jugal bones. The birds are a late offshoot from the reptiles as is seen by the distinct reptilian characters of the earliest birds which possessed teeth, a wing in which three clawed fingers could be recognised and a long but not tufted tail. Before leaving the subject of the reptiles and birds it is worthy of note that although they are descended so differently from the mammals, their skulls seem to have been evolved along parallel lines. It is, therefore, not so ridiculous as it would appear to seek for homologies in their skulls. It should, however, be emphasised that it is perhaps not wise, it is perhaps asking too much from morphology, to attempt to build up a complete and precise series.

ANOMODONTIA.

Turning to the other line along which I said evolution progressed through the anomodontia to monotremes and mammals, we should expect

to find it the more interesting, and no doubt it would be so, did we know all. Unfortunately, however, the line is both imperfect and obscure. The anomodontia form a class of somewhat heterogeneous members who will no doubt in future years be grouped differently. One of the most distinct members, possibly because its skeleton has been almost perfectly preserved, is the *pariasaurus* of the Karoo. It measured some 8 to 10 feet in length and stood about 2 feet high at the shoulder. It possessed a skull very like that of the stegocephalic amphibia of the Carboniferous period, with a pineal foramen on the vertex. Other anomodontia, known from the large size of their paired canine teeth as the *dicynodonts*, had beaks like turtles and other features which indicate a close relation to the chelonians. The members, however, most resembling mammals are the so-called *theriodontia*, which had a dentition of incisor, canine, and molar teeth arranged as in mammals, although in *gomphognathus polyphagus* the canine teeth are in the premaxilla. Associated with this dentition we find a correspondingly similar palate consisting of premaxillary, maxillary, and palatine portions. It bounds inferiorly the posterior nares which are separated from each other by a vertical vomerine plate. Amphibian features are still seen in the pterygoids, in the wide and high cheek-plates, in the lateral, superior, and posterior temporal fossae, in the general flatness of the skull, and in the composite nature of the mandible. The skull of *cynognathus crateronotus* is singularly mammalian-like in appearance. An interesting feature of the anomodontine skull, in view of what happens in the mammalia, is the small size of the quadrate bone.

MAMMALS.

The final link between the anomodonts and the mammals is furnished by the jaws of animals from the Rhaetic and Jurassic beds. The jaws are no longer composed of several elements, they contain multi-tuberculate teeth, which bring them into close affinity with the young *ornithorhynchus*, probably the lower of the two members of the monotreme order. The monotremes are the lowest of mammalia, as is shown by their blood being colder than other mammals, by their mammary glands being devoid of nipples, and by the fact that they lay eggs. Their skulls are naturally of much interest. The great obstacle to a proper understanding of their cranium is due to the fact that the sutures show a marked tendency to early obliteration; only in very young specimens can the limits of the various bones be determined. The monotreme skull is distinctly mammalia in all its morphological sections, the cranium is relatively large and rounded, the jaws and palate are of the usual type, the three auditory ossicles are in the tympanum. The only non-mammalian feature which is present is a persistent temporal arch; in the *ornithorhynchus* the arch is short and high, in *echidna* it is long and low. Its nature is best seen in the *ornithorhynchus*. It is formed by two processes, a superior and an inferior, which meet and are then prolonged forward into the zygoma. The cranial wall between the two processes is formed by an expansion from

the petro-mastoid—the so-called pterotic process. This is the conclusion to which Van Bemmelen came after a study of several young specimens; it is a conclusion which is fully confirmed by a specimen in the Museum of this College. A slight further expansion of the cranium would bring the cranial wall against the temporal arch so effecting its occlusion; that this explains its absence in higher mammalia can scarcely be open to doubt.

To return to the morphological divisions of the human skull, I spoke of the upward direction of the basis cranii. This is to be associated with the formation of a new deep respiratory passage separated from the mouth by the hard and relatively horizontal palate. Where the basis cranii is also the tegmen oris, as in fish and amphibia, the basis is horizontal. The discrepancy in the sites of origin of the cranial nerves, the places where they pierce the dura mater and where they leave the cranium, is due to the inequality in growth of the cranial wall and brain. It is thought by Gaupp that the position of the apertures in the dura mater represents the positions of the apertures in the skull of an earlier type. The relations of the vomer, palate, and pterygoid bones are readily understood by the study of their morphology. The incus is probably the quadrate of the lower vertebrata, the malleus the articular element of the mandible. The cheek-plate may be divided into an anterior and a posterior portion; the former becomes the zygoma and possibly by degeneration the temporal fascia; the posterior portion can be again subdivided into an upper and a lower section. The upper section through expansion of the cranial cavity has become incorporated in the cranial wall; certain structures, such as the Gasserian ganglion and the geniculate ganglion now lying in the middle temporal fossa, possibly lay originally outside the cranium under cover of the cheek-plate. The lower portion of the plate persists as the external bony wall of the Eustachian tube, tympanum, and mastoid antrum. If the cheek-plate be accepted as a new morphological element in the skull it furnishes a striking instance of the persistence of anatomical structure, for we find it well developed in ganoid fishes and in *ceratodus*, in stegocephalic amphibia, in *cheilonia*, in the anomodontia, while it is difficult to explain the presence of the reptilian arches except by its assumption. In all classes of vertebrata it can be recognised as a plate lying over the lateral wall of the cranium and in close relation to the quadrate.

I would now conclude with a brief consideration of the theories of variation previously mentioned, in the light of the study which I have made.

Perhaps no region of the body can so well furnish evidence of variation adapted to purpose as can the skull. We find in it the most admirable and ingenious devices—devices distributed with a lavish and equal hand through all classes of the zoological kingdom, devices which in the vast majority of instances create wonder and disarm criticism. This being so,

it seems to me singularly illogical to attribute them to that chance which is properly represented as blind helped though it be to the utmost by the pruning process of natural selection. If further proof were needed that living forms owe their birth to the operation of some unknown power in Nature, it is forthcoming in the phenomena of parallelism, which clearly indicate that Nature working far from erratically progresses along old and well tried paths. Again, the manner in which many amphibia can regenerate amputated limbs indicates the existence in these animals of a creative and intelligent force of which they can be only dimly conscious. Spallanzani more than a century ago caused a salamander to regenerate no less than 647 bones in a period of three months. The varieties of variation may be classified as follows :—

1. Purposive.
2. Accidental. } Atavistic.
 } Teratological.

They are to be distinguished by the fact that whereas the former must have occurred simultaneously in a considerable number of animals in order to have persisted, the latter are sporadic and tend to quickly disappear. If now we admit the existence of this mysterious force there is no longer any necessity to give natural selection the prominent place it has recently occupied as the dominant force in evolution. We can judge its influence by comparison with artificial selection and, as already stated, the latter may be regarded as almost impotent.

Darwin finding natural selection inadequate to explain many problems in Nature, introduced the further theory of sexual selection, but here too recent research has done much to shake if not to shatter the Darwinian position. The highly attractive appearance of the male is recognised as low down in the animal scale as crustaceans, but the supposition that an æsthetic sense is present in the female crustacea is one at which we well may falter. Again, it has been shown by Mayer's experiments on moths that it is by smell and not by the appreciation of colour that the sexes are attracted to each other. The question of secondary sexual characters seems to me to be one of the most obscure in the whole of biology. It is very singular, for instance, that the male mammal should have nipples, for the mammary glands are not functional in any male, and their activity is dependent on pregnancy. It may be that each mammal is potentially bisexual ; instances are known of ducks, pheasants, and hens which after a blameless existence as members of one sex have suddenly and mysteriously put on the secondary sexual characteristics of the opposite sex. It is possible that if one sex undergoes a marked development in one particular feature, as, for example, the female in the matter of mammary glands, the development is to a minor degree impressed upon the opposite sex, and that in this way the presence of nipples in the male may be explained. I make these references to sexual selection because I wish to show that it is far from being a simple question. In the present state of our knowledge it should be deposed to a minor position among the

forces producing variation and evolution. If we are thus compelled to recognise a mysterious force as the *vera causa* of evolution, are we wise in endeavouring to conduct our inquiry further? For my own part, I have no hesitation in answering in the affirmative, for the question becomes psychological and the psychological is intelligible. I hold with Descartes that "we know more of mind than we know of body, the immaterial world is a firmer reality than the material."

As to the way in which this force works little is at present known. The most interesting feature about it is that if it does not exhibit an intelligence which is human in its nature, it acts in a way which the human intellect can follow and in some measure comprehend. I have already said that it appears itself to be undergoing an evolutionary process; the only alternative is to suppose that it finds difficulty with the material in which it works. We see it, for example, in the interesting ostracodermi feeling its way after a cranial type, later in the elasmobranchii it finds a form which serves as a basis for all skulls which come after. We saw, again, that for a long time the difficulty of a secondary respiration obstructed the steady progress of evolution. One of the most impressive facts which presents itself to a student of evolution is the enormous number of extinct animals, the apparently large and useless waste of animal forms. The explanation may be, however, that each of these animals has evolved to a marked degree some particular and apparently insignificant attribute, and that after such development Nature is able by combination of these separately evolved attributes to effect some important and remote variation. If this were the case, we could understand the reason for the presence of such animals as the dinosaurs, whose large and strange bones are from time to time recovered from the bowels of the insatiate earth.

It would also appear that the higher the position of an animal in the zoological scale and the longer it has persisted unchanged, the less easily does variation occur. Plants are, for example, much more subject to variation than animals. Nature never seems to have been able to play fast and loose with anatomical structures; restrictions seem to have grown more severe as the structure, through long persistence, became more deeply impressed. That Nature should act in this apparently human manner is not surprising, for human intelligence is her latest and highest achievement. It is not improbable, that it is also her last. Whether we regard it from the physical, moral, or mental point of view, evolution seems to have reached in man its final stage. While the vertebrate fauna was confined to the water we could readily understand that with all the possibilities of land and air, evolution had still an ample scope, but now the media may be said to be exhausted; air, land, and sea have received their appointed fauna. It is impossible to imagine man better adapted physically for the position which he has been called upon to fill. Morally our knowledge of what is right cannot undergo any higher development;

we can only advance by bringing more into harmony, practice and precept. Nor do I think that mentally we are likely to improve; we will, no doubt, accumulate more facts, recognise, name, even direct forces in nature and of which we are at present ignorant, but whether we will pierce more the mystery of things, whether a human intellect will ever surpass that of Aristotle is a matter upon which I remain sceptical.

Omnia in mysterium abeunt, said an ancient writer. And who can gainsay him? Surely no one who has reflected on the great drama of evolution, no one who has ever turned from the mystery of human fate to that large mystery of the great globe itself, spinning in fathomless space with unflinching regularity and unflinching precision, illumined morning and night by the sun and the moon, washed twice a day by the waves of the encircling sea.—The *Lancet*, March 6, 1909.

PRACTICAL DAIRY SANITATION.

BY PROF. H. E. COOK,
Canton, N. Y.

No more fundamental or important question confronts us to-day than the character of our milk supply.

Our present birth rate is becoming dangerously low and every precaution should be thrown around the food supply. It not only concerns the infant, but a pure, wholesome milk, free from all danger, and what is more that the minds of the consumers should be free from prejudice, would largely increase the consumption of a food now cheap and when compared to meats more easily digested, a food which if it could generally displace meat would eliminate many of the human ills now prevalent among every class of people especially those working indoors and of sedentary habits.

No subject can be discussed with that largeness of perspective and generous human sympathy without an understanding of the fundamentals underlying. We are usually so loaded down with prejudice or an acute interest in demonstrating our own view point that we become exceedingly narrow. And then the radical, who is usually a leader, demands immediate re-adjustment or re-direction, forgetting that the cause is deep-seated and of long standing and hence like any chronic disease, only very slightly, if at all, affected by superficial plasters. The solution of the milk situation is a case at hand. In order to demonstrate my point, let us discuss the formation of the business which has now reached such large proportions, something like \$600,000,000 annually in this country.

Milk production was not recognized as a business until after the close of the civil war when the development of the cheese factory and creamery, or rather the co-operative system began. Dairymen soon saw that this change not unlike other changes recognizing skill and a division of labor, would bring profit from loss and order out of chaos. From a few cows

kept here and there for the purpose of consuming unsaleable roughage without much regard to the relation between cost of production and value of milk, came a large cow population, rapidly developing into a science and business all its own.

Suddenly there developed another situation. Up to 1880 little or no attention had been paid to the science of soil restoration. New lands were abundant. Although soil extravagance was becoming scandalous, there were still new acres enough on every hand to furnish fertility to produce cheap crops. Thoughtful men discovered that this dairy cow possessed the power of soil restoration—and she did—with the result that those living upon naturally non-productive soils and those upon soils already impoverished, welcomed dairying as their only hope.

Soon the great west began to feel its soil riches slipping away and far-seeing men like Hourd and Henry said: "Convert your wheat fields into dairy farms," and they did, with the well known result, that productivity was restored. This demand for manure developed the dairy cow as a convertor of raw material into plant food. Men discovered that a \$30 cow would convert as much as one costing \$200, and as these sections had waited until they were poor before redirecting their energies, they could not buy the \$200 cow and get cows enough to make the manure needed. This method of doing business developed a one sided animal. A great law of biology says when one function of an animal or plant is developed out of harmony with other correlated parts, some one or all other functions are correspondingly weakened. Now the development of the dairy cow as a manure factory naturally gave us cows with indifferent milking capacities.

We could not make selections and keep pace with the demand. We were now safely entrenched as a great manufacturing plant with fertilizer as the essential product. If so, then milk and beef were by-products, each with many sub-divisions. And that is what I am trying to prove. No one will deny that dairy cow beef is a by-product. Is not milk in the same class?

The value of by-products in the open market has no relation whatever to the first cost of the material. To illustrate, wheat bran was wasted. Now it is worth \$25 to \$30 a ton. Dried distillers' grains fifteen years ago had only a nominal value. To-day they are worth \$33 per ton. The Standard Oil Company have made millions out of the sixty-two articles of commerce formerly wasted until kerosene oil, at one time the chief product, has really been turned into a by-product. Illustrations might be multiplied many times over.

The price of wheat during the time, which had changed wheat bran from running into the Mississippi river to a high priced commodity, has only slightly changed. Kerosene oil has been reduced in my memory from seventy-five cents to ten cents per gallon.

Without the by-products kerosene would cost twice as much. I doubt if an independent concern could from a common center deliver water to all parts as cheaply as oil is now sold.

Back to our point again. Because milk is a by-product and because by-products bear little or no relation to cost of raw material, we face a most unfortunate situation to-day, viz., that the value of milk as fixed by the market price will not pay cost of production. I mean to say that a charge of foods, labor and interest upon the investment upon one side of the ledger and milk receipts upon the other side, will leave nine farmers out of ten in debt. This is hard indeed to understand. The dairy cow has paid mortgages, built homes, educated children and purchased some of the luxuries of life and the dairy farmers exhibit as few failures as can be found in any agricultural activity. Then explain. 'Tis this way. The returns from milk come periodically, teaching a lesson of rigid economy and adjustment to expenses not found elsewhere. The dairyman works more hours per day than others. In fact it is commonly said that ten hours a day will not run the dairy business successfully. The dairyman has not only worked 14 to 16 hours daily but his family have been forced into the business often at the expense of their needed education and more he has been his own book-keeper, buyer, and superintendent. Here is the footing based upon cost if paid for in the open market: $1\frac{1}{4}$ days himself and at least $\frac{1}{4}$ day as superintendent, and perhaps a day in every twenty-four hours by some members of the family. Now a day's work is not based upon 14 hours, perhaps 16, of hustling activity with the mental processes thrown in without recognition. It is rather based upon 10 hours daily of moderate muscular effort without a trace of the nervous energy of a man struggling with the problems of debt and family support. And so when an effort is made to charge an equivalent for labor based upon market values as determined by manufacturers, and for feeds based upon market values there follows a loss. Tariff schedules were formed to give the same opportunity to the manufacturer that the farmer possessed with his free raw material in the form of plant food. We are now facing a re-adjustment and a time when the cost of milk will as surely be based upon cost of production as the selling value of iron is to-day.

When that time arrives more money must be paid for milk. Then will you be able to control the environment and not till that time. To the subject. In your efforts to control the sanitation you must not lose sight of these facts above stated. Is it any wonder that milk has been filthy when the stable was primarily a fertilizer factory instead of an establishment for the manufacture of the most delicate and highly sensitive food known!

These old dirty stables should slowly be put out of business. No reason exists for a rough interior covered with manure and cobwebs, and where light never enters. There is a reasonable sanitation which rightly

belongs to the business regardless of its fundamental relationship, and one which is inexpensive. Windows and whitewash cover a multitude of germs and should be made mandatory. The use of small top pails has not been popular and probably will not follow present wholesale values for milk.

Clipping sides, flanks and udders, are important and are sure to satisfy the owner if he has some sort of power machine—20 minutes for two men will clip one cow. The cows should be kept upon a platform pitching toward the gutter for at least half the width next to the gutter. Granges should be urged to buy a good spray pump and permit its use by the members.

The care of milk should be simplified—altogether too much labor and mystery have surrounded the care of milk. There is one method and only one, and it is the easy way, viz., to milk into the vessel itself or to turn at once from the milk pail into the cooling can, cover tight and set into ice water, stirring if necessary for even cooling throughout the mass. I am unable to comprehend just why aeration is still permitted. It is a heritage from former times to which experts have clung tenaciously and do yet, while they permit the single cooling in cold water. A double standard has never been satisfactory for either money or milk.

I can conceive of no place on earth cleaner than the inside of the cow's udder. Then why not take that receptacle as a sanitary basis and allow the least possible air contact?

The average aerator could not be more resourceful as a bacteria generator, were it especially established for that purpose. More dangerous bacterial growth can come from one of the large surface aerators than from the average stable air.

These methods are quite simple, and it does not require very much time to take the precautions necessary for clean milk but each effort requires time and so long as milk production is founded upon the most primitive methods and the price thereof corresponds to this situation coupled with that before mentioned, there must be the slowest movement toward ideals. I do not wish to be understood that we are not gaining ground. I can remember when winter produced milk carried the peculiar stable odor and that time was not more than twelve to fifteen years ago. To-day it is rare.

The idealists, and this body is very largely composed of varying grades of that class, have their minds pretty generally fixed upon so-called certified milk and the necessary environment. You can only expect milk of that sort from the payment of a very much higher price. In fact, every consumer, dealer, and official expects more from a dairyman by way of a highly organized product than from almost any other source, simply because the business has been erected upon other than cost of production basis.

Because of this education coming without thought to the consumer that milk is cheap, he has come to regard a very slight advance as an intrusion upon his sacred rights. In the same moment he pays five or ten cents for a cigar and thirty to forty cents for a quart of oysters or the usual high prices for breakfast foods, regarding his investment secure. He does this without thought and to some extent because certain well directed advertising matter has pointed the way.

No one has even been willing to grade milk and give material credit for service performed. No encouragement is offered the thrifty sanitary dairymen except that branch known as certified milk where extremes of expense have made the product often prohibitive. You compel me to clean up because I am willing—and then allow me no more for my milk than the fellow who is always under protest. In fact every last movement is for cheaper products and methods, evidenced by the fact that the business has very largely so far as the large cities are concerned, passed into the hands of the Jews, and also by the persistent skimming and adulterations. Generally these misdemeanors are reckoned as purely criminal—not so—while they are legally and rightly punished; accordingly the cause is fundamental—any poverty system tends to crime. Wash men, re-clothe them, nourish them and place them under a healthful environment and their criminal and immoral tendencies very largely pass. And so this milk business above all things should be taken out of its present environment of both men and things and given a new atmosphere.

I am not asking for a recognition by way of price for service not rendered. I believe any effort or combination to arbitrarily control the price of milk, such as New York and Eastern farmers have repeatedly attempted, is just as much an object for the Sherman Anti-Trust Law as price control by the Standard Oil or the Powder combination.

But I do say that the cost of production and the demands of modern hygiene and sanitation and the fact that the dairy cow is no longer a necessity for soil restoration and the fact that dairy farms are making the least improvement when compared to those sections using fertilizers, tillage, and clover, warrant an entirely new re-adjustment or alignment.

I have taken your time, not to talk about construction of barns and detailed methods of handling milk which would have been more agreeable and a much easier task, but to call your attention to a few fundamental truths as I see them which are responsible for the present situation now agitating the minds of men, and which I firmly believe must be reckoned with before we reach a solution of the milk problem. Great problems and perplexing questions are not solved by drastic, superficial treatment—the result is often offensive and measurably delays the final consummation.—*The North American Journal of Homœopathy*, April, 1909.

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PHYSIOLOGICAL EFFECTS OF LIGHT ENERGY.

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

It is a familiar effect of light that exposure of the skin to the rays of the sun or an electric arc will produce erythema. A few minutes' exposure of the unprotected shoulders and arms to the sunlight upon the sea beach in the summer time produces in many instances an unexpectedly rapid and painful result. This proceeds from two causes. First, at the seaside there is less foreign material in the atmosphere to absorb the highly chemical frequency of the sun's rays, and secondly, reflection from the water and sand enhances the radiant energy of the sun's rays. We may, therefore, say, that: (1) *light energy may produce an irritant effect upon the skin.*

In the summer, or in the winter when snow is upon the ground, the exposed portion of the skin becomes dark. This is due to an increased development of the pigment cells in the *rete mucosa*. In tropical races there is a permanent darkening of the skin due to the same cause. From these facts we may conclude that: (2) *light energy increases pigmentation of the*

It is a familiar observation that under exposure to the sun's rays the sweat glands become more active. This can be shown to be due to the chemical rays of the spectrum as well as the

thermal. Therefore: (3) *light energy increases the energy of the sweat glands.*

If a part of the body is exposed to the rays proceeding from the sun or an electric arc, it will be noted that there is dilatation of the superficial blood vessels. Therefore: (4) *light energy produces superficial hyperaemia, and as a determination of blood to the surface of the body cannot take place without its withdrawal from the interior, it follows that when large areas of the body are exposed to light energy, there must be a depletion of the viscera.*

There is ample proof that light energy is destructive of bacterial life outside of the body, and that this bacterial action is chiefly characteristic of the ultra-violet rays. The proof of its destructive action in living tissue is not equally positive. That it does, however, exert an inhibitory effect upon the growth of bacteria, probably through its influence upon the nutritive *media* in which they live, and by the development of oxygen which is fatal to the continued existence of anaerobic microbes is equally positive. While, therefore, the chemical frequencies of light energy are most destructive to bacterial life *outside* the body or upon surfaces where great penetration is not required, they exert an inhibitory effect upon bacterial life in living tissue, because their absorption by the red blood corpuscles increases the oxygenating power of the latter, and thus renders bacterial growth and multiplication more difficult. This result is doubtless aided by an increase in tissue resistance due to general improvement in health. We may therefore conclude, that: (5) *light energy exerts an inhibitory effect upon bacterial growth in living tissue. This conclusion finds confirmation in its clinical applications.*

Molschott, Selmi, and Piacentini have shown that dogs, hens, pigeons, and frogs eliminate less carbon dioxide in the dark than in the light. This follows from the observation of Quincke that blood, muscle, kidneys, liver, etc., absorb more oxygen in the light than in the dark. The increased absorption of oxygen would necessarily quicken the combustion of the

tissues, and enlarge the elimination of carbon dioxide. We may therefore safely conclude, that: (6) *light energy increases the elimination of carbon dioxide and the activity of the process of combustion.*

In like manner it has been shown by S. Goodnew, that human beings and animals excrete more urine, urea and chlorides when continuously exposed to daylight than when remaining in the dark. We may therefore conclude, that: (7) *light energy increases urinary elimination.*

When the nude body is exposed to light energy there is a rise in temperature, and an acceleration of both pulse and respiration. These observations of Goodnew have repeatedly obtained clinical confirmation. While these results are not absolutely uniform, they occur with sufficient regularity to warrant the conclusion, that: (8) *light energy tends to raise the normal temperature and accelerate pulse and respiration.*

It should be remarked, however, that these results are obtained from the whole spectrum, colored rays tending to lower the pulse, particularly the violet.

Dogel and Jegerow found when the eye was exposed to the green region of the spectrum, that the circulation of both men and dogs was modified. In like manner P. Bert noted that a chameleon deprived of sight in one eye became pale in color on the corresponding side of the body. Thus we may infer, that: (9) *light energy may produce motor excitation.*

Sudden exposure to bright light will produce violent sneezing. This is a reflex from the sensory fibres of the trigeminus distributed to the Schneiderian membrane. Hence we may conclude, that: (10) *light energy may produce reflexes.*

There is an extensive series of observations tending to show the varied effects upon the nervous system produced by colored lights. Thus while notable exceptions might occur in individual cases, it is generally true that the lower frequencies as red tend to produce excitement, the higher frequencies as violet, depression, with intermediate effects ranging between

these extremes. Hence we may conclude that the colored rays of the spectrum (11) *may produce marked psychical impressions.*

As a result of an extensive series of experiments carefully conducted by Pansini at the Institute of Physiology of the Royal University, Naples, reported in the *Revue Internationale d'Electrotherapie et de Radiographie*, October, 1903, it was shown, that: (12) *blue light increases the energy and resistance of voluntary muscles.*

These results correspond with those obtained by Dr. G. V. Poore and Dr. Capriati in their studies upon the effects of the electrical currents upon muscular tissues.

It is to be noted that these results are peculiar to blue light, white light having no influence, and red light exerting a depressing effect. Pansini's monograph is illustrated by ergograms showing graphically the results of the tests employed.

Upon the question as to whether light has any effect upon the internal viscera, there is diversity of opinion. The ultra-violet rays are largely absorbed by the skin, but as a photographic plate placed upon the posterior surface of the body shows the chemical effect of the rays thrown upon the anterior surface, it may safely be inferred that the chemical rays of the visible spectrum penetrate the body. Equally there can be no question as to the penetrating power of the lower frequencies of the spectrum. Energy that penetrates the tissues performs work. It has already been noted that the effect of light upon the blood is to increase its oxygenating property. To do this is to heighten metabolism, and promote tissue exchanges. We may then provisionally infer, that: (13) *light energy tends to improve metabolism.*

The portions of the spectrum possessing greatest therapeutic value are the invisible and visible chemical frequencies. A large amount of evidence has been produced to show that the first effect of irradiation by blue light is to produce vasoconstriction. The resulting anemia tends to produce analgesia, which frequently extends to anesthesia. Thus it may be safely

affirmed, that: (14) *blue light tends to produce analgesia, frequently passing into anesthesia.*

Finsen's studies in smallpox tend to prove that the chemical rays of the spectrum have a marked influence in promoting suppuration, and that when these rays are excluded by placing the patient in a dark room, or a room illuminated only by red light, the disease does not advance to the stage of suppuration, with its concomitant increase of fever. Historically considered, these observations antedated by many years the researches of Finsen, since both in England and on the continent it had been customary to protect patients suffering from smallpox from diffused daylight. Similar observations in relation to the unfavorable action of the chemical frequencies of the spectrum in the exanthemata have been made with reference to measles, scarlet fever, erysipelas, and other eruptive diseases. We may then conclude that: (15) *the chemical frequencies exert an unfavourable influence upon the exanthemata.*

It has been found clinically that patients exposed to the action of the X-ray are protected against dermatitis by a subsequent exposure to white light. It thus appears, that: (16) *to some extent the effects of the X-ray and light are antagonistic.*

It seems desirable before concluding this paper to make a comparison of the efficiency of the various methods for the therapeutic employment of light energy.

I. *Solar Energy.* Sunlight of cities at or near the sea level is deficient in the ultra-violet frequencies. This is due to the fact that in the transit of solar rays through the thick envelope of the earth's atmosphere a large porportion of the higher frequencies is filtered out, and secondly, that the presence of floating particles of dust, together with aqueous vapor, still further contributes to this loss. The loss of optical energy is approximately one-fourth, and the loss of chemical energy is still greater.

Nevertheless, sun baths are of great value. The uncertainties of the climate in our eastern cities, however, render the use of sun baths inefficient and disappointing.

II. *Electric light Baths.* The electric light is a miniature sun. Indeed, it possesses greater advantages than sunlight, because it is richer in chemical frequencies. Here the spectrum of sunlight is found as it doubtless would be found at great elevations above the surface of the earth before the chemical frequencies are filtered out. Where a special effect is sought, as in skin affections, there can be no doubt of its superiority to solar energy. Moreover, it possesses the great advantage of being independent of weather conditions, and always accessible where commercial circuits are available. Nothing, therefore, is more desirable in a well equipped institution for physical therapy than the electric arc cabinet.

III. *Incandescent Baths.* These serve a useful purpose in physical therapeutics; but it must be remembered *first*, that the glass bulb of the incandescent lamp completely cuts off the ultra-violet frequencies; *Secondly*, that the incandescent lamp is inferior in luminous efficiency, inasmuch as it absorbs from 3-5 to 4 watts per candle power, while the electric lamp absorbs less than one watt per candle power; *thirdly*, that the incandescent lamp is not only devoid of ultra-violet frequencies, but is inferior in the violet and blue frequencies, though rich in yellow, green and red; *fourthly*, that the incandescent bath is therefore largely a thermal bath, though it is not denied that by multiplication of bulbs a considerable degree of chemical energy may be obtained; *fifthly*, that these objections can in some measure be met by the substitution of the Nernst lamp for the incandescent lamp, since the former does not require a glass cover and has also a more intense visible chemical spectrum. The electric energy in an incandescent lamp has a luminous efficiency of 30%, in a Nernst lamp 60%.

Drigalsky regards the use of the incandescent lamp as absolutely contraindicated in feeble patients, especially if suffering from tuberculosis. Here there is needed the chemical energy of the sun or the electric arc.

IV. The use of the concentrated energy of the sun being impracticable in this climate I pass to the consideration of

V. *The concentrated energy of the electric light.* This is effected (a) by reflecting mirrors and (b) by focal lenses; apparatus for concentrating and focusing the rays of the electric arc possess great interest for the physician. They serve a different purpose from the apparatus already described, in that the effect desired is local rather than general. Much of the apparatus of this class has been designed for the treatment of skin lesions, as, for instance, the massive installation of Finsen, the Lortet-Genoud Lamp, and its American reproduction, the Victor Finsen Lamp, the Bartholomew Hospital Lamp, the Bang's Lamp, the Piffard Lamp, etc. The Marine Searchlight, however, and the Solar Lamp belong to a different class, in that they are designed to produce deep penetration as well as superficial effects due to the large production of ultra-violet frequencies. The Marine Searchlight is unquestionably an apparatus of great value. A twenty ampere Marine Searchlight is capable of illuminating a vessel at a distance of one and one-quarter miles. The immense energy of such a light of necessity possesses great value for the local treatment of diseased conditions. Where the heat is too intense, a blue screen may be interposed for the purpose of cutting off the thermal rays. As this also cuts off the ultra-violet frequencies, its use is not advised except in cases where the blue light is especially indicated.

While not possessing the energy of the Marine Searchlight, the Solar Lamp admirably serves the purpose of concentrating the electric arc and preserving the energy of the spectrum. The positive pencil is cored with iron and thus furnishes a large output of chemical energy.

For the purpose of treating skin affections it is, of course, understood that apparatus must be employed which does not filter out the ultra-violet rays and which exerts compression upon the diseased area, in order to remove the blood which acts as an obstruction to the passage of the ultra-violet ray. In order to accomplish this double object, lenses of quartz or rock crystal may be employed, and compression may be exerted by

means of ice or rock salt. Adrenalin may be also employed.

VI. *Concentrated incandescent light energy.* This is obtained by arranging incandescent bulbs along the concave surfaces of a polished mirror. If we bear in mind what has already been said regarding the differences between the electric arc and the incandescent bulb, it will not be difficult to determine actual value of these appliances. They are certainly not without value, and are not to be despised. They undoubtedly accomplish good. But it is readily apparent from the previous discussion that they are distinctly inferior to the concentrated light of the electric arc.

VII. *Blue light energy.* This is obtained by filtering the rays of solar, electric, incandescent or other sources of light energy, through a screen of blue glass. This effectually cuts off the ultra-violet frequencies and to a great degree the yellow, green and red frequencies. The lower frequencies can be still more thoroughly removed by interposing a solution of copper sulphate. The physiological effects of blue light have already been discussed. It is clear that we have here simply the visible chemical frequencies.

What advantage then has blue light treatment over that in which the whole spectrum is employed? The answer to the question may be found in the peculiar types of cases in the treatment of which it is most successful. These are cases accompanied by pain and hyperæmia. The writer relieved a case of supra-orbital neuralgia in a two minutes' exposure to the concentrated light of the electric arc filtered through a blue screen. This had afflicted the patient for a period of three or four weeks. There was no recurrence. White light tends to increase hyperæmia. Therefore, where the indication is to reduce it, the blue light is to be preferred. Sprains, ulcers, laryngitis, bronchitis, etc., are peculiarly amenable to treatment. The Minin Lamp has undoubtedly accomplished good results. Its largest bulb does not exceed 30 candle power, and it is therefore evident that for the deepest seated inflammations it is distinctly inferior to the arc lamp similarly screened.

Such advantages as it possesses, if any, over larger apparatus are due to portability and cheapness.

VIII. *Energy of red light.* The use of red and amber screens excludes the chemical frequencies. These frequencies are found to be harmful in smallpox and the exanthemata. Krukenbery reports eighteen cases of erysipelas distinctly improved by the use of the red ray.

In the treatment of the psychoses it is probable that advantage could be secured by the judicious use of the different colors of the spectrum. Red tends to excite and inflame; blue to soothe and quiet. Patients afflicted with melancholia could, therefore, be placed in rooms whose windows were made of red glass and thus subjected to the enlivening effects of the lower frequencies. On the other hand, maniacal patients could be confined in rooms whose windows were made of blue glass, in order to be exposed to the soothing and quieting effect of the higher frequencies. The older members of this association may remember the interest excited about thirty years ago by a book entitled "Blue and Red Light," by Dr. A. Pancoast of Philadelphia. The germs of modern light therapy are found in this book mixed with much of the cabalistic lore of the ancients. It produced a fad which lasted for some years, and doubtless prepared the soil in some measure, for the vigorous crop of therapeutic results which has distinguished our generation. Much clinical experience proves that Pancoast's conclusions as to the benefit of different lights in the psychoses were well founded.

IX. *Ultra-violet light energy.* We have already studied this energy in connection with solar and electric light. Where it is isolated from the rest of the spectrum its value is much reduced. Blue, violet, and ultra-violet up to the cadmium line, penetrate the cutis. The frequencies above this line do not reach the lower layers of the skin.

When, therefore, deep lesions are to be treated, the visible ought to be combined with the invisible frequencies.

For the use of the ultra-violet energy, the Görl apparatus may be connected with the sliding rods or outside armatures of the Leyden jars of a static machine. The St. Bartholomew's Induction Coil Arc Lamp is a similar apparatus under a different name. The Piffard Lamp is a slight modification of the former.

Excellent ultra-violet lamps are obtained by the condenser spark-gap lamp used in connection with high frequency apparatus. The condenser spark is very rich in ultra-violet frequencies. It is evident, therefore, that the ultra-violet light when used alone is especially applicable to the treatment of skin diseases.

X. *Vacuum Tube Discharges.* Vacuum tubes are of interest because they generate light energy. This is chiefly the energy of the visible spectrum, the ultra-violet rays being excluded by the glass of which the tube is made. This fact should be attentively observed, since the uninstructed purchaser is often misled into believing that the vacuum tube is a source of ultra-violet light. It is, of course, not denied that the spark itself from a vacuum tube is a source of ultra-violet light, since that is a condenser spark. However, the vacuum tube treatment is oftenest administered without using the spark.

The negative terminal of a coil or static machine is the richer in chemical energy. This acts with much promptness even upon photographic paper that is not highly sensitive. Therefore the tube should be connected with the negative terminal of the source of electrical supply. A deep penetration of light energy, however, is not to be expected from vacuum tubes. Its role is rather in superficial and recent inflammations. It is a fact that some substances like fluorspar have the property of absorbing light at one rate of frequency and emitting it at another, usually a lower frequency. A fluorescent body, therefore, may be looked upon as a transformer of radiant energy. Among the substances which manifest this property in a marked degree is quinine sulphate. All portions of the spectrum are capable of producing fluorescence, though this

phenomenon manifests itself more powerfully at the end of the spectrum in the ultra-violet region and is a property also of the Roentgen and Becquerel rays.

Fluorescence belongs not only to the mineral kingdom, but also to the animal and vegetable kingdoms. Thus certain low forms of life like the infusoria are capable of fluorescing. In like manner chlorophyll, the green coloring matter of plants, is a fluorescent body, and blood was found as far back as 1866 to possess this property. In this power, possessed by blood, and lymph to fluoresce under the action of light, may be found the key to the remarkable influence which radiant energy has upon animal life. Thus, for example, it has been found that the normal fluorescence of the blood is absent in malaria. It may, therefore, be assumed that, inasmuch as the sulphate of quinine is a fluorescent sulphate, it acts as a specific in restoring the normal fluorescence of the blood.

THE TREATMENT OF ARTERIOSCLEROSIS AND HYPERTENSION.

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The accurate measurement of blood pressure with the perfected sphygmomanometer has led to clinical investigation of the relations of the pathological conditions associated with atheroma and arteriosclerosis to hypertension, as to whether they are the cause or effect.

Clinicians have ever recognized the hard and incompressible pulse and often observed the whip-cord conditions associated with structural change in the arterioles; but until recent times without proper means of noting with accuracy its relation to hypertension. No fair conception of the relation of the character of the pulse to a general condition of high arterial tension, and its causes or consequences, was possible without an accurate means of measurement. The notion that arterio-sclerosis is part of a rheumatic process, has proved to be erroneous, as has also the general notion of rheumatic conditions. That there

is an associated infectious toxemia present with both conditions, which acts as a causative factor, is becoming the generally recognized idea.

Various views are expressed at the present time as to the relation of arteriosclerosis to hypertension, but a study of the conditions which are present co-incidentally with both, has tended to clear up doubts in this particular.

Hypertension, or arterial tension above the recognized normal range of 100 to 120 M.M. in females, and 110 to 130 M.M. in males, varying with individual characteristics and habits of life, are noted to precede structural changes, and a study of averages shows that with advancing years the changes become more marked and resisting to treatment.

Hypertension may be either *compensatory* or *contributory*, and occurs when various irritating or reflex causes affect the neuromuscular mechanism of the arteries, or when pathological organic change is present either in the arteries themselves, or in some important viscus through which channels the circulation must pass, as through the kidney or liver. In either case, whether compensatory or contributory, conditions of hypertension are secondary to some external or extraneous influence.

Conditions necessary to the induction of hypertension are one or more of the following: (1) resistance in the circulatory channels, due either to contraction of the arterioles, or congestion of a viscus through which most of the arterial stream passes; (2) increase in the quantity of the circulatory fluid; or (3) increased heart force, induced by the demands of the system, from exercise or emotional causes, or the ingestion of stimulants or other drugs which raise arterial tension. The pathological arterial conditions, associated with hypertension are, we believe, secondary in character, and in chronic processes are generally the consequence and not the cause. In obstructive conditions they arise from a demand upon the heart to overcome intervening resistance, and are probably increased with uremia, as present with parenchymatous nephritis, arising with scarlatina and other infectious conditions; also in

cirrhosis of the liver. Under these pathological conditions, the demands upon the heart are compensatory to overcome the resistance necessary to force the blood through the structures of these great glands to induce a performance to a greater or less degree of the functionation of the organ, causing a corresponding rise of tension throughout the arterial system. Compensatory tension is also present under normal conditions of exercise, during physical training for the performance of athletic feats, leading, as a rule, to cardiac hypertrophy with dilatation, and a relative increase of arterial tension; first compensatory only, but later may either lead to pathological changes in the arteries, or be followed by diminution of hypertrophy with persistent dilatation.

The contributory causes of hypertension arise from toxic or pathological processes present in the organism, generally associated with intestinal infection or arising from the inception of irritants or chemical poisons. These causes of high arterial tension have been previously designated as the causes of chronic diffuse nephritis, arteriosclerosis, and atheroma, to which, however, they are now considered to be secondary to hypertension.

Failure to observe in young adults the institution or early presence of hypertension has probably led to a misunderstanding of the true relation of these influences as elements inducing first hypertension, later to be followed by progressive arterial degeneration, the older notion having been that arteriosclerosis was the cause of hypertension.

Recent studies of hypertension in connection with early conditions of nephritis, and of other causes, prior to the presence of any structural change in the arterial system, will, we believe, in the near future, establish the fact which seems to have been demonstrated, that hypertension induced by excessive indulgence in stimulating foods, condiments, alcoholic beverages, together with the products of faulty metabolism, and intestinal infection, play a great role in the induction of arterial sclerosis. The arterial muscles held thus in the condition of extreme tension,

undergo degeneration, arising, as stated by Brunton, "from the diminished movement in the muscular walls, due to high tension." It is a well-known fact, as has been observed by Humphris, that a muscular structure in a state of constant tension, undergoes a definite structural change, leading to degeneration of the muscular structures involved; for it is impossible for normal metabolism and tissue change to take place in muscular structures when constantly under tension. Therefore, when tension is persistent in muscular structures through periods of months and years, muscular fatty degeneration takes place, periods of release being essential to permit the institution of metabolism, the process finally ending in a calcareous structural change.

So we believe that the early recognition of hypertension, and its control by auto-condensation or other physical measures, and proper regulation of prophylactic dietary regime, are important, and when properly observed, certain to eliminate in most cases the inroads of the insidious process of arteriosclerosis and its consequences—chronic interstitial nephritis, with degenerative changes in the liver, heart, muscular and glandular systems. The recognized dictum that "a man is as old as his arteries," implies a process of general degeneration, following the inroads made by arterial hardening and degeneration.

A study of many cases of varying conditions of arterial tension, with and without organic change in the structures of the arterioles and large glands, presents a variety of clinical pictures as to prognosis and response to treatment by diet and physical measures, as shown by comparisons made by the sphygmomanometer, which the writer has classified as follows:

Class I. In the aged or feeble, with lowered resistance, advanced arteriosclerosis may be present without a corresponding evidence of hypertension; because of want of compensatory heart force. Extremely low sphygmometric reading is an indication in this class of failure of heart compensation, which may also be present with valvular lesion or with dilatation without hypertrophy, occurring as it so often will in those

who have discontinued athletic pursuits in which they had been excessive. In the investigation of arterial tension with the sphygmomanometer, the presence or absence of compensation must always be considered.

Class II. General arteriosclerosis, usually occurring in those of advanced age, may be so resisting to administrations of auto-condensation, which usually lowers arterial tension, that no measure of relief can be afforded, as shown by the reading of the sphygmomanometer. In these cases it is probable that not only the larger arterioles, but the peripheral arteries are to a marked degree sclerosed. In these cases, impending sequelæ cannot be averted.

Class III. Arteriosclerosis in those of advanced age, and occasionally at ages from 50 to 60, at first, resists measures which affect arterial tension, without producing cardiac depression, but yield more than the preceding class, and finally under prolonged treatment are reduced to a moderate degree of hypertension with corresponding improvement in general health. In these cases, in which the reading at the outset is generally about 200 millimeters of mercury, as measured by the sphygmomanometer, the tension may be scaled down in the course of a month or six weeks to 160 or 165, at which it may be maintained by regulation of diet and occasional treatments. This class of cases is usually of advanced arteriosclerosis with a marked degree of cardiac hypertrophy, but judging from clinical results, it is probable that some of the vessels still respond to measures] which vary vaso-motor conditions, and by persistence the tension might be reduced to normal. Such reduction, however, would be unsafe if dilatation were also present, as atrophy of the hypertrophied muscles would intervene, and the compensation of the muscles of the heart having an already dilated ventricle would be impaired. With a reduction from 200 to 160 or 165 mm., however, experience assures a condition of safety : (1) from the point of view of maintaining compensation, and (2) by preventing the accidents, apoplexy and nephritis, pending a continued high arterial tension.

Class IV. This class includes cases of advancing arteriosclerosis in mature adults at ages ranging from 35 to 55, in which the tension may have scaled to 150 or 170 millimeters, associated or not with a commencing interstitial nephritis. In these cases twelve to fifteen minute administrations of auto-condensation, employing 400 milliamperes of the high frequency current, as indicated by the hot wire meter, will produce a marked fall in arterial tension, and if frequent treatments are given, together with correction of diet, tension will be reduced to normal. In these cases the cardiac hypertrophy is not apt to be marked, and the tension may be very safely lowered to the high normal of 120 to 130 mm., and maintained there without danger of producing a want of cardiac compensation, but greatly to the relief of the patient, albumin and casts, when present, usually disappearing from the urine, and a general sense of lightness and well-being replacing an opposite sense of weight and tension.

Class V. These constitute a class of cases with a condition of hypertension, found usually in mature individuals at from 25 to 45 years of age, in which the sphygmomanometer indicates the presence of a moderate degree of hypertension, ranging from 130 to 149 mm., but who respond promptly to the usual means which lower arterial tension, without depressing the heart. In this class are represented the cases which are incidentally found when under treatment for some other condition, but who do not apply for advice for any condition referable to their circulatory apparatus. These patients, in but few instances, have developed an atheromatous or sclerotic condition of the arteries, but if the hypertension be allowed to persist, will soon develop the same conditions as Class IV. In this stage, in most cases, the patients may be rendered normal, and with a proper regulation of habit and diet, offer a favorable prognosis as to the control and prevention of further advance to a degenerated stage. There is probably no class of conditions so insidious as the steady inroads leading to arterial sclerosis, and no field in which the physician's art can afford more service

to humanity, than in saving from future disaster the individuals included in this class, by checking an advance to degeneration which is certain to follow the persistence of hypertension and its causes.

Class VI. In this class are included young adults who, in the college athletic field, have developed cardiac hypertrophy and hypertension from over-training in the college teams, or athletes and boxers who have in training over-developed their muscular system with an induction of cardiac hypertrophy with associated dilatation. Probably no class of cases has received less consideration than these; and, of the error and consequences of the present extremes in college athletics, the professional and lay mind do not seem to be cognizant. In these cases we may find, after a few years following their training career, a persistence of hypertension, which, when the individual lapses into a sedentary business career, will be followed by lowered arterial tension, due to want of cardiac compensation—dilatation without hypertrophy, or in favorable cases, it may persist from other causes of hypertension. A low sphygmomanometer reading in this class of cases will not be accounted for by those who do not suspect the condition.

Class VII. Cases of *compensatory* hypertension, arising with conditions of parenchymatous nephritis, cirrhosis of the liver, fevers, or excessive exercise, may be present with or without the existence of arteriosclerosis, usually occurring as a temporary condition.

In this classification we have included a variety of conditions in which the study and management of hypertension is of great importance to the practitioner, and greater moment to his patient.

The physical measures employed for control or correction of hypertension may be divided into (1) those which act upon the neuro-muscular mechanism, as the d'Arsonval high frequency and static wave current, heat and cold, radiant light and heat and carbonic acid baths; (2) those which increase general metabolism, including the high potential currents, radiant light and heat, alternating heat and cold in those who

respond and exercise; (3) those which regulate nutrition, eliminating from diet foods which induce or favor intestinal fermentation and furnish nutrition to deleterious germs substituting nutritious foods that are most free from such properties and others which may destroy intestinal bacilli and ferments.

Treatment by these measures is either *intervening* or *prophylactic*; the measures which check tendencies to hypertension and directly lower tension intervene and those that control to prevent are prophylactic.

The measures referred to generally induce responses without producing any depression of the heart or vital centres, but rather by inducing normal relations and activities.

The methods of d'Arsonval, either by auto-condensation or auto-conduction, by either of which the patient is placed in a field of high potential stresses, the current of high frequency to greater or less extent surging through the tissues of the body, are remarkably active in lowering arterial tension. The lowering effect is probably induced by a complex action of the current: (1) upon metabolism promoting tissue combustion, and elimination, as demonstrated by the marked increase of solids with the urine; and another effect upon the vasomotor centres, by which means tension is promptly relaxed, as determined by the sphygmomanometer. A twelve-minute administration of 400 milliamperes is, as a rule, followed by a fall of pressure equivalent to 10 to 15 mm. of mercury. In some instances there will be a fall as great as 50 mm.; while in those included in Class II there may be no fall whatever after weeks of daily application.

That this effect is produced without heart depression is demonstrated by the fact that aged patients having extremely high arterial tension with no fall following a prolonged series of administrations, employing 400 to 500 milliamperes by auto-condensation, have no indication of after depression, which is the rule in the cases described in Class II: those who do not respond to auto-condensation.

Auto-condensation is indicated in all cases in which hypertension is not compensatory and contra-indicated in all com-

pensatory cases. The dosage as to time should be relative to the capacity of the apparatus employed—400 to 500 milliamperes being, as a rule, administered for from twelve to fifteen minutes and repeated daily while the tension resists and later on alternate days, and finally on occasions when found above the range determined to be as low as is compatible with safety, as where there is danger of causing an atrophy of the cardiac muscle in cases having dilatation, for failure of compensation is certain to follow in such cases.

In normal individuals, in which hypertension is in accord with the demands of body activity, the indication is to lessen such activities to prevent subsequent cardiac hypertrophy, and later consequences, or keep them up when hypertrophy with dilatation is once established.

When hypertension is associated with parenchymatous nephritis the treatment should not be by auto-condensation, but by the employment of means which will promote elimination through the sweat glands and relieve the existing local congestion as light baths, convective body hot air baths, or of less value hot water and steam baths administered daily and continued each time until commencing rise of body temperature or signs of fatigue occur—a mouth temperature of 101 to 101½° F. being always an index to discontinue treatment. Hyperemia induced in any case of hypertension by convective hot air baths is beneficial from two points of view: (1) the increased hyperemia increases the lumen of the peripheral vessels, and relieves the heart, and (2) the perspiration temporarily lessens the fluids and eliminates toxins.

For the relief of local congestion in parenchymatous nephritis, prolonged application of radiant light and heat from high candle power sources and administrations of the static wave current over the kidneys are indicated; the same also in the hypertrophied stage of cirrhosis of the liver.

Prophylaxis for impending arteriosclerosis is effected according to indications by regulation of diet as to (1) how, (2) how much, and (3) what goes into the alimentary canal, and (4) to what extent nutritional pabulum thus created is converted into

other forms of energy by exercise and exposure and in carrying out of the body's functions.

It is an important matter how food enters the alimentary canal; thorough mastication is essential. *How much* food is of still greater importance. Moderation must be observed. Most individuals should eat much less and masticate much longer, and eat the food that supplies the physical demands. There is no doubt that the engorgement of the alimentary canal, with poorly masticated food, favors constipation, gastric and intestinal indigestion and fermentation, and a multiplication of the ferments which, entering into the blood, vitiate the system.

While perverted habits of eating call for correction, what is of still greater moment to the individual is *what the food taken consists of*. *What* we eat and drink are questions of the greatest importance to every individual. The purpose of eating should be impressed upon everyone—we eat to live and carry out the purpose of our being; we do not live to eat and gratify our passion for luxuries and intoxicating beverages. The choice of foods, as a prophylactic against arteriosclerosis, is a subject of the greatest importance in the management of these cases. Probably no food is more craved by the omnivorous animal man than animal food, and no food taken is more dangerous as an element inducing the conditions under consideration. This is probably due to the fact that in the digestive pabulum, meat products afford a better culture medium for the development of deleterious intestinal germs than vegetables, and furthermore, they may carry more dangerous germs into the alimentary canal than other foods. If possible, in all cases, therefore, of advancing arteriosclerosis, the meat as an element of diet should be practically eliminated, and nitrogenous vegetable foods in the form of nuts, whole wheat and cereals, rich in proteid as beans, peas and corn be substituted.

Probably no cause contributes more to the induction of hypertension than the indulgence in alcoholic beverages, particularly malt liquors. While some authorities have contended that alcohol plays comparatively little part in the induction of hypertension, careful experiments made by Stewart and

others have demonstrated the contrary to be beyond question. Any physician who for one year will investigate the tension of every patient will find that the man of careful habits at 65, who has abstained from alcoholic drinks, will generally carry a lower tension than the man at 45 who has indulged in such beverages. They are, therefore, the first things to be excluded from the diet of every individual who wishes to avoid the dangers of arteriosclerosis.

The investigations of Metchnikoff seem to have demonstrated the value of the lactic acid ferments in destroying intestinal germs—the toxins of which are instrumental in inducing the various conditions associated with different forms of arthritis and arteriosclerosis. The inception, therefore, of a milk that has been first sterilized to free it from any deleterious germs that it may contain, and then subjected to lactic acid fermentation under precautions which will prevent the entrance of other germs into the milk during its preparation, seems to be a matter of the greatest importance as a precautionary measure, as well as a means of destroying the existing germs present in the alimentary canal. The method as instituted by Metchnikoff is one of the most recent and promising measures in the prevention and treatment of arteriosclerosis.

Regulated exercise plays a very important role in the prophylaxis and treatment of hypertension and arteriosclerosis, for he who eats much, must work much. The balance of intake and energy consumed must harmonize if healthy relations of metabolism are to be maintained.

In cases in which hypertension with advancing arteriosclerosis is present, as in the III., IV. and V. classes, as outlined, the matter of regulating the tension in connection with diet is, we believe, of the utmost importance. This fact has been demonstrated in the writer's investigation, by noting that patients who have been living on a rigorous diet, in conformity with the principles given, but not having auto-condensation treatment, had continued to carry a degree of high arterial tension, as shown in the records of cases given under Class III.; the tension not falling but remaining high, until auto-condensation treatment was instituted in connection with

the continuances of the same diet régime. We believe from these and other cases that the hypertension will not be removed in many cases by diet alone, nor by agencies which lower the tension, by depressing the heart's action. In all cases of hypertension, it is necessary that attention be given to the opening of all channels of elimination, either of the kidneys, skin or alimentary tract. The restoration to normal, of faulty elimination should be generally effected by physical treatment and not by drugs, because the induction of normal activities by natural means will be more apt to be followed by the persistence of a normal condition, whereas the stimulating effects of drug medication, in the induction of activity, either of the skin, kidneys or alimentary canal, are liable to require a persistence of administration with other deleterious effects. Light and body baths, dry hot air body administration, local applications of light and heat, mechanical vibration, and the high potential currents, are most active inducing a normal functional activity in the emunctories and should be employed in connection with auto-condensation and the regulation of the diet when hypertension is present, according to the demands of each individual case.

No subject of research has so interested and impressed its importance upon the writer as the investigation and treatment of hypertension, and its relations to arteriosclerosis; and while the studies as presented are incomplete, we believe that future investigations will be in many respects in general accord with what has already been done by the writer and his confreres in the study of this great subject.

There is probably no field of investigation which offers more to humanity than the setting forth of the importance of the regulation of habit and diet, balancing the demands of exercise to the quality and quantity of food taken. The intelligent management of these cases will not only include the regulation of diet, but the employment of such means as will further the re-establishment and maintenance of normal conditions.

EDITOR'S NOTES.

"Sleepers."

Dr. Wiley writes concerning the Pullman sleeping cars :

"We have taken samples of material breathed by the sleepers in these cars, and we are analyzing it to find out what it is. We don't know what it is; all we know is that it isn't air." It is germs, dangerous germs of infectious diseases. This item is a good thing to pass along for it will stir up the company to extra cleanliness and scare the timid into the coaches, so that it will be easier for the reckless ones to secure lower berths.—*The Homœopathic Recorder*, July 15, 1909.

Malaria and Mosquitoes.

It looks as if another "triumph" has gone the way of many others. According to *The Lancet*, April 3, London, for the past six years, efforts, in which no expense has been spared, have been made to exterminate the mosquito and thus malaria in Mauritius, but the result has been absolute failure. During this time it is reported that the percentage of parasites in the blood rose from 37 to 81 per cent. and enlarged spleen from 52 to 69 per cent. However, if the authorities can exterminate the mosquito they will have done a good work, provided some worse pest does not arise. Such things have been known to happen.—*The Homœopathic Recorder*, July 15, 1909.

The Mosquito-Malaria Theory.

This theory is generally accepted by scientific physicians, but Dr. Amos Sawyer of Hillsboro, Ill., doubts its truth and bases his doubts on grounds that always trouble the man who is guided by theory. He writes in a letter to *The Medical Times* that when his father first settled in that part of Illinois, malaria was so thick there that "you could cut it with a knife"; every year in September it became epidemic; now, with the soil under cultivation, and drained, the disease occurs only in isolated instances, while the mosquitoes are still there. Perhaps in time the old idea may come to the front again, that malaria is due to decaying vegetation, like typhus is to decaying animal matter. Certain it is that when new soil is turned up malaria, or "chills and fever" follow, but with

continued cultivation, the disease ceases. There are a goodly number of things left for man to comprehend, and this mosquito—fever question is one of them.—The *Homœopathic Recorder*, July 15, 1909.

A Further Advance in the Etiology of Sleeping Sickness.

A short time ago Professor Kleine reported the results of an experiment he had carried out, in which some specimens of *Glossina palpalis* were fed on animals infected by *Trypanosoma brucei*, but that these flies failed at first for some 14 to 20 days to infect fresh animals; after that interval, however, the flies developed ability to infect and continue to do so up to the forty-seventh day, when the experiment terminated. It was recognised at the time that if these results were confirmed by other competent observers a great discovery had been made, for it demonstrated that the trypanosome undergoes a cycle of development in the tsetse fly, a possibility which had been suspected by some, but as to which previous researches had yielded so far no positive results. It was therefore gratifying to be able to record in our last issue that the Royal Society has been informed by its Commissioner, Colonel Sir David Bruce, that the Sleeping Sickness Commission in Uganda had repeated Professor Kleine's experiments with *Trypanosoma gambiense* and *Glossina palpalis*, also with a trypanosome of the dimorphon type and the same tsetse flies, and found the flies infective after 16, 19, and 22 days. We may therefore now regard the *Glossina palpalis* as the host of the *Trypanosoma gambiense*, in which the latter undergoes a cycle of development, and that the infective process is not a merely mechanical transmission. This discovery is likely to establish a new starting point for fresh investigations into the nature of the process, and in what part of the fly the cycle of development of the parasite takes place. Other problems connected with this advance in our knowledge of trypanosomiasis have also arisen, and already the director of the Sleeping Sickness Bureau in the sixth bulletin is indicating fresh lines of investigation with a view to finding satisfactory solutions for them.—The *Lancet*, May 22, 1909.

The Treatment of Snake-bites.

THE treatment of snake-bites very appropriately came up for discussion at the Bombay Medical Congress on February 14. Sir Lauder Brunton contributed a paper enunciating his theory that "permanganate of potash is a complete antidote to snake venom if it is quickly applied in sufficient quantity and in the proper way." The method proposed is to tie a bandage tightly over the limb above the bite, to convert the punctured wound of the bite into a clean cut with a lancet, and to rub in the permanganate, moistening it with water. The efficacy of this treatment found little support from the members of the Congress, and Surgeon-General Benson said that though cases of cure had been reported, little reliance could be placed on it. The treatment by sera was also discussed. The difficulty with this treatment is that no serum has yet been produced which is antidotal to the poison of all species of snakes. The serum which is issued from the Central Research Institute, Kasauli, is prepared with a mixture of cobra and daboia venom, and is therefore useful only in cases of bites from one or other of these snakes. As there are some thirty-nine known species of poisonous terrestrial snakes in India, besides about thirty species of sea-snakes, it is evident that the "polyvalent antivenine" issued from the Kasauli Institute is by no means a certain remedy in any given case, unless it can be proved that the bite was that of either cobra or daboia. Such proof would be in most cases impossible of treatment.—The *British Homoeopathic Review*, May, 1909.

Syphilis in its Relation to Dentition.

There has recently appeared in the columns of *Dental Cosmos* (November and December, 1908, January and February, 1909, by Dr. Cavallaro) an exhaustive paper on the Relation of Syphilis to Dentition. The author has been able to confirm the discovery of Pasini that the spirochæta pallida is to be found in abundance in the dental follicle in proximity to the vessels and their walls. He shows that a curious modification of the lower ends of growing teeth can often be demonstrated in the form of a constriction of the dental papilla which clinically corresponds to the atrophy of the tooth cusps so often seen. He states that at this part certain changes can be noted in the pulp tissue, the nuclei are better stained, and the infiltration of the embryonal cellular elements is more intense. He

also has found in the dental follicles the following alterations—namely, endo-vasculitis, peri-vasculitis, and hæmorrhage. The lesions of syphilis, as far as the teeth are concerned, are usually seen in the permanent series on the incisors and first molars, and this he attributes to the fact that the maximum intensity of the virulence is during the last months of intra-uterine life and the first three months of extra-uterine life. In his opinion the deciduous teeth do not always escape, but the reason why they are not so likely to be affected is due to the fact that these teeth dentify between the seventeenth and eighteenth weeks, when syphilis rarely manifests itself, and, if it does, usually tends to abortion. In addition to the changes already referred to in the follicle, he finds certain histo-chemical alterations in the enamel and dentine. A detailed account of 38 cases is given, and to 22 of these illustrations of the teeth lesions are added. Dr. Cavallaro shows that in many cases not showing the typical Hutchinson's teeth other defects of the teeth are invariably present, and seems to regard these latter defects as pathognomonic of hereditary syphilis. With this we can hardly agree, because the type of lesions which he figures are all to be found in patients not showing a trace of congenital syphilis. An excellent bibliography is added to the paper.—The *Lancet*, May 22, 1909.

A Crusade Against Flies.

Now that it has been conclusively established that flies convey disease, let the nation wage war against these repulsive insects and take steps as far as possible to exclude them from among us. The campaign should be begun at once for the fly season is near at hand, and there can be little doubt that if everybody did his best to exterminate the fly a very distinct advantage to the public health would be gained and a most interesting example afforded of the lessons which progressive medicine teaches. It is not always possible to trace the origin of illness, but it is easy enough to give valid reasons why the fly can be the introductory agent. Purely medical aspects apart, the fly is not particularly scrupulous as to its environment; it alights at one time on most offensive material and at another it is on the food in the kitchen and at the table. One of the earliest experiments we remember to have seen showing the connexion of flies and disease was that in which a common blue-bottle was allowed to walk across a piece of freshly sliced potato. The potato

subsequently developed colonies of micro-organisms all along the track taken by the fly, while elsewhere no development took place. The important question remains how best to get rid of the fly. Flypapers and sticky strings are unsightly, and the struggles of a fly to release itself from a sticky substance is not an entertaining spectacle. In our own experience the best exterminating agent is a weak solution of weak formaldehyde in water (say two teaspoonfuls to the pint) and this experience has been confirmed by others. It would appear that flies are attracted by a weak solution of formaldehyde, which they drink. Some die in the water, others get as far only as the immediate vicinity of the plate of water, but all ultimately succumb, and where they occur in large numbers, hundreds may be swept up from the floor. It is consoling to know that by this method the flies have died under a dose of a fluid which is fatal to disease organisms, a fluid also which is inoffensive and for practical purposes non-poisonous. The method at once provides a means of diminishing the scourge, and of securing to some extent what is most desirable, the disinfection of the slain.—The *Lancet*, May 22, 1909.

Congenital Malaria.

The possibility of the transmission of malaria to the fœtus in utero is a subject of discussion. The parasite has been found in the blood of the new-born on several occasions, but sufficient time had elapsed for post-natal infection. Hitte has described malarial parasites in the blood of the umbilical cord in two cases, but in the article on Malaria in Allbutt and Rolleston's "System of Medicine" Professor W. S. Thayer pronounces the evidence unconvincing. At a meeting of the Societe Medicale des Hopitaux of Paris on Feb. 5th M. Dumolard and M. Viallet reported the following case, which seems to put beyond doubt the possibility of congenital infection. A married woman, aged 31 years, was admitted into the civil hospital of Mustapha. Algiers, on August 12th, 1908. She had three healthy children and was in the seventh month of pregnancy. She lived in a malarious region but had always enjoyed good health until four days before admission, when she became feverish. After four hours the attack ended with abundant perspiration. On each of the following days a similar attack occurred. On examination on the 13th she was free from fever but was very anæmic and showed a slight subicteric tint

which was due to hæmolytic, for the urine did not contain any bile. The spleen was markedly enlarged. The red blood corpuscles contained numerous non-pigmented hæmatozoa. On the morning of the 14th another attack occurred. 20 centigrammes of hydrochlorate of quinine were given hypodermically every two hours. On the 15th labour came on and a well-formed living male child weighing five pounds was born. It lived only an hour. Blood from the umbilical cord, the heart of the fœtus, and the placenta showed hæmatozoa like those found in the mother's blood. Quinine was not given on this day, and on the morning of the 16th a very grave attack of fever accompanied by stupor occurred. Three injections of 40 centigrammes of quinine were given on this day. On the 17th there was slight improvement and 20 centigrammes of quinine were given every two hours. On the 18th there was manifest improvement and 150 centigrammes of quinine were given and on the 19th the dose was reduced to 100 centigrammes. On the 20th there were no parasites in the blood and no quinine was given. An abscess formed on the abdomen at the site of the hypodermic punctures and was opened on the 30th. On September 3rd there was phlebitis of the left leg with fever, pain, and œdema, but the uterus showed nothing abnormal and the general condition remained good. Recovery followed. M. Dumolard and M. Viallet considered that this case proves the possibility of the transmission of the malarial parasite across the placenta to the fœtus, for there was no uterine hæmorrhage by which the infection could have been conveyed. The question of the frequency of such transmission remains to be determined. As in other infections, the health of the mother, the virulence of the infection, the age of the fœtus, and alterations in the placenta, no doubt are factors. Many cases have been published to show that even in severe malaria the fœtus is not infected, but its health is often impaired. Probably when it escapes the hæmatozoon itself the toxins filter across the placenta. Another question is the relation of malaria to abortion. Malaria must be regarded as a powerful cause of abortion, which is more likely to occur when, as in the present case, the fœtus is infected. But apart from foetal infection the destruction of the red corpuscles and the fever in the mother may produce abortion. It follows that a pregnant woman suffering from malaria should be given quinine in sufficient doses. No doubt in exceptional cases quinine excites uterine contractions and produces abortion, but it is the only means of saving the mother and the fœtus

from an infection likely to produce abortion and then kill the mother. In the case reported above the infection of the fœtus showed that quinine was doubly indicated.—The *Lancet*, April 17, 1909.

The Action of Cocaine.

DR. N. S. FINZI, Medical Officer to the Electrical Department of the Metropolitan Hospital, in a paper to the *Lancet* of March 13, on Medical Ionization, makes a very interesting remark concerning cocaine. He says that if cocaine is ionized into a person, which is effected by means of a solution of the hydrochloride of cocaine, the cocaine being driven in at the positive pole, in a short time the skin becomes anæsthetic, but the smarting sensation caused by the galvanic current is felt just the same as before. If the ionization be now stopped it is found that in a short time the ionized patch becomes very tender, hyperæsthetic, and hyperæmic, and remains so for some while. If sufficient cocaine has been driven in this, hyperæmia persists and is replaced later by a brown pigmentation. This would show that the anæsthetic action of cocaine is really a homœopathic one when used to allay the pain of hyperæsthetic parts, since a larger dose (introduced by ionization) causes hyperæsthesia; while a smaller one causes anæsthesia. When the hydrochloride is used in the usual way by means of hypodermic medication, dissociation of the cocaine and hydrochloric acid molecules no doubt slowly takes place in the tissues, and the liberated cocaine, being present in very small quantity at any one time, has an anæsthetic effect. The experiment of Dr. Finzi exhibits, in the case of cocaine, the opposite effects of larger and smaller doses, which is the natural law at the basis of homœopathic therapeutics.—The *British Homœopathic Review*, May, 1909.

CLINICAL RECORD.

Foreign.

CASE I.

A woman of 62 came with a patch of dry eczema on the right hand, which had been present for some months. She had no other symptoms beyond general debility, a tendency to sinking feelings, and deafness. *Sulph.* 200 every night for a week, followed by *Sac. lac.*, cleared the eczema away in a fortnight. She also felt much better, though there did not seem any particular improvement in her power of hearing. One dose of *Sulph.* c.m. was given, and the patient instructed not to return unless the eczema reappeared. I take the fact that she has not visited the hospital again as evidence that she keeps well.

CASE II.

A woman of 43 had suffered for three weeks from throbbing pain in the head, over the eyes, and at the root of the nose. Also a sensation as of a lump in the throat, < swallowing saliva and < lying down, causing a feeling of suffocation. She was subject to a dragging pain in the left hip < before catamenia; I could not discover clearly if it were at all relieved when the flow appeared. She was rather loquacious, and this fact, with the left-sidedness and the throat symptoms, suggested *Lachesis*. *Lach.* 12 was given night and morning, and at once relieved all the symptoms, head, throat, and hip. She had been in real discomfort for three weeks previously.

CASE III.

A woman of 35 came to the L.H.H. in June, 1908, complaining of a cough that came on every winter and this year had not subsided as usual. The phlegm was thick, muco-pus. The tongue was coated and the bowels constipated. She complained of pains in the left chest and was unable to lie on that side. Both apices struck me as suspicious, and there was definite crepitation heard at the back on the right side (the painless side) along the interlobar septum. I strongly suspected tubercle. There was little or no bronchitis or emphysema. The inability to lie on the left side led me to give her *Phosphorus*, which covered her other symptoms. *Phos.* 5x t.d.s. for a fortnight, however, produced little change.

Tuberculinum 15 was now given once a week, and *Phos.* 3x t.d.s. She was seen after three weeks. The cough was gone and she felt well, but she had lost 1½ pounds in weight. I repeated both drugs and persuaded her to report herself at intervals up to the end of September. She lost no more weight and continued to feel well. The physical signs had by now quite disappeared. On September 22nd she was given *Tuberc.* 30 once a week and *Phos.* 4x, and told to return at the first sign of cough. I did not see her again till April 20th, when she informed me she had gone through the winter without any trouble.

CASE IV.

A woman of 38 came complaining that she had not felt well for years: always felt tired and weak. She was thin and sallow, not particularly anæmic. She complained of pain at the back of the head, extending down the spine. The catamenia were regular on the whole, sometimes a day or two early and excessive; the tongue was fairly clean, and there was no constipation. She complained of cold hands and feet and worse in winter. I gave her *Calc. phos.* 3 t.d.s. In a fortnight she was rather better, but the menses had come too soon and were again excessive. Although not of the *Calc. carb.* type I gave her *Calc. carb.* 30 night and morning. This produced a marvellous change in her in every way. The menorrhagia lessened, and at the end of seven weeks she said she had not been so well for years. Some aching in the eyeballs led me to give her *Ruta* 30, and finally she had a dose or two of *Lycopodium* 200 and then ceased coming, professing herself quite well.

CASE V.

The orchitis that follows parotitis is sometimes very troublesome. A man of 37 came with the left testicle much inflamed, with cutting pains in it and in the left groin. The right testicle was not inflamed so much. The affection had followed a typical attack of "mumps" contracted from his child. He was in considerable pain but well in general health. He was fair and rather lymphatic, and was given *Pulsatilla* 3x, followed after a few days by 30. Improvement began within twenty-four hours, and when he reported next he was well.

CASE VI.

A child of 15 was brought by her mother with a mass of glands the size of a small orange below the left ear. Having just been reading Dr. Clarke's *Dictionary*, I stopped the poultices the mother had been applying, and gave *Silic. marin.* 3x gr. iii. t.d.s. The mass simply melted away. In a week very little was left, and after a month the glands were just perceptible. The catamenia returned under treatment, having previously been absent for four months.

CASE VII.

A girl of 16 was brought to me who had been suffering from involuntary jerking of the limbs, < night in bed, for six months. She suffered much from chilblains. The first heart-sound was reduplicated at the apex but there was no bruit. Frequent throbbing headache with spasms of pain across the forehead above the eyes caused much distress. *Agaricus* 30 n.m.q. controlled the movements quickly, though they were slow to disappear altogether, but the headache yielded also to the remedy and was not complained of after the first visit. The *Agaricus* headaches are generally rather of a dull aching character. This was throbbing with acute spasms of pain, and I report the case because of this clinical difference.—The *Homœopathic World*, June 1, 1909.

INSOMNIA.

BY C. ASSEM, PRIOR.

Gelsemium in Insomnia.

When I met my friend, the pastor of K., he complained of a peculiar ailment of the head with vertigo, anxiety, nervous twitches and insomnia. The physician called it neurasthenia, but his remedies and advice have done no good. He is especially inconvenienced by his nose, which is stopped up and quite dry. The latter symptom caused me to send him *Kali bichrom.* 6 in pellets. I did not hear from him for half a year, when he wrote me, that the homœopathic remedy had a very good effect and cured the stuffed cold in the nose, but the nervous twitching which prevented him from going to sleep, still continued and he also had gouty pains in the wrists. He writes: "Often it twitches through the whole body, as from an electrical stroke; often it flashes through the shoulders, the arms, hands and fingers and the feet and drives away sleep." He cannot find out what causes this intolerable condition. The patient is not alcoholic, his parish is not large, he lives without care and in peace, his dwelling is dry and healthy, though situated near the river, only his gouty pains raise a doubt as to a gouty diathesis. I tried him successively with *Causticum*, *Natrum sulphur.*, *Dulcamara*, *Cuprum*, *Lachesis*, but all without effect. Now the patient again turned to an allopathic physician, but all his directions: sweating, ointments, massage, electricity, etc., proved without effect; often he succeeds in falling asleep in the morning when he ought to get up. It may be supposed that his spirits were very much depressed. Finally he again came to me for a homœopathic remedy; I now gave him *Gelsemium* 6 in pellets, and in two weeks he wrote to me that the painful twitches had diminished and a few weeks later he wrote that the whole affection had disappeared on the continued use of *Gelsemium*, also the gouty trouble in his hands had disappeared.—The *Homœopathic Recorder*, May 15, 1909.

A RARE CASE OF HYSTERICIS.

An intelligent farmer wrote me that his wife, now forty-nine years of age, has been troubled now for three months with a nervous ailment, which, in spite of the physician's medicines, won't get any better. "It began with swooning, and when this passed off,

there was a trembling in all the nerves, perceived only by herself and not visible without ; with this she has no pains, but only angina and dyspnoea, so that often she is unable to leave her bed. The remedies which she had received had always quieted the insurrection of her nerves only for a little while, but the trembling was unabated. She can sleep but little, has no appetite, and her strength is visibly diminishing. According to the physician, this state may continue for some years ; but the patient says she cannot stand it, as it is intolerable."

In this case it seemed to me that *Acid. Sulphur.* 3 trituration was indicated, and this remedy also proved itself good, as in two weeks I heard that the vibration of the nerves had ceased and the woman was now only troubled with the angina ; still she had been able to go to church. A few weeks later the husband wrote to me that the improvement had not been maintained, as his wife has of late been suffering from insomnia, loss of appetite, and even her attacks of swooning had returned, and the trembling of her nerves had increased so much that she had to keep her bed constantly. *Acidum sulphuris*, of which she still had some pellets would not help her any more, so I sent her *Cimicifuga* 6. in pellets. This American remedy which in its proving particularly showed the nervous trembling, made the whole ailment pass away in a few weeks, and since the last two years there has not been any relapse.—*The Homœopathic Recorder*, May 15, 1909.

Gleanings from Contemporary Literature.

TRAUMATIC PERFORATIONS OF THE UTERUS INFLICTED FROM WITHIN THE CAVITY OF THIS ORGAN :

BY AIME PAUL HEINECK, Chicago, Ill.

Senior Professor of Surgery, Reliance Medical College ; Adjunct of Surgery, University of Illinois ; Surgeon to Cook County Hospital.

(Continued from April number.)

b. Atrophy of the uterus, 63. All the different forms of uterine atrophy, of themselves cause a weakening of the uterine wall, and therefore can be looked upon as conditions predisposing to uterine perforation. Atrophy of the uterus has been observed in some chronic diseases : as in pulmonary tuberculosis, occasionally in diabetes, in leukemia, in chlorosis, in pernicious anemia, in Addison's disease, in Basedow's disease, etc. It is stated that also in certain acute infectious diseases, such as typhoid fever, a marked atrophy of the muscular tissues is noted.

We will enumerate the main histo-anatomical changes that have been noticed in senile atrophy of the uterus and also those found by Emil Ries (Chicago) in some cases of extensive uterine atrophy following upon puerperal infection.

The changes found in senile uteri are :

- a.* Atrophy of the mucosa and of the muscle fibres.
- b.* The relation, in amount, normally existing between the connective tissue and the muscular tissue is altered considerably at the expense of the latter.
- c.* Vessels are sclerosed. Case 33 was a senile uterus. It was also the seat of myomata.

Emil Ries (Chicago) in some cases of extensive atrophy of the uterus following puerperal infections found :

- a.* Absence of mucosa.
- b.* Hyaline degeneration and thrombosis of the vessels.
- c.* Degeneration and necrosis of the muscularis.

Malignant neoplastic diseases of the uterus are numerous. The cases of carcinoma or sarcoma of the uterus in which perforation of the uterus has resulted from slight mechanical stress are numerous. Efforts in the presence of malignant disease of the uterus to obtain material for microscopical examination, if brutal, may prove disastrous. Malignant disease of the uterus may give rise to spontaneous perforations, 65.

d. Inflammatory processes of the uterine tissues may be localized ; may be diffuse. Like inflammatory processes elsewhere, they are destructive in nature. Whatever be the nature of the inflammation, acute or chronic, or the site, be it located in the mucosa, in the muscularis or in the connective tissue ; it invariably weakens the resistance of the

uterine wall. Case 66 was a case of myometritis oedematosa ; case 67, a case of endometritis fungosa. In case 68 sutures from a previous operation, were suppurating their way through the uterine wall.

Prolonged septic processes predispose to uterine perforation. Tubercular uterine inflammation by leading to abscess, to cavity formation, can of itself cause uterine perforation. Inflammations of the uterus may terminate in resolution, in suppuration, or in gangrene. We will briefly consider abscess (69 a-b-c-d) of the uterus and also gangrene of this organ, as several instances will be found in our tables where these conditions, either together or separately, were present. The occurrence of abscess of the uterus is no longer contested, as many of the cases reported have been amply verified, 70 a-b-c. Uterine abscesses may be acute, sub-acute, or chronic ; may be primary or secondary ; in primary form, the pus collection has its starting point as such in the uterine tissues, in the secondary form, the suppurative process starts in neighboring tissues and invades the uterus by extension through contiguity of tissues. In the first form, at the beginning, if not throughout its entire course, the pus collection is entirely circumscribed by uterine tissue ; in the secondary form, it is partly surrounded by the uterine tissue, partly by other tissues.

In number these abscesses may be single, may be multiple. In location, they are either sub-mucous, intra-muscular or interstitial, or sub-peritoneal ; their site may be in the anterior wall (70c), may be in posterior wall (70b). Uterine abscesses are always due to infection ; a pathological, surgical or traumatic solution of surface continually of the uterine mucosa serving most frequently as the portal of infection. Any pyogenic organism, facultatively or habitually so, can be the causative germ. Tubercular abscesses have been reported. In Meuge's case (69b), gonococci were detected in the pus. However, the ordinary pyogenic cocci are the most frequent offenders. The germs are either implanted in the uterine tissues by a vulnerating instrument or may be conveyed to the site of abscess developed by the lymphatic vessels. Rarely, the abscess is embolic. The abscess may be secondary by contiguity of tissues to an infective uterine thrombo-phlebitis (infective thrombo-phlebitis, suppurative perithrombo-phlebitis, abscess.) The liability to the latter occurrence (septic thrombo-phlebitis) during the post-abortum and the post-partum period is well known.

All uterine abscesses impair the solidity of the uterine wall. They predispose to traumatic perforations, as the abscess-site forms a circumscribed area of lessened resistance. They may rupture spontaneously into the rectum (Bird's case, Schroeder's case) into the bladder (Berrut's), into the uterine cavity, into the peritoneal cavity, etc. They may give rise to spontaneous perforations, as when the abscess ruptures both into the uterine cavity and into an adjacent cavity or space. We have in the case reported by Porak (70a) an instance of spontaneous uterine

perforation due to an abscess. This was a case of puerperal sepsis. The uterus contained several abscesses, one of which had ruptured both into the uterine, and into the peritoneal cavities. In one of Manclaire's cases, (71), at the seat of the perforation, there was an abscess which had extended nearly to the peritoneal coat.

Another possible termination of inflammation which predisposes to perforation, is gangrene. Uterine gangrene may be circumscribed, may be general, may involve the entire thickness of the uterine wall; may only involve a part of this thickness; may be due to traumatic, inflammatory, neoplastic or chemical causes. It may be secondary to criminal or other intra-uterine maneuver, it may be spontaneous. Gottschalk (72) reports a case of gangrene of the uterus (puerperal sepsis) in which the necrotic tissue represented the whole uterine mucus membrane and a portion of the muscular walls. He thinks that in this case the gangrene was due to intra-uterine injections of 60 per cent. alcohol. Other cases of gangrene due to contact of caustics with the uterine wall are reported.

Gangrenous metritis is a condition which predisposes to traumatic uterine perforation, which may result in spontaneous perforation. Beckman, (St. Petersburg) noted this grave complication six times in forty cases of metritis dessicans. Metritis dessicans is the condition which we now designate as gangrœna uteri puerperalis. It may be partial, it may be total, it may be perforating. On examining the organ it is at times difficult to determine if the perforation is secondary to the gangrene or if the gangrene is secondary to an inflammation started by the instrument which has penetrated the uterine wall (73). In Winter's case (74) the gangrene was secondary to a perforation, which was located on the posterior wall; there was a marked predominance of saprophytic germs. The inflammatory gangrene enlarges the traumatic lesion and may lead one to think that the perforation is spontaneous in origin. Maygrier (75) reports two cases of abortive gangrene. Each had led to a uterine perforation. Trauma as a factor was absent in both. K. Schmidleischuer (76) reports a case of gangrœna uteri puerperalis involving the entire cervical wall and the lower $\frac{1}{3}$ of the muscular wall of the body of the uterus.

CONCLUSIONS.

1. Pseudo-perforation of the uterus, though of exceptional occurrence, is a clinical condition.
2. Spontaneous perforations of the uterus, due to pre-existing pathological conditions of this organ, can and do occur.
3. Perforating wounds of the uterus, be they intraperitoneal, be they extraperitoneal (there were 12 such in the cases reported), have a morbidity; have a mortality. This morbidity, increases in direct ratio with the inexperience, the carelessness, the surgical ignorance and the surgical uncleanness of the operator. The expert recognises at once the making

of a false passage and institutes proper treatment. High surgical skill may convert (as consultation of the tables at the close of this article amply demonstrate) an apparently hopeless case into a recovery. In the 154 tabulated cases there were 42 deaths, 108 recoveries. The result is not stated in 4 cases. Expectant treatment was pursued in 66 cases. There were 21 deaths in this series. Laparotomy, including what intra-abdominal repair work appeared necessary to the operator, was performed 72 times. There were 52 recoveries, 17 deaths, and three unstated results in this series. Vaginal hysterectomy was done 15 times. There resulted 10 recoveries, 4 deaths, and one result not stated.

4. Dilatation of the cervical canal and instrumental curettage of the uterine cavity are, owing to their associated dangers, not office operations. During the performance of these two operations, the operator may be confronted by accidents, the meeting of which requires the highest surgical skill. In their performance, if an anesthetist be available, the employment of general anesthesia (in the absence of contra-indications) is highly desirable. In fact the rule should be :

A. No uterine curettage without general surgical anesthesia. It is easy to conceive how a non-anesthetized patient can, by injudicious jerks or movements, perforate her own uterus by impaling it, by spiking it upon the intra-uterine instrument. Anesthesia permits the operator to depress the abdominal wall, to locate and to fix, if necessary, the fundus uteri.

B. No curettage without ample cervical dilatation. A not dilated cervical canal interferes with the tactile sense and thereby with the proper maneuvering of intra-uterine instruments. Steady the cervix, before beginning the dilatation of the canal.

5. Intra uterine instrumental maneuvers should only be attempted by those.

a. Who are thoroughly conversant with modern surgical asepsis and antisepsis. The absence of bacteria on the perforating instrument minimizes very much the dangers of perforation. Infection has immediate, has late dangers. In an uncomplicated perforating wound of the uterus, the traumatism of the uterus plays but a secondary role ; the pre-existence or the implantation of infection commands the situation.

b. Who are capable of recognizing malpositions of the uterus as well as pathological conditions of that and of neighboring organs. Even the bringing of the cervix to the vulvar outlet may disturb peritoneal adhesions, may rupture pus pockets.

c. Who are acquainted with the treatment of the dangers incident to the successive steps of the intra-uterine operation which they are performing. The steel dilator is an instrument of too much power and the curette is too dangerous a weapon to be used by the novice, by the inexperienced.

6. Once the uterus is perforated, all further intra-uterine instrumentation must be suspended. If it be imperative that the contents of the uterine cavity be removed, this must be done by digital curettage, or it may be done with a curette while the uterus is being watched from above through a laparotomy incision.

7. A perforated uterus should never be swabbed or mopped with caustics or irritating antiseptics. It is needless, it is dangerous. In two cases (38, 77), it is distinctly stated that the uterine cavity was swabbed. Both cases died. In each carbolic acid was the agent used.

8. A perforated uterus should never be irrigated. In 17 cases in which it is stated that the uterus was irrigated during the course of perforation or afterwards, there were six recoveries, cases 14, 49, 57, 78, 79, 11; deaths, cases 22, 42, 63, 80, 81, 82, 83. In two of the recoveries, cases 39 and 57, convalescence was delayed by mercurial poisoning due to the sublimate solution that had been used for uterine irrigation. In case 78 one ounce of 1 per cent aqueous solution of creolin entered the peritoneal cavity. Brothers, in his report of case 22, in which the perforated uterus was irrigated, stated, "I have never seen a case of greater physical suffering in my life." The great danger, attending intrauterine irrigation in these cases is the conveyance, the diffusion by this irrigating fluid, of septic material from the uterine into the peritoneal cavity or other space. Owing to the great absorptive power of the peritoneum, the danger of chemical intoxication is also present. Every case, (19), in which it is definitely stated that the perforated uterus was not irrigated, recovered.

9. Vaginal hysterectomy is an operation not to be performed in the treatment of perforating wounds of the uterus. It calls:

1st. For the sacrifice of an organ which may not be perforated.

2nd. For the sacrifice of an organ, which though perforated, most always can, with little difficulty to the operator and with much advantage to the patient, be saved.

3rd. It does not enable the operator to exactly determine either the presence or absence of other co-existing intra-abdominal visceral, vascular or other lesions, nor does it enable him to repair them.

10. If the perforated wound has been inflicted upon a non-septic uterus during the course of an aseptic intra-uterine maneuver, in the absence of complicating abdominal lesions, recovery is the rule.

11. The treatment of perforating wounds of the uterus is determined largely by the following conditions:

1. The septicity or asepticity of the uterus and of its contents.

2. The septicity or asepticity of the perforating instrument.

3. The presence or absence of co-existing vascular, omental or intestinal lesions.

4. The size and the number of the perforations. A piece of omentum may prolapse through a large rent. A coil of gut may become incarcerated

or strangulated in a large perforation.

12. Treatment :

a. If the uterus be non-septic, if the perforating instrument be aseptic and, if it can also be reasonably assumed that there is an absence of omental or intestinal or important vascular lesions, the treatment to be followed is one of "armed expectancy." The patient must be confined to bed and immobilization enjoined for at least three days. The patient's pulse, temperature, facies and abdomen must be carefully watched. A suppurative peritonitis, circumscribed or diffuse, a suppurative cellulitis, signs of internal hemorrhage, etc., call for intervention. A wick of gauze may be inserted into the uterus but it should not be introduced much beyond the internal os.

b. In all cases in which there has been a prolapse of the omentum, or of the intestines into the uterine cavity ; in all cases in which associated injuries to the intestines or omentum co-exist, or in which there are reasons to fear a significant internal hemorrhage, laparotomy is urgent.

c. Once the abdominal wall has opened, the visceral lesion must be repaired. The uterine puncture, if small, need not be sutured. If large (when perforation is large you can not depend upon the contractility of the uterine muscle to entirely occlude it) if of the nature of tears or lacerations, it is better that the perforation be sutured. One or two layers of sutures may be used. Whether small or large, if the perforation be the seat of hemorrhage, it should be sutured. In the following cases, the operators deemed it wise to suture the perforation. Cases 10 a, 14 c, 20, 22, 31, 47, 50, 84, 87, 88, 89a, 89b, and these cases excepting cases 10a, 20 and 89a, recovered. In each of these three fatal cases, there were complicating intestinal lesions, necessitating resection of gut and enterorrhaphy. Some operators as Jarman (case 84) made use of both superficial and deep sutures for closure of the uterine rent. Some clinicians recommend laparotomy for all intra-peritoneal perforations and base their teaching upon the following considerations.

a. That the exact size of the perforations is not definitely known.

b. That hemorrhage may be taking place from the peritoneal surface of the wound.

c. That in the absence of a laparotomy we can never tell with certainty whether any intra-abdominal organ is injured.

14. A healed perforation of the uterus apparently does not interfere with the normal development and normal termination of a subsequent pregnancy.—The *Medical Advance*, April, 1909.

**THE POLLUTION OF STREAMS BY DOMESTIC SEWAGE
AND INDUSTRIAL WASTES.**

By THEODORE HORTON, C. E.

Chief Engineer, N. Y. State Dept. of Health.

As a general statement we may say that the discharge of domestic sewage or industrial wastes into any body of water will have a deleterious effect upon its quality. When we consider, however, the more important questions involved, viz., questions of public health and life, and of the comfort and convenience of communities who must reside near waters polluted by such wastes or who must use them for drinking or domestic purposes, our statements must be made with more caution and with many qualifications.

It will be essential, then, at the outset, to make sharp distinctions or differentiations, first as to the character of the waste products that may be discharged into a stream, and secondly, as to the manner in which they may affect the welfare of a community through which the stream flows. The polluting materials may, for instance, be derived from the waste products of mills or industries of a variety of kinds, such as tanneries, pulp mills, silk mills, creameries, etc., or they may be derived from the waste products of domestic life such as sink water, wash water, excreta or other human wastes. Again, these different classes of wastes may have very different effects upon the general welfare of a community,—some of them affecting life and health from the standpoint of transmission of communicable diseases, and others affecting only comfort, convenience and the enjoyments of life.

Since these distinctions are very important in themselves, and since it is essential for every health officer to know under what conditions pollution may become only offensive or only dangerous, or both offensive and dangerous, I will outline the characteristic differences between the various classes of wastes, and the extent and conditions under which they become offensive or become dangerous to health. Before doing this, however, I will describe briefly the local conditions which generally lead up to the pollution of our streams and the problems which generally confront our local boards of health.

In the history of nearly every community that has developed to the stage of possessing public improvements or utilities, there is an early period when the population is more or less scattered, and when the problem of sanitation is a simple one. Under these conditions it is ordinarily an easy matter to dispose of the waste products of the household in well constructed and properly maintained vaults or cesspools. There soon follow, however, another period when the population has increased and has become more congested, when industries spring up through the community, and, when, following the inevitable demand, a public water supply is introduced.

The consequences of these new conditions are at once apparent. These cesspools or vaults, which up to this time have performed their proper functions without danger or offence, now fill rapidly and, unless frequently emptied, they overflow and become the source of recurrent nuisances. The liquids soon leak or filter through the overtaxed soil to the cellar walls or the well, disseminating filth and disease in their path.

It is at this stage in the growth of a community that the more serious troubles of our health officers arise. It is at this time that the people of a community, driven by the *inevitable* nuisances and expense of cleaning and maintaining these vaults and cesspools, seek relief by constructing drains and overflows into the nearest streams. It is at this time that the industries upon whose operations the support of the community depends, find it more and more difficult to satisfactorily dispose of their wastes, and they likewise discharge them into the streams. It is at this time, finally, when the State Department of Health in response to numerous complaints, also has to face its dual duty, under the health law, of prohibiting the construction of these drains, and impressing upon the popular mind, and the governing officials, that the time has arrived when a sewerage system is imperative.

To understand the significance of these conditions, then, and to distinguish intelligently between those factors which affect health and those which affect only comfort, the health officer must have a definite knowledge of the composition of these two classes of wastes—the domestic sewage and the industrial wastes. Considering first the domestic sewage, we find that it is derived primarily from the water supply. It is, in fact, the spent water supply, which, after being used in the household for the various domestic purposes such as cooking, washing and removal of excreta, imparts to the sewage certain ingredients of a more or less objectionable nature. The less objectionable ingredients are of course, those derived from such sources of cooking and washing, while the more objectionable ones are those derived from human excreta.

This domestic sewage, then, will contain variable amounts of either organic or mineral matters, which we usually speak of as "solids." Numerically these solids will amount to about 1-20 of 1% of the weight of the sewage, of which about one-third is in suspension and two-thirds in solution. Again, of the suspended solids, about two-thirds is organic and one-third is mineral while; of the dissolved solids about one-third is organic and two-thirds mineral.

It is, then, this small amount of organic matter that gives to sewage its dangerous and offensive quality, for it is the organic matter which contains in living form vast numbers of bacteria of both pathogenic and harmless types, and in dead or inert form matter which, under certain conditions, putrefies and gives off offensive orders. On the average this sewage will contain bacteria ranging in numbers from one to two million per cubic centimeter. Of these we may say that approximately 10% are

of the colon type (i. e., the bacillus which is the normal habitat of the human intestines) ; a very much smaller percentage, impracticable of estimation, is of a pathogenic type derived from patients suffering with communicable diseases ; and the remaining large percentage is of the harmless type derived from the innumerable sources from which sewage is derived.

So long as this sewage is perfectly fresh there will be little, if any, odor to it. When, however, it is allowed to stand, its chemical and biological quality changes rapidly. These changes are the result of the life processes of the bacteria present in the sewage, through which the organic matter, consumed as food by these bacteria, are transformed into other compounds. The aerobic bacteria are usually the first to act under these conditions, and so long as oxygen is present and available, this transformation of the organic matter will be one of oxidation or nitrification. As soon, however, as all of the available oxygen is exhausted, the aerobic action ceases and in its place anaerobic action is set up. That is, the anaerobic bacteria, acting in the absence of oxygen, are able to break up the organic matter and transform it into compounds which are quite different from those resulting from aerobic action. This anaerobic action is one largely of deoxidation or denitrification, and the products are usually of a less stable character, i. e., more decomposable. The most important feature is that during this anaerobic decomposition, which we usually term "putrefaction," sulphuretted hydrogen, ammonia, and other objectionable gases associated with decomposition, are liberated with the resultant creation of nuisances.

It will be seen, then, that there are two characteristics of domestic sewage that are very important. One is the possible presence of germs of communicable diseases which may be transmitted to any person who uses the water in any manner by which it may be taken into the human system. The other is the presence of organic matter which, in the absence of sufficient oxygen, undergoes anaerobic decomposition and gives off putrefactive odors with the production of a nuisance.

Let us now consider the case of industrial wastes. The first characteristic, if such it may be called, is the great variation in composition, concentration and volume. We have, in fact, as many varieties of industrial wastes as we have industries. Some of these wastes are composed largely of a mineral nature, such as the wastes from wall paper and certain chemical establishments, while some are largely of an organic nature such as wastes from creameries and silk mills. Again, some of these organic wastes are largely in suspension, such as the wastes from tanneries and paper mills, while others are largely in solution, such as the wastes from sulphite mills and silk mills. The most important characteristic, however, is that these wastes in themselves, and unmixed with domestic sewage, ordinarily contain no disease germs. They may contain a large amount of harmless bacteria, such as the large proportion of those found

in domestic sewage, but they do not, unless mixed with domestic sewage, contain disease germs, nor even colon bacilli.

It must be evident, then, that these wastes, themselves, cannot directly transmit germ diseases, although they may sometimes contain poisonous materials which may inhibit, and even kill, fish and other forms of life. They may, and frequently are, largely responsible for nuisances, and there is little question but that some of the most serious and extensive nuisances in the State have been caused by these wastes. These nuisances, however, have usually been associated with wastes that contain large amounts of organic matter, especially in solution, where the oxygen available, contained either in the wastes themselves, or in the stream into which they are discharged, is insufficient to prevent putrescibility.

From what has been said then of these two classes of wastes I believe we can now make a few generalizations in regard to the pollution of streams and the conditions under which this pollution may become offensive or dangerous to health.

(1) That the discharge of domestic sewage into a stream may become dangerous to health when it is derived from a community in which communicable diseases have been prevalent; and the danger is proportional to the prevalence of such disease, other conditions being equal. Communicable diseases are more or less prevalent in all communities. It follows then that the presence of any domestic sewage pollution in a stream will create a menace to the health of those communities and residents who live below on the stream and use the water for domestic or drinking purposes.

(2) That the discharge of domestic sewage into a stream may, in addition to the danger to health, become a source of offence or nuisance when the available oxygen carried in the sewage, or in the stream, into which it is discharged, is insufficient to prevent anaerobic conditions, in which case putrefactive and offensive odors are given off.

(3) That industrial wastes, in themselves and unmixed with domestic sewage, rarely if ever contain pathogenic bacteria, that may survive and become the means of transmission of communicable diseases.

(4) That industrial wastes may occasionally contain poisonous ingredients that may inhibit and kill fish and other forms of life: such, for instance, as bacterial life under which condition the natural agency of purification and nitrification is arrested.

(5) That industrial wastes, especially those containing considerable proportions of organic substances may become the source of serious nuisance through the emanation of offensive gases resulting from anaerobic or septic action. These offensive gases may emanate from deposits of organic matter along the bed and banks of the stream, or they may emanate from the surface of the water itself.

I believe the principles just stated cover in a simple and general way the more important point which I meant to bring out and emphasize in regard to the pollution of streams. I have made no attempt to take

up in detail the more technical questions, such as the degrees of danger or offence that may be created under various conditions. In fact such data can not be accurately stated, even in general terms, but will depend almost entirely upon local conditions as to composition of sewage, volume of stream flow and other factors. I have, for similar reasons, made no attempt to enter into the question of sewage purification, which is a distinct and separate subject vitally associated, however, with the present one. — *The North American Journal of Homœopathy*, May, 1909.

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FIBROSITIS (FIBROSIS) : ITS SIGNIFICANCE,
SEQUELÆ, AND RESOLUTION BY ELEC-
TROLYTIC AND ACTINIC METHODS :
A BIOLOGICAL STUDY.

BY DR. HENRY MCCULLOCH, M.B., C.M. GLASG.

*Physician in Charge of the Electrical Department, London
Homœopathic Hospital.*

MR. PRESIDENT AND GENTLEMEN,—Let me first say how greatly I appreciate the kindness extended to me, when I was invited by a senior member of the Society—to which I have so recently had the honour of being elected a member—to read a paper on any pathological subject that appealed to me. Realizing, as I did, the seriousness of the undertaking, as well as the fact that it is one thing to have general opinions, another to place them in logical sequence upon paper, my apprehensions were in no wise lessened. Having however, had the advantage of living for the greater part of my professional career on the borders of an ancient civilization, and in close touch with wild Nature and her ways, I have every confidence in submitting for your consideration certain views, obtained by contemplating the vital processes, through “the field glasses” of science, as compared with these, not less important, through the uninterrupted use of the microscope. The choice of a suitable term

to adequately express the subject in hand, and one that has been so much debated, was my first difficulty. The inseparable idea of "inflammation" seemed to dominate everything else. It has been the vogue to employ the termination "it is" in all cases where the reactive processes are characterized by inco-ordinate action together with an attempt at co-ordination of function. Its sole merit must be its convenience in cloaking our ignorance of the exact causation in most of the conditions to which it is applied. The late Professor Coats made it a point, to instil into his pupils, how far, and in what cases, we were justified in employing the term, and to what extent the development of fibrous hypertrophy in the organs of the body was the result of the inco-ordinate process known as inflammation. He looked upon fibrosis as one of a series of reactive changes which the tissue-cells undergo, in response to extracellular or intracellular noxious stimuli, resulting in the deposition of certain crude cells, whether this occurred in the mechanism of necessary replacement, or in that of the functional defence of a cell. I propose to consider the physiological inception of these changes, which lead ultimately to the different morbid states seen in the cells and tissues, the cumulative effect of the combined cellular inco-ordination, and the perverted influence of these cells upon other cells and organs not primarily involved. I hope to do this in a wide and comprehensive manner. I shall ask you to picture the human organism in a biological sense and of spheroidal shape. In this we have a zonal blood circulatory system with a central heart enclosed in a muco-cutaneous membrane. The functions of this fluid, the blood, are not performed within the heart or main channels, but away in the peripheral capillary zone. In this zone we find the lungs, the intestines, the liver, the kidneys, the spleen—to name a few organs. Then we have an intermediate zone with less numerous capillaries including the skin, muscle, and glands. Again the marrow, connective tissues, osseous structures, and interstitial tissues, with a still smaller capillary zone; till the joint fringes and cartilaginous structures are almost beyond their reach.

To proceed to the reactive processes: In recent years a vast flood of light has been shed on these, as you are all doubtless aware, by the epoch-making discoveries of Professor Metchnikoff, discoveries that were ridiculed, and were long in being generally accepted. The discoverer of the phenomenon of phagocytosis is a zoologist, and he naturally defines "inflammation" in the sense that we understand it—as inco-ordinate or improper injection by the leucocytes—of any noxious material, organic or inorganic. That is to say, that so long as this phenomenon occurs under normal harmonious conditions, there are no manifestations of abnormality; and the symptoms of redness, swelling, pain and heat, only appear when the physiological mechanism becomes chaotic. This state of affairs evokes accessory mechanisms, which add to and emphasize the symptoms just mentioned. The fascination of phenomenon of phagocytosis still occupies the minds of pathologists so much, that the *accessory mechanisms* I am about to discuss are completely lost sight of, and do not seem to be capable of being realized. I refer to the mechanism of "*segregation*," which is on a par with that of phagocytosis, and an extension of it; the difference being, that the former is more a mechanical and less a chemical process than the latter. Normal phagocytosis may be said to be purely a chemical process. But when *massive* stimuli have to be dealt with, speaking in a microscopic sense, phagocytosis alone is inadequate and impossible; "*segregation*" is evoked, and both processes may proceed *pari passu* (*Lancet* January 26, 1906: "Observations in Auto-Vaccination," McCulloch). This is very well shown in Metchnikoff's studies on stimuli applied to the larval forms of *astropecten* among the metazoa. He found that the mesodermal cells were phagocytic in two distinct ways, first in the well-known way, and second—and of especial reference to the subject in hand—by "*plasmodium formation*," that is, when the noxious agents were too massive to be dealt with in the ordinary way. The mesodermal cells are seen to combine and encircle the foreign body. This union is so complete, that in this phenomenon the

cytoplasm of these cells becomes organically fused together. *The nuclei emerge at different points and reproduce their cytoplasm subsequently; to repeat the process again and again if necessary.* The plasmodium is deposited in concentric layers, with the cell membranes of successive layers in between. Condensations of the protoplasm take place, according to requirements. We have here, an analogous condition to fibrosis in the higher forms of life. This defensive mechanism is analogous to a host of defenders arriving *en masse* at the scene of action, where they divest themselves of their cytoplasm, leaving it *in situ* to vegetate, and to fulfil an important function. They exist by imbibition, forming a *plasmahaut*. A barrier is thus formed, between the noxious agent and the organism; this barrier may go through phases of condensation till calcification, the primitive faculty of such lowly cells, results. When a noxious agent, such as a diffusible toxin or alcohol, enters the human organism, it is as it were a massive substance incapable of being dealt with by phagocytosis alone. There is a gradual development of a certain type of leucocytes of mesodermal origin, in the lymphatic glands, capable of being produced on a vast scale; these are attracted by chemiotaxis to the walls of the blood-vessels throughout. Here they apply themselves to form a *plasmodium*, in order to oppose the undue entry of this noxious agent, and to confine it to the blood-stream, and thus facilitate its elimination by the lungs and kidney, as commonly occurs in the attempted elimination of alcohol derivatives or the purin bodies. The morbid conditions that follow are too well known to need enumeration; they are classified in the syllabus.

FORMS OF FUNCTIONAL FIBROSITIS.

(A) *Reactive and Segregative.*

- (1) Arterial, as in scleroses in general.
- (2) Venous, as in scleroses in general.
- (3) Lymphangitic, as in scleroses in general.
- (4) Mixed, as in Vincent's angina.

(B) *Trophic and Facultative.*

- (1) Replacement, as in original repair.

(2) Mixed, as in callus and cicatricial states.

(C) *Neoplastic and Plasmodial.*

(1) Transitional, as in scar tissue of primary union and sterile encystment, wheals, &c.

(2) Productive, as in cheloid. Regrowth due to non-emergence or nuclei.

(3) Vegetative, as in true fibroma and sarcoma.

(4) Mixed, as in fibroids, scleroderma carcinomata, &c.

It may be objected, that it is more necessary to prevent contamination of the blood-stream itself, this being preeminently the vital fluid, and that nothing outside of the blood matters very much. To this I would reply: the blood is a subsidiary body fluid, and merely a respiratory and excretory provision, and its functions are exercised in the capillary zone, which includes the various organs in that zone. On the other hand, the extravascular plasma or lymph is the primary nutrient fluid of the body, both in a genetic and in a physiological sense, and its functions are exercised away from the capillary zone, and throughout the vaster regions of the tissues where the blood hardly penetrates. But alas! as with phagocytosis, the fascination of hæmatology has overshadowed the consideration of the primary nutrient fluid of the body. "The lymph forms on the one hand an intimate means of communication between the blood and the tissue cells, and on the other it serves as a barrier between them" (Abderhalden). Professor Starling, in a recent treatise to which I shall again refer, says: "In the higher animals the colomic fluid is divided into several categories—that circulating within the blood-vessels, that subject to a slow current in the lymphatic channels, and the more or less stationary fluid which bathes every cell of the body. It is this last—viz., the tissue fluid—which is the most important for the vital activity of the body as a whole." And I would add that the so-called "wandering cells" inhibit this fluid, just as the red cells do the blood-stream; their presence in the blood is of secondary importance, and due in a measure to their vast numbers outside such channels. The end-products of the analyzed food-

stuffs enter the plasma for synthesis, in metabolism; and they do not enter the blood directly. Moreover, it must be recognized that both phagocytosis and "segregation" are extravascular phenomena; so is fibrosis. When the causative factor, toxin or germ, is within the circulation, it is arrested, as if by filtration, in the capillary zone. Here it is that the flotsam and jetsam are cast up, as in the ebb and fall of the tide, and they are dealt with more effectually in these regions. Hence the various interstitial nephrites and hepatites, arterioscleroses; the splenites and fibroses of rheumatoid and purin metabolism. But when these identical noxæ come into contact with the same cells, in proportionately lower grades commensurate with the molecular composition of the cells, they not only fail to disturb the co-ordinate processes of growth, but beneficially stimulate its activities, even to the extent of producing an immunity.

The fibroblast or embryonic fibrous tissue cell is usually looked upon as the parent of the connective tissue cell; I cannot conceive of this relationship. Fibroblasts seem to me to originate from the lymphoid glands under the mucous membranes, or from the large prickle cells of Malpighi in the skin, and they are to be found in granulation tissue in different phases of maturity, as well as in the wheals of insect stings or nettle rash. They are of lower organization than the connective tissue cells, which are fixed cells, and they take part in the general metabolism, while the fibrous cells are transitional, non-nucleated and vegetative in their existence obstructing metabolism. It is conceivable that the so-called plasma cells found in granulation tissue and in fibrotic foci are the emerged nucleated cells of the plasmodium, and they are closely related to the clasmatocytes of Ranvier. Connective tissue cell comes into being from a pre-existing cell of its own kind, is anatomically identical with it, and subserves tensile and supporting functions. The disturbance of growth under abnormal conditions, gives rise to variation in function, and subsequently to structural modification; but the tendency exists for a return to the *statue quo* after the cessation of the disturbing factor, as is

seen in the fibrosis of scar tissue. The normal fixed types of cells, which are in contact with such fibrous cells, undergo adaptation, and in course of time modification.

The primary nutrient fluid genetically is the plasma, secondary to which is the blood-plasma or liquor sanguinis; and it is the former which is solely, if not wholly concerned, in the reactive processes here dealt with. By studying the reactive changes in the lowest and simplest form of life Metchnikoff has elucidated similar processes in the higher animals. He showed, for example, that in the amœba, the nucleus plays an important part in the reaction to external stimuli. By cutting an amœba in two, one particle containing the nucleus, the other not, the wound in both soon closed, healing without visible mark or scar, though the vitality of the non-nucleated portion was briefer, the other continued unimpaired, but both were capable of prolonged existence in their normal environment.

On contact with the cutting edge of the instrument the tactism or law of specific sense, one would imagine, must have been evoked, followed by a condensation of its protoplasm along its free edge, and later by a process of centrifugal streaming of fluid containing proteid molecules, healing of the appendage resulted while in its natural environment.

By the application of a feeble interrupted current to an amœba Miss Greenwood brought about a certain inflammatory condition, followed by a process of exudation or extrusion of clear hyaline, spheres from the surface of the organism. Further, the observations of Stahl on what he has termed trophotropism in the myxomycetes demonstrated the attraction to and the repulsion from chemical elements, such as oxygen and glucose; the former a diffusible and the latter a much less diffusible substance. He threw light on the phenomenon of chemiotaxis, which I am inclined to look upon as an extension of the forces at play within the cell between the nucleus and the ectoplasm of the cell.

It is essential that the constitution of the plasmic fluid in

which all cellular structures are bathed is maintained in proper molecular concentration.

Now these living creatures are made up of solutions separated by walls and membranes which are permeable in different degrees, and between which continual reactive changes are taking place. To know these changes and the actions exercised on them by external influences, and within them by intracellular changes, is to understand the vital processes.

A solution is a perfectly homogenous mixture, consisting of a liquid holding in solution one or more dissolved bodies, which may have been in a solid, liquid or gaseous state. The study of their physical properties led Avogadro to propound a method for determining the molecular weights of such bodies, and this is now known as Avogadro's law. The molecular concentration of a solution is thus defined, and it is found that a solution with a concentration of a gramme-molecule per litre is a normal solution, that which contains $\frac{1}{10}$ of the molecular weight per litre is called deci-normal, and so on. Cryoscopy enables us thus to count the number of molecules contained in a litre of any given solution. It was found that dissolved matter molecules behave exactly like the molecules of a gas in similar solution, that is to say, they have a tendency to diffuse themselves in a homogenous manner, so as to fill all the space that the volume of the solvent affords. And the molecules of matter in solution, like the molecules of a gas, also diffuse themselves in a similar manner, giving rise to what is termed osmotic pressure. This osmotic pressure may be measured with precision by the same method of cryoscopy already referred to. Osmotic pressure is the force which determines the movements and the rate of exchange between solutions in immediate contact or separated by membranes more or less permeable. Substances in solution move from more concentrated regions towards regions less concentrated; while the fluid moves in the opposite direction. This movement constitutes the phenomenon of diffusion, and osmotic pressure is the motive force which, as it were, animates matter in this way and produces diffusion, hence "Brownian movement."

Thus we have the orientation of the matter within the nucleus, which controls similar movement between the nuclear membrane and the cell periphery. The substances termed colloids are known to have very large molecules, their solutions have a feeble molecular concentration and feeble osmotic pressure. The difference between these substances and crystalloids is merely one of degree, and all the properties of one are found in the other. The feeble osmotic pressure of the colloids of the cell, *i.e.*, proteids of every kind, has the greatest significance for biology and medicine. From what has been previously stated, it will be clear that in a liquid all points having an osmotic pressure greater than that of the contiguous parts, hypertonic points, or all points having a lesser osmotic pressure, hypotonic points, than other parts are centres of force, and these points have been called the positive and negative poles of diffusion. It has been shown that between these poles the same dynamic action is exercised and follows the same laws as between magnetic poles of the same or opposite name. Thus the phenomenon of chemiotaxis depends, not only on the chemical nature of the substance, but also on its concentration, and is negative or positive according as the concentration is feeble or strong. I would, however, commend to you Professor Starling's interesting work on "The Fluids of the Body," published this year.

I have endeavoured, in a very imperfect manner, to direct your serious attention to a profoundly interesting and important biological phenomenon which appears to me to elucidate the inception of the commoner fibrotic processes occurring in the body, the significance of which seems to have been entirely overlooked by the discoverer himself, and hitherto we have only heard the term "plasmodium" used in connection with a certain phase of the existence of the malarial organism. Such a new conception will, I trust, afford food for reflection to physiological pathologists and to physicians.

In one of his papers read before the Royal Society, John Hunter, referring to the then recent physiological discovery of the lymphatic system as part of the absorbents, said: "A

discovery in any art not only enriches that with which it is immediately connected, but elucidates also those to which it has any relation." This, I think, radiotherapy has done in this instance.

To pass on to the consideration of the methods of resolving fibrous hyperplasia, briefly, when this morbid condition interferes with the normal functions of organs or tissues. The time-honoured methods of the application of iodine externally, and of the administration of its potassium salt internally have had their day, though the organic combinations of iodine in high dilutions, recently introduced, still remain an aid to the physician, if they are necessarily slow and tedious in action.

By introducing a kathodal stream of sodium chloride into the tissues, joints recently ankylosed rapidly recover their mobility without forced movement or pain. A 2 per cent. solution of NaCl is used; the affected region is immersed in this and connected with the kathode, while one of the limbs is placed in a water-bath to which is connected the anode. The larger the area immersed in contact with the electrolyte, the better. The intensity of the current is gently raised and is well borne up to 100 ma. for half an hour twice a week. Eight to ten such applications usually suffice to restore function. The Cl ions produce dissociation of the proteid molecules of the fibrous tissue cells by uniting with free Na ions in such tissues. The molecular constitution of the proteid elements of the *unfixed* transitional cells is such, that they are in a state of unstable equilibrium—that is to say, they possess numerous unsatisfied side chains which are by this means dissociated and broken off from those molecules that are stable or fixed. The HO ion or the iodine ion may be similarly introduced, and with similar though less tolerable results.

This method of cataphoresis has therefore a wide range of application in fibrotic conditions of the economy. Of actinic methods, the ultra-violet frequencies have the best superficial effects on similar proteid cell elements, but they rarely penetrate

to sufficient depths of the cutis to meet all requirements, and are tedious.

The kathodal or Lenard rays of a Crookes' tube, owing to their deeper penetration throughout the cutis, fulfil this requirement, and thus are best applied around the peripheral margins of such morbid tissues, if the weak granulations are protected by lead foil. The X-rays can, however, be made to include the effects of both the foregoing methods, by judicious filtration through a range of media, beginning with boiler felt and ending with aluminium discs, and they can influence the *unfixed* cells at any depth. But their further selective action for the proteid elements of the neuron, which is a fixed cell, has to be guarded against, in view of the trophic disturbance they thus induce, when applied in excess, indeed, two cases of fatal paraplegia thus occurred in Italy.

This actinic action may be best compared to the decomposition of the silver salts on a sensitized gelatine film exposed to sunlight. In this case the inorganic elements are dissociated at the points of greatest frequency and penetration, and less at other points. The proteid molecules of unfixed cells, owing to their unstable state, are more easily dissociated; and being vegetative, have not the power of being regenerated; the disturbance caused does not give rise to any perceptible stimulus owing to the high rate of speed of the projectiles.

The dissociated products, viz., cholin, methylamin and CO_2 , diffuse with the plasma, and are duly eliminated by the emunctories. The action of radium may be said to occupy a position, in between those that have been described as actinic, but the penetration of its emanations are more limited and less under control than those of X-rays.

The late Professor Huxley, in his address at the International Medical Congress, held at York in 1881, made a remarkable prediction when dealing with the relation of the Biological Sciences to Medicine. He said: "Seeing that the actions called 'vital' are, so far as we have any means of knowing, nothing but changes of place of particles of matter, we look

to molecular physics to achieve the analysis of the living protoplasm itself into a molecular mechanism. Living matter differs from other matter in degree, not in kind; the microcosm repeats the macrocosm, and one chain of causation connects the nebulous original of suns and planetary systems with the protoplasmic foundation of life and organization. From this point of view pathology is the analogue of the theory of perturbations in astronomy, and therapeutics resolves itself into the discovery of the means by which a system of forces competent to eliminate any given perturbation may be introduced into the economy. *It will, in short, become possible to introduce into the economy a molecular mechanism which, like a cunningly contrived torpedo, shall find its way to some particular group of living elements, and cause an explosion among them, leaving the rest untouched."*

EDITOR'S NOTES.

The Achievements of Modern Medicine.

If any one will scan the medical journals of the past decade he will see that the only advances in medicine that justify themselves are those made by the surgeons and the sanitarians. With a trifling exception here and there, every change in surgery has been for the better; the death percentages have decreased, while the good results have increased. Take up a volume of a medical journal printed ten years ago and you will realize what changes have been made since then; but who can say that there has been any of the same sort of progress as is apparent in surgery. Antitoxin is the prize winner among the therapeutics, but it is a very uncertain quantity in the hands of a physician, for it may cure or it may kill; its doubters are growing. Homeopathy is about where it was ten years ago; it has not advanced much, for the reason that there is not much room for advancing in its treatment of the ordinary run of human ills. The man who grasps the full scope of *similia* and knows the indications of the remedies is well fitted to combat disease, none better. There is ample room for the advance of the individual in his knowledge of the Law and its application, but this is a different matter from advancing or changing the Law itself. The others are wandering aimlessly in a therapeutic wilderness. The only road out of it is *Similia*.—The *Homœopathic Recorder*, July 15, 1909.

Longevity and Sanitation.

Bulletin no. VIII of the Census and Statistics Office of Canada consists of two papers read by Dr. Archibald Blue at the McMaster University Convocation and the last annual meeting of the American Public Health Association at Winnipeg respectively. The first paper deals with the effects of modern sanitation, not merely in lowering the death-rate, but in raising the average age at death of the adult population of a country. The two effects, though of course closely connected, are distinct. By a careful collation of the figures derived from registration statistics and census returns, Dr. Blue arrives at some very interesting results. In 1871 the mean age of the living was 23.50 years; in 1901 this had increased to 26.79 years, representing for the population of Canada 17,618,000 more years of life than would have been lived had the average duration remained what it was in 1871. This great increase of

life Dr. Blue claims to be "a gift that Nature has bestowed on a people who have discovered and who submit to her laws." Taking as one group males from 15 to under 65—that is, the wage-earning period of life, Dr. Blue finds that the members of this group increased from 5,422 per 10,000 of all ages in 1871 to 6,074 in 1901. Assuming a dollar a day for 300 days as an average annual wage, this increase in the adult male population represents an increase of \$53,146,200 in the year, which Dr. Blue rightly considers to be a strong argument for the economy of sanitation. Dr. Blue's second paper deals with the sanitary problems to be encountered in the development of the immense new provinces of Saskatchewan and Alberta, in which the population has increased in five years from 419,512 to 808,863, or 92.81 per cent. The need for sanitary education in such a population is exemplified by the fact that only a few years ago a "progressive town" in one of these provinces took its water supply from a river at a point below that at which its sewage was discharged into the same stream! Altogether this pamphlet contains a great deal of interest to sanitarians and statisticians.—The *British Medical Journal*, May 8, 1909.

Declining Birth-Rate in Australasia.

The continued decline in the birth-rate in the Australasian Commonwealth is attracting the attention not only of moralists but of statesmen. We learn from the *Australasian Medical Gazette* that at a recent session of the Victorian Anglican Synod the matter was discussed, and it was decided to invite the co-operation of the Victorian Branch of the British Medical Association in endeavouring to induce the Government to take some steps in the following directions: (1) That the manufacture and sale of preventive or abortifacient drugs and appliances be prohibited by law. (2) That advertisements of such drugs and appliances be prohibited. (3) That accommodation houses, nursing homes, and the like be placed under the supervision of the Department of Public Health. (4) That the police be instructed to report all infringements and suspected evasions of the law. (5) That the Church of England invite all other churches to co-operate with her in a vigorous crusade against an evil which the law cannot cope with unless the moral force of religious belief and action is behind it. (6) That medical men and

chemists (wholesale and retail) be urged to lend their assistance in crushing out of existence practices which must, if allowed to continue and grow, weaken the fibre and minimize the strength and vigour of our national life. (7) That careful and systematic inquiry be made as to the effect of modern athletic exercise on young women.—The *British Medical Journal*, May 8, 1909.

Transmutation or Impurity.

The theory of electrons, which would teach that all elements are fashioned out of one prime material, and that the form which the element ultimately takes depends on an amount of energy represented by more or less electrons, is so attractive that fresh facts which appear to support this view will be welcomed. An experiment described in the *Chemical News* of April 30th at first sight seems to supply some evidence of the resolution of one element into another by exposing it to the influence of high potential discharge. The results are communicated by Mr. Bayard G. Cobb, of Dawson City, Yukon, Canada. Minute precautions were first taken to prepare an absolutely pure amorphous gold by methods well known to chemists. The pure gold was then placed in a tube furnished with rubber corks carrying electrodes connected with the terminals of the high-tension windings of a 10 inch induction coil. A current was passed and a spark was discharged through the tube containing the gold for half an hour, at the end of which time the amorphous element was withdrawn and examined. The gold showed radio-active properties, but, more important still, on dissolving in it aqua regia and examining the solution, copper was undisputably found to be present. The experiment was repeated four times with a similar result every time. Another tube was fitted up, but this time it was made partly vacuum. "On the passage of the current for three quarters of an hour, subsequent solution and analysis the presence of a copper salt was shown in even more marked degree." The electrodes employed were pure platinum. If this experiment succeeds in other hands (and the details and manipulation are so obviously simple that many other investigators will be ready to try it), an easy and striking method of demonstrating the degradation of one element to another, or a re-arrangement of electrons, is afforded us. The suggestion of impurity as an explanation of the presence of copper in the gold is irresistible, though perhaps ungenerous. Still, Mr. Cobb has

promised to continue the work in order to clear up this portentous point. After all there is no reason why, if the theory of degradation is true, we should not, with the great electric energies at our disposal, be able to establish the principle, even if it is only on a small scale. It is the small scale, however, which makes difficult the task of eliminating the question of impurities. In any case, the evidence so far points only to transmutation downwards and not upwards having been achieved, and the latter eventuality would be more exciting to fiscal circles.—The *Homœopathic World*, July 1, 1909.

Flies as a Nuisance.

That flies can convey infection is undoubted, but the question of whether or no they convey the infection of summer diarrhoea has been stated by Sir Shirley Murphy to be still unsettled. But that flies are a nuisance and an annoyance, that they may come straight from a dung-heap or an even worse locality and settle on articles of food or fall into milk or other fluids, is certain, and, moreover, at least one species, *Stomoxys*, inflicts a very painful bite. These facts give special interest to some preliminary reports to the Local Government Board which are now before us on Flies as Carriers of Infection. The final report on the whole subject will be written by Dr. S. M. Copeman and will appear at a later date. The three reports published comprise one by Mr. E. E. Austen on how to distinguish the differing species of flies commonly found in houses—namely, *Musca domestica*, *Stomoxys calcitrans*, and *Homolomyia canicularis*. The difference in the sexes is shown by the relative position of the eyes to one another. In the female they are wide apart, but in the male they are close together. The three species are easily distinguishable by the arrangement of the veinings, on their wings, a point well shown in the illustrations supplied with the report. Mr. Austen also supplies a notice on the various kinds of flies received by him for examination during the summer and autumn of 1908. *Musca domestica* largely outnumbered all other kinds received, but it is worthy of mention that some specimens were received of *Protocalliphora greenlandica*, a species which is not ordinarily found in dwellings. Mr. Austen says that its larvae are evidently imported in sacks of bones received at glue and size works, and that possibly it breeds in these works. It was found in numbers on August 10th in the kitchen of a London County

Council school about 150 yards from works of this description. The last report is by Mr. J. P. Jepson on the Breeding of *Musca Domestica* during the winter months, and the inquiry was carried on in the Quick Laboratory, University of Cambridge. The conclusions were that flies do breed in favourable circumstances such as they are placed in during mild winters, but that whether they do so in ordinary circumstances is uncertain, although it is probable that such is the case in warm places. On the whole, it would appear from the various researches on flies which have been undertaken of late—for instance, those by Dr. W. H. Hamer for the London County Council, and by Dr. J. T. C. Nash—that the poet, be he William Oldys or another, was in error when he sang—

“ Busy, curious, thirsty fly,
Drink with me and drink as I.”

It would be more reasonable to invite the fly to a separate drink of formalin.—The *Lancet*, July 3, 1909. •

Radio-activity and Carcinoma.

Dr. Lazarus Barlow has carried out a striking series of experiments (by the way, the most valuable are nonvivisection experiments), with a view to suggesting that radio-activity is the property *par excellence* that is the cause of cancer. The research is largely in an experimental stage at present, though many striking results have been obtained, but we are somewhat struck by one argument. Dr. Barlow pleads that the fact that some forms of cancer are curable by radio-activity is an argument in favour of the view that radio-activity *causes* cancer, because, he says, “in other cases the agent producing disease is prepotent in elaborating the remedy.” Truly the world *does* move, even the world of medical prejudice.—The *Homœopathic World*, August 2, 1909.

The King in Birmingham.

On Wednesday last His Majesty the King opened the new buildings of the University of Birmingham. His Majesty, who was accompanied by the Queen and Princess Victoria, received a loyal address from the city, in response to which he made a reply dwelling upon the vast industrial expansion of Birmingham and the devoted service of her citizens, which must have been very gratifying to the large assembly. Sir Oliver Lodge, Principal of

the University, then presented an address to His Majesty, in which he dwelt on the indefinite scope of work lying before a modern University. In response to this the King delivered an eloquent testimony to the progress of higher education in his kingdom which has recently taken place, adding that it gave him special pleasure to declare open the magnificent buildings of the University of Birmingham. The proceedings terminated with the usual presentations.—The *Lancet*, July 10, 1909.

The Shot-Gun Prescription.

We are often told that the days of the complicated mixture are over, and that our scientific doctors no longer fire a number of drugs at a disease in the vague hope that one or another may hit the mark. This conclusion is rudely shaken by Mr. J. W. Walton, who, in the *Pharmaceutical Journal*, analyses 2,000 consecutive prescriptions. Of these 1,359 were mixtures, and of these 300 contained 1 or 2 ingredients only, while 330 contained 3, 369 contained 4, 283 contained 5, and no fewer than 98 contained 6 separate ingredients. There were prescriptions also that were made up of 7, 8, and 9 substances. Of the two that contained 9, further analysis shows that the number of drugs was even larger as several of the substances were compounds (e.g. Tinct. Camph. Co.), and the final result showed in one 17 drugs, and in the other 21. We commend to our readers this evidence of the *science* of modern medicine.—The *Homœopathic World*, June 1, 1909.

Thyroidin for Nocturnal Enuresis.

The *Lancet* in May contained a record by Dr. Williams of a most instructive series of cases of nocturnal enuresis. In one very troublesome case of this complaint the doctor was led to give *Thyroid* extract with great, indeed complete, success. Encouraged by this result, he tried the remedy upon other cases and achieved more successes, although failing signally in one instance. Noticing that concomitantly with the cessation of the trouble the general health frequently improved, he gave *Thyroid* extract to a patient who had never suffered from nocturnal enuresis, but was otherwise in poor health. To his astonishment, the drug which had formerly cured enuresis now caused it in a most marked and aggravated form.

From this excellent demonstration of the law of similars Dr. Williams deduces very sound conclusions with regard to the necessity of beginning with a small dosage, and maintains his opinion that had he given a less quantity the one failure of his series might well have been another success. We congratulate him on his cases and his conclusions. The particular symptom of enuresis is not in our pathogenesis of *Thyroidin*, but may now be added, and Dr. Williams has sufficiently demonstrated its homœopathicity to that condition. A letter was addressed to the *Lancet* mentioning that this ability of a drug to cure a condition it could also cause, is a more generally possessed property than is recognised, but although the word Homœopathy was not mentioned the letter was not inserted.—The *Homœopathic World*, June 1, 1909.

Radium in the Treatment of Filariasis.

The role of radium is steadily increasing in extent. At first it was employed only for superficial forms of carcinoma, such as rodent ulcer; its value then in lupus was recognised. Later it was found that the application of radium was of value in reducing the number of vessels in nævi, and it is being employed with much effect for the cure of birth marks on exposed portions of the body. Though doubt has been thrown in the measure of the selective action of radium, all who have employed it feel that it does affect tissues unequally. In the present number of THE LANCET appears a note by Dr. A. A. Warden of Paris on the employment of radium for the treatment of lymphatic obstruction caused by the presence of *filaria nocturna*. For the details of the case we refer the reader to the report, but here we may mention that in the axilla and in the neck were masses of enlarged glands, and that *filaria nocturna* embryos were found in the blood. The enlarged glands were treated by the application of radium, but all the less penetrating rays were cut off by means of lead and other materials, so that only the more penetrating rays could reach the body. In fact, only the gamma rays and the ultra-penetrating beta rays were really employed. By this method the damage to the skin is avoided. The result was very satisfactory, for the enlarged glands for the most part disappeared. The raised temperature from which the patient was suffering also declined, and therefore it is probable that the radium had an influence on the filariæ. Sir Havelock Charles, who saw the patient both before and after the treatment,

agrees that surgical intervention was inadvisable and that the result of the case was most promising for the use of radium. We are probably far from knowing all the possibilities of radium, but it is clear that a weapon of wonderful power has been placed in our hands.—The *Lancet*, July 24, 1909.

Rats and Plague Prevention in Queensland.

The Department of Public Health for Queensland in its plague bulletin for the week ending the month of May stated that with the exception of one case at Mackay in January last the State of Queensland has been free from plague during the present year, and no further bulletins will be issued unless another case occurs. The immunity enjoyed this year by Brisbane after nine successive years—viz., 1900-08—of epidemic plague may be fairly attributed to the continuous and systematic destruction and examination of rats and mice in the periods of freedom from, as well as in the periods of prevalence of, the disease. The experience gained in former years with regard to efficient methods of rat destruction has thus been of great service in preventing a recurrence of the disease during the present year. The last infected rat was found in Brisbane on Sept. 15th, 1908. Since that date in Brisbane 19,503 rats and mice have been destroyed, and although 15,878 of these were examined none were found infected. In other towns of Queensland nearly 15,000 rodents were destroyed and about half of them examined with an equally satisfactory negative result. It is very gratifying to be able to record so practical an outcome of the report of the Indian Plague Commission which established the infectivity of the rat flea in the epidemiology of plague by a series of experiments for which the special credit is due to the ingenuity and resourcefulness of Major G. Lamb, I.M.S. and Captian W. G. Liston, I.M.S. The results obtained in Australia by the application of the lesson which their researches have taught us should be especially encouraging to these officers and their fellow commissioners who are faced in India with almost insurmountable difficulties in applying it to the prevention of plague. We may add that the abolition of the disease from Queensland affords yet another splendid vindication of the experimental method of research. But perhaps the addresses at the approaching Anti-Vivisection Congress will include a threnody upon the slaughter of the Queensland rats and mice.—The *Lancet*, July 10, 1909.

The Fees of our Ancestors.

Under the above title Mr. D'Arcy Power has recently contributed to *Janus* an interesting little paper on the emoluments of physicians at various periods. With the art of a practised writer he at once arrests his reader's attention by reminding him of two physicians whose custom it was never to receive a fee at all—namely, the “unmercenary” saints Cosmas and Damian. At the opposite extreme comes the fee which Mr. Power has omitted to recall—namely, that received by Democedes of Crotona, who as a prisoner was in the service of Darius Hystaspes at Susa. Darius had dislocated his foot at the ankle-joint and Democedes was called in after the failure of an Egyptian surgeon. His treatment was successful, and he was thereupon presented with two golden fetters, a delicate allusion to his position. Having delighted Darius by asking him “whether he meant to double his punishment,” that monarch told him to go through the harem as the man who had saved the king's life. The ladies each gave him a golden vessel piled up with *staters*, so many of which fell on the floor that the slave who conducted him made a handsome fortune by picking them up. He was afterwards called in to treat Atossa the Queen for a mammary ulcer which he succeeded in curing. Such patients, however, as the Great King and his consort, do not fall to every man's lot, though in quite modern times the high feudatory princes of India have paid comparable fees. In the Middle Ages men were more mercenary, and Mr. Power gives an amusing quotation from John of Arderne (*circa* 1370) as to the methods of bargaining with a patient. Arderne's highest fee for the cure of fistula in ano was £40 down, a suit of robes, and 100*s.* per annum during the life of the patient. Patients in the Middle Ages were no more ready to pay their fees than now, and Gilles de Corbeil, a celebrated twelfth century physician, points out in language which must surely strike an answering chord in the heart of the present Chancellor of the Exchequer, that the rich man must pay in accordance with his wealth, though he adds as a saving clause “If his mind is as wide as his purse” then—

“Aggravet hic medicina manum : sumptus onerosos

Exigat : hic positos debet transcendere fines.”

In another place he remarks that it is as well for the physician to demand his fee before the patient is well—

“Tutius esse reor, quod certe novimus omnes,

Dum dolet accipere, vel munere posse carere.”

Mr. Power concludes his paper with an account of eighteenth century fees. Physicians like Radcliffe and Mead charged a guinea; country apothecaries charged much less and made their money chiefly by the sale of medicine. Mixtures, as Mr. Power reminds us, were sent out as draught in one ounce phials with a cork which sometimes had one pill in a box stuck on to it. Draught and pill cost 1s. 9d. As many of our readers will remember, the directions were written on a slip of paper attached to the neck of the bottle, and such a draught in the half light of a sick room bore a ludicrous resemblance to the human inhabitants of a Noah's Ark as manufactured in about 1860, up to which time the custom of separate draughts endured. Readers of Swift will remember the story he tells of Stella. "A quaker apothecary sent her a vial, corked; it had a broad brim and a label of paper about its neck. 'What is that,' said she, 'my apothecary's son;'"—The *Lancet*, July 17, 1909.

German Tours for Medical men.

The ninth German tour for medical men will commence on Sept. 3rd and will continue till the 20th, the work of organisation being conducted by the German Central Committee for Medical Tours (*Zentralkomitee für ärztliche Studienreisen*). The permanent address of the general secretary of this committee is Dr. A. Oliven, Berlin N.W. 6, Luisenplatz 2-4 (Kaiserin Friedrich-Haus für das ärztliche Fortbildungswesen), but in connexion with the forthcoming tour he will from August 28th to Sept. 3rd have an office in the Grand Hotel, Hungaria, in Budapest, to which all communications should be forwarded. The preliminary business will commence on the forenoon of Sept. 2nd in the lecture-room of the Physical Institute in Budapest, when Dr. Sig. von Gerlőczy will deliver an address on the local warm springs, after which visits will be paid to the warm baths of the city and to the Saxlehner bitter water springs, under the guidance of Professor A. von Bokey. The party will leave Budapest by train at 7 A.M. on Sept. 3rd, and will spend that and the three following days in various places in Hungary and Austria, the towns visited on those days being successively Pystain, Trenczin-Teplitz, Siofok, Balaton-Fuered, and, Abbazia. In all these towns visits will be paid to places of medical interest, such as bathing establishments, sanatoriums, hospitals, &c.; receptions will be held, and addresses will be delivered by local notabilities. Leaving Abbazia on Sept. 7th at 7.30 A.M. the party will

proceed by steamer to Venice, where the after-noon and the whole of the next day will be spent in sightseeing and entertainments. On the 9th the party will arrive at Genoa at 8 A.M. and will leave at 4 P.M. by the North German Lloyd steamer *Prinz Ludwig* for Algiers, which will be reached on the 11th at 8 A.M. The five days from the 12th to the 16th inclusive will be spent mostly at sea, when an address will be delivered daily, three of the subjects discussed being cancer, neurasthenia, and the hygiene of health resorts. The steamer is timed to call at Gibraltar on the 12th at 5 P.M. and at Southampton on the 16th at 1 P.M. and to arrive at Antwerp on the 17th at 11 A.M. The last of the formal meetings will be held on board the steamer on the 19th during the passage from Antwerp to Hamburg, where the party will disperse.—*The Lancet*, August 14, 1909.

Typewriting and Metabolism.

The *Journal of Biological Chemistry* for June contains an interesting study of the metabolism of man during the work of typewriting, by Mr. Throne M. Carpenter and Mr. Francis G. Benedict. In the past 30 years there has been a remarkable development in the use of mechanical machines for writing, and the typewriter of the present day has very largely displaced handwriting, particularly in commercial correspondence. The major movements involved in typewriting are much greater than those involved in writing with a pen, and this suggested that there might be a corresponding increase of metabolism as a result of using a typewriter as compared with handwriting, even in the basis of the elimination of energy per 100 words. The typewriter shows a marked increase in speed over handwriting and entails an enormous amount of work, which appears to be done without excessive fatigue by women who are not muscularly as well developed as is the ordinary man. It is important to have some idea of the amount of energy required for writing with such appliances, and the problem is of great interest and serves admirably to indicate the possibilities of accurate scientific instruments for studying questions having a practical everyday value. The general plan of experiment was as follows. The subject entered a special chamber, constituting a respiration calorimeter, usually after a meal, and sat quietly in an arm-chair, with a table before him,

reading for an hour or so until the calorimeter was in perfect equilibrium. At this time analyses were made of the residual air, and the heat measurements were begun. After the resting period the subject used a typewriter, a record being made of the number of words written and the time occupied. Owing to marked differences in the temperaments of the individuals and in the degree of skill in typewriting, a comparison is at best somewhat speculative, but the data obtained afford a general idea of the work involved in typewriting. It would appear that the work of writing from 1500 to 1600 words per hour on the typewriter results in an increase over the resting metabolism of 10 to 14 grammes of carbon dioxide, 10 to 13 grammes of oxygen, and 20 to 30 calories of heat per hour. Of these factors of metabolism it is highly probable that the truest factor is presented by the total energy exchange as directly measured. From the studies of gaseous exchange made by Zuntz and his associates it has been computed that there is an hourly energy expenditure of about 160 calories over and above the resting maintenance requirement of a man weighing 70 kilogrammes walking along a level road at a rate of 2.7 miles per hour. It is clear, therefore, that the work of typewriting calls for very much less transformation of energy than does that of ordinary walking, but Mr. Roosevelt has scientific sanction for his inclusion of typewriting amongst the strenuous activities of life. We have agreed with the ex-President in this estimate, since we discovered that a quarter of a pound weight was necessary to depress one key of a commercial typewriter, which may be considered a standard machine. From the point of view of office life, the exercise appears to us to be a distinct advantage to the operator.—The *Lancet*, August 14, 1909.

Sterility of Ice.

About twenty years ago, Prudden of New York clearly demonstrated that bacteria incorporated into frozen water were not necessarily killed; in other words, that ice may be the means of transmitting disease. Since the time this statement has been accepted practically without question and action has been taken in accordance. Recently, however, Dr. W. H. Park, the well-known New York bacteriologist, has shown that while Prudden's experiments were correct as far as they were made, nevertheless the conclusions are not entirely without question, as his experiments were not sufficiently extensive. Park agrees with Prudden that freezing does not necessarily destroy pathogenic bacteria in a short time. He finds, however, that after keeping for a period of some weeks the ice gradually purifies itself in that the bacteria finally die. He concludes that recent ice is not necessarily more free from danger than the water from which it is formed, but that ice kept for a period of several months is sterile. Therefore, ice that is harvested in winter and consumed in mid-summer can be considered to be entirely innocuous as far as its bacterial content is concerned, provided these experiments are corroborated by further investigation.—*The New England Medical Gazette*, August, 1909.

Medorrhium.

A long article in the *Lancet* by Dr. Eyre and Dr. Stewart sums up the present position of the treatment of gonorrhœa by vaccines. The results of this treatment of the disease with its slightly modified virus are satisfactory, as all homœopaths would expect. From the summary which embodies the conclusions of the doctors we note that: "Small doses repeated at short intervals are more effective than large doses at lengthened intervals." Again, "Small doses of vaccine are safer and more satisfactory" "Vaccines in small doses serve the double purpose of raising and steadying the opsonic index." "The use of large doses in chronic cases with complications is even more dangerous than in acute cases." It is very satisfactory to find our orthodox friends driven by the homœopathicity of their remedy to the smaller dose, and no opportunity should be lost of enforcing the moral that the situation holds.—*The Homœopathic World*, August 2, 1909.

CLINICAL RECORD.

Foreign.

SOME CLINICAL CASES.

BY DR. STONHAM.

CASE I

MRS. J. W., aged 67, came on February 7, 1907, complaining of being much troubled because every night on closing her eyes to sleep she saw ugly faces looking at her; when she opened her eyes they disappeared, to return immediately on closing them. She was also troubled with palpitation on lying down at night, and with heats to the face. Other symptoms were pain in the lumbo-sacral region, which she had had for years, and which was worse on standing and went away when lying in bed. Headache across the forehead, coming and going suddenly, and worse towards evening. Constipation, flatulence, and rumblings. Cold sensations across the abdomen. The feet become hot in bed: she wants to put them out. The choice of remedies lay between *Belladonna* and *Calcarea*. Both see faces on closing the eyes. *Calcarea* is more indicated for ugly faces than *Belladonna*, but both drugs have the symptom. The frontal headache, coming and going suddenly and worse in the evening, indicated *Belladonna*, as did also the heats to the face, but this last symptom also occurs sometimes with *Calcarea*. Both drugs have the back pain, but its disappearance, when the legs were raised level with the body, as in bed, would be an indication for *Calcarea*. The hot feet is also an occasional *Calcarea* symptom, and the cold sensation across the abdomen is found in *Calcarea* and not in *Belladonna*. *Calcarea* was therefore chosen, and *Calc c.* 30, three drops, three times a day, was given.

February 21st.—The patient came saying that all her symptoms were much better, and that she no longer saw faces at night on closing the eyes.

CASE III.

Miss A. G., aged 21, consulted me for supra-orbital neuralgia, from which she had suffered for twelve months or more. The pain was in the right supra-orbital nerve, and came on suddenly about 2 p.m. and lasted till 5 a.m. the next morning. The pain was of a dull character and was associated with sleepiness, was better

for wrapping the head up tight (as tight as she could bear it), was not influenced by her being outdoors or indoors, nor by bathing the forehead with hot or cold water. There was tenderness to touch over the nerve. She was giddy on stooping, which also made the pain worse. She was worse on lying down. The face was pale during the attacks; there was no nausea or vomiting. The hands were cold and clammy during the attacks, and she had cold, clammy feet. Her catamenia began at the age of fourteen, have always been profuse, but more so the last twelve months, fairly regular, lasting five days, with show of many dark clots. Not much pain. No leucorrhœa.

November 16th.—On account of the site of the pain, *Quin-nitrate* 3x pil. ij *ter die* was given, as *Quinine* has a selective action on the supra-orbital nerve.

November 27th.—She told me that the first dose of medicine sent away the pain in ten minutes, but it did not have that effect again. The pain returned the next day at the usual time, and had recurred daily from 2 p.m. till 5 a.m. It has, however, not been quite so severe. She sleeps on first getting into bed, but wakes up in the night with it. Her hands and feet feel cold during the attacks. Her hands habitually perspire with a cold, clammy perspiration, so much so, that when she does needlework she has to wash and dry her hands every ten minutes. The feet also are nearly always cold and clammy. She has giddiness on looking up. The gums of the lower front teeth are very tender to touch and to bite on, and cold air makes them ache. These additional and constitutional symptoms so strongly indicated *Calcarea* that *Calc. c. c.m.* unit dose was given.

November 30th (four days later).—No neuralgia since last consultation.

December 1st.—Telephones to say that the pain has returned this afternoon at 5 p.m. Sent a unit dose of *Calc. c. c.m.* to be taken at once.

January 5, 1909 (five weeks later).—She has had no more neuralgia since taking the last dose.

This case is an interesting example of how a drug which has a specific relationship to a part can influence that part favourably, and yet for want of being truly homœopathic in its relationship the action is only temporary; while another drug, which is not so speci-

fically related locally, can yet, on account of its general homœopathic relationship to the case, effect a permanent cure.

The points about the case which induced me to give the *Quinine* were the locality of the pain, the tenderness of the affected part, the periodicity of the attacks, and the thought that the long-continued excessive menstruation might be a cause. Nevertheless, its action was not homœopathic but that of a stimulant; a glass of wine might perhaps have had the same effect. The *Calcarea*, being homœopathic to the constitutional state, struck deeper and cured. One is apt to lay too much stress on periodicity as an indication for *Quinine* before all other drugs. The fact is that there are numbers of drugs with periodicity quite as well marked. 2 p.m. is a periodic time for *Calcarea* according to Kent's repertory, and this case confirms it; the attacks came on at 2 p. m. every day. I find, too, that *Calcarea* headaches are better for binding the head up, and this was a feature of the case.

CASE IV.

Mrs. A., married, aged 30.

March 20, 1907.—She came saying that she had had a cold and a severe headache came on two days ago at about 11 a.m., and had continued ever since; she has, however, been able to sleep well at night. The pain is in the forehead, which feels full and throbbing; < stooping, jar, movement, cough, moving the eyes; > for hard pressure; not > lying down. The eyes are half closed with the headaches, and there is slight nausea. No vertigo. Bowels constipated. Appetite poor. These symptoms were so typical of *Bryonia* that this medicine was given in the 30th potency, four drops every four hours.

I heard no more of the patient till September 17th, when she told me the headache had got better at once on taking the medicine. She had a repetition of the headache a few weeks ago, and it again went away at once on taking some more of the medicine.

CASE V.

Mrs. C., aged about 70, sent for me on April 17, 1907, for general malaise. She felt run down, had no energy, and very little strength, and had lost all relish for food. She attributed this state of things to the "Spring of the year." There was nothing definite in her symptoms, except that she had the sensation of the tongue being too broad. It was clean and not especially broad in appearance, but she said she felt that it was extremely

broad. The patient was a thin, active, wiry woman, with dark hair and complexion, usually energetic and decided in speech and action. A peculiarity about her was that when out of health the skin round the mouth and over the chin would become almost white, in marked contrast to the brownish hue of the rest of the face; and this was the more noticeable in that the border of the light-coloured portion was very sharply defined. Her ailments had usually been those arising from defective liver action, and her dark hair and eyes and sallow complexion had led me on many occasions to prescribe *Ferrum picricum* 6x for her, and with very beneficial results. On this occasion I prescribed it again, and went home to look up the symptom, "sensation of tongue being too broad." I found in *Kent* the following medicines under the heading "Tongue seems too broad," viz., *Kali bich.*, *Nat. mur.*, *Paris*, *Podoph.*, *Plumb.*, *Puls.*, *Viburn.*, and *Zizia*. Of these *Nat. mur.* and *Pulsatilla* are in heavy type and *Kali bich.* and *Podoph.* in italics. Douglas's tongue repertory gives *Zinc* in addition to *Nat. mur.*, *Pulsatilla*, and *Kali bich.* On April 20th, three days later, I visited my patient again. The usual improvement from *Ferrum picricum* had not taken place. She felt rather worse, and the tongue was still troubling her by its sensation of broadness. I decided to try one of the before-mentioned tongue medicines, but had difficulty in deciding which one it should be. There were no clear-out indications for any one of them, but I remembered that about eighteen months before the present illness I had attended her for some severe neuralgic pains occurring in the front of the left leg along the course of a vein, which were of a hot, shooting character, coming on in paroxysms, not increased by walking, and relieved by cold applications. These pains had been cured by *Pulsatilla* 6. So that notwithstanding the aspect and disposition of the patient were the reverse of those usually indicating *Pulsatilla*, there had been something about her that responded to that medicine. I accordingly selected *Pulsatilla* from the list of drugs having the sensation "tongue seems too broad." She was given *Pulsatilla* 6 m. v. *ter die*.

The result was quite satisfactory; improvement commenced at once, and she felt quite well again in a few days. She also lost the sensation of the tongue being too broad.

It is worthy of note that this patient benefited both from *Ferrum* and from *Pulsatilla* at various times, and that when the one suited

her the other did not. *Ferrum* and *Pulsatilla* have an antidotal action to one another, their action in many spheres being very similar. In my patient the symptoms of this illness were indistinguishable from former conditions which had been put right by *Ferrum pic.* except that there was in addition this peculiar symptom of the tongue feeling too broad. This apparently trivial symptom was yet an indication of a condition of the system antagonistic to *Iron* but yielding to *Pulsatilla*.—*The Homœopathic World*, May 1, 1909.

A CASE OF VARICOSIS.

BY DR. H. BARLEE.

MINNIE H., æt 32, a children's nurse, came to me in Paris on February 14, 1905, suffering from varicose veins in both legs. She was very thin and much run down from the continuous pain. She had had these veins for twelve years and five years ago had been operated for them at Charing Cross Hospital. Mr. Bloxom had performed a double Trendelenburg. This relieved her for a time, but now the veins were as big as ever they were, and the pain very bad. In the popliteal space they were especially bad. She wore elastic stockings, which I advised her to leave off. My first prescription was *Ac. fluor.* 12. b.d. for fourteen days.

Feb. 28th.—Less aching, though there is no diminution in size. Feels much better in herself. To wait four days, then repeat for a fortnight.

Mar. 21st.—Much better; feels well, veins smaller. Cont.

April 4th.—Much better every way. *Ac. fluor.* 30 b. d. four days, three days without medicine, then repeat.

June 6th.—Still improving; all the pain gone from legs, and veins much smaller. The monthly period has been advancing a fortnight at a time, lasting four days—usually clots—and a good deal of pain. *Fer. phos.* 30 b.d. for four days' rest and repeat.

July 3rd.—M. P. came on day after last visit and not since, feels stronger and better every way. Cont.

Sept. 13th.—Still improving; can walk better, veins dwindling. *Fer. phos.* 200 once every second day for a week. Rest five days and repeat.

Nov. 7th.—Still getting better; two days ago ring finger of right hand turned black and is still very dark. Has a good deal of dyspepsia; flatulence after every meal and diarrhœa. *Carbo. veg.* 30 t.d.s for a week.

Nov 15th.—Better; only had two bouts of flatulence in the week. Continue for another week, then return to *Fer. phos.* 200 as before.

Patient continued that medicine off and on till February, 1906, when she was cured of her varicosis; one leg had no trace of veins visible, the other had one small spot the size of a little finger nail.

She never ceased her work, which was arduous, having a very great deal of walking to do.

This case was as bad a case of unbroken varicosis as I have ever seen, and the pain was great.—The *Homeopathic World*, July 1, 1909.

AUR. MET. IN MENTAL DERANGEMENT.

BY H. C. ALLEN, M. D.

In the autumn of 1870 I was consulted by a gentleman of Montreal, in regard to the case of his brother-in-law, who resides in Scotland, and asked if medicine could be sent across the Atlantic with any prospect of success. He had just received a letter from his sister, and from it gave me the following symptoms:

Mr. M., æt. fifty-two, of a healthy family, and had always enjoyed good health. He had been actively engaged for twenty years as a manufacturer of edge tools, and was in financial matters independent. He first became despondent, then melancholy, thought his business affairs were in bad shape, and that he was coming to poverty. From this stage he thought he had committed some great wrong and could not obtain forgiveness. Next he was in mortal fear of being deserted by his wife (who never left him for a day during his illness), and frequently wept on account of it. A terrible insomnia troubled him from the beginning, and every anodyne prescribed for his sleeplessness only made him worse.

He had the best advice (of the kind) to be procured. Of course it was all allopathic, but the medicine appeared to make him worse instead of better, and he soon declined very positively to take any more. Then change of air was advised, and he was taken to the

seaside, and from one watering place to another; but after a time he no sooner reached a place than he wanted to leave again, and sometimes even declining to remain over night. He was first attacked in March, 1870, and it was now September—six months—and he was steadily growing worse, so that an insane asylum was now advised as a dernier resort. Fifteen powders of aurum met. 12th trit. was sent, and one every morning was given in his food. His wife wrote that "from the first time the powder was given she noticed a change." He slept better from the first day the remedy was exhibited, so that when nine powders were taken he was almost as well as ever, and the medicine was discontinued. He remained well for three years, when a slight return was again promptly relieved by aurum, and he has continued in good health ever since. Came out to this country in 1876 and spent three months—was in splendid condition. I have no doubt but a higher potency would have acted quite as promptly, and would not have been followed by relapse. —The *Medical Advance*, May, 1909.

Gleanings from Contemporary Literature.

THE CRIME OF COMPULSORY VACCINATION.

By J. W. HODGE, M. D., Niagara Falls, N. Y.

Medicine, like millinery, has its fashions and fads. Just at the present time the most fashionable and remunerative fad of the old school doctors is compulsory vaccination. As is usual with those who would compel people by law to think and to act as they wish them to, these doctors single out as their victims the weakest and most helpless class of the population, namely, the children in our public schools. This is an illustration of the evil of placing power in the hands of self-interested, unscrupulous and irresponsible men. Let us consider for whose benefit, through whose instrumentality, and on what sort of pretext the compulsory vaccination laws were passed, and by whom they are upheld and enforced upon the defenseless children in our schools. A certain class of self-styled "regular" doctors of medicine who have vested interests in the vaccination project have a pet theory that a perfectly healthy child is a focus of disease and a menace to the health of the community in which he resides, because, say they, he may catch small-pox, and after catching it may convey it to others; therefore, he ought to be compulsorily vaccinated (diseased), after which treatment, say they, for an uncertain, indefinite, unnamable, unknown time he cannot catch small-pox; that is so long as the cow-pox poison continues active in his system. The instant, however, that the vaccinated child regains perfect health, at least so far as to have thrown off the "cow-pox", he is again susceptible to small-pox, and again becomes a focus of infection, and ought to be re-vaccinated, if they could be the judges in the matter.

Thus do the promoters of the "cow-pox" scheme of salvation from small-pox hold up to the credulous public the alleged desirability of keeping the people constantly under the influence of the vaccine disease, lest in their intervals of perfect health they catch small-pox. This delightful scheme, called vaccinal prophylaxy, is of course not carried out on all the people alike, for no legislative body however stupid and ignorant will submit to place itself under the perpetual hand of the vaccinator. Heads of the War Office, Post Office, and those of other governmental departments, may zealously order soldiers, sailors, postmen, clerks, janitors, and other subordinates to be vaccinated at frequently repeated intervals, but the official heads of these departments have no notion of enduring such ordeals themselves; hence no law can be passed for the compulsory vaccination or re-vaccination of the entire adult population. Any attempt to enforce such a law would create an insurrection. Nevertheless, without the knowledge or consent of the public, and without any opportunity for discussion, in some empty legislative chamber, by chicanery or intrigue of some sort, a statute prescribing mandatory vaccination for the pupils

of the public schools of the State of New York was smuggled through and became the law of the land. This absurd and unequal law applies to but one small class of the population. It provides that "No child or person not vaccinated shall be admitted or received into any of the public schools of the State."

This essentially class-legislation furnishes a disgraceful example of the evils of state medicine. It is an illustration of the asinine stupidity and incompetence of law-making bodies who give ear to a clique of self-seeking doctors and "lymph" manufacturers. The operation of such a law can only bring legislators into disrepute and their constituency which they misrepresent into medical bondage. If there must be a law for the compulsory infliction of disease on any one class of the population, one would think it more in accord with reason and justice had this law applied to those who fathered it, leaving innocent little children and the rest of mankind free from the unspeakable outrage of state-inflicted disease.

Legislators should bear in mind when framing medical laws at the dictation of medical fanatics that doctors of medicine, even when honest, are not infallible; that the recorded history of their mistakes and blunders is a sad commentary on the "healing art."

THE BASIS OF VACCINATION-LAW FALSE AND ABSURD.

It would be a simple task to point out the palpable fallacies and the glaring absurdities of the preposterous theory which was used as the basis of this cruel and detestable law which has brought deserved contempt, discredit and odium upon the old school medical faculty; but the point I now desire to make prominent is that no law-making body ought for a moment to give credence to the professions, much less to the statistics of medical men, when the cardinal idea of their favorite doctrine is the asserted danger of perfect health. The preposterous doctrine that the presence of a healthy child in a public school can be a source of danger to any body because of his non-vaccination, and the theory that the common health can be promoted or safe-guarded by polluting the pure blood of the rising generation with the miscellaneous products of undefined disease, are too monstrously absurd to merit a moment's serious consideration. No language at my command is at all adequate to express the absurdity of such a barbaric doctrine. The physicians who subscribe to a theory so utterly silly and preposterous vote themselves monumental dolts or professional knaves.

The modern vaccination-doctrine is not Jenner's invention. That scheming charlatan emphatically and dogmatically declared that cow pox once endured by a person extinguished for ever afterward in that individual all susceptibility to small-pox infection.

JENNER'S THEORY PROVED TO BE FALSE.

But the experience of a few years fully demonstrated that Jenner's confidence was unfounded, that his assumption was false, that many people

contracted small-pox after having had cow-pox ; nor has any proof ever been produced that the diminished prevalence of small-pox in the early part of the 19th century was in any degree due to the introduction of vaccination. Improved methods of treatment employed at that time were sufficient reasons for small-pox becoming less fatal, while the collateral disuse of variolous inoculation fully explained why small-pox became less prevalent. There, both Jenner's doctrine and his practice ought to have been simultaneously abandoned, for never was there a time at which eminent physicians did not protest against both, as they emphatically do at the present day. But, say the supporters of this disease-bearing rite, "Vaccination is sustained by good authority." The answer to this is that "good authority," so called, is not wanting, never was wanting and, probably, never will be wanting to sustain a lucrative project like vaccination. But when we consider that the "authorities" who vouch for vaccination profit by vaccination we should think twice, and more than twice, before we consent to accept their testimony which from its very nature ought to excite suspicion and inquiry.

VACCINATION A TOO REMUNERATIVE SCHEME TO BE RELINQUISHED BY THE COMMERCIALIZED MEDICAL PROFESSION.

But instead of discarding the discredited practice as they should have done the old school doctors tenaciously clung to it and attempted to mend up the false theory, thereby producing a monstrous paradox of which blundering old Jenner might well have been ashamed. When unable longer to conceal or deny the fact that small-pox followed cow-pox, the apologists for Jenner's blunder modified his theory of "life-long protection" into the following : "Small-pox cannot attack the vaccinated so long as the cow-pox poison remains active in his system." How long this activity lasts nobody has ever been able to tell—it is a matter of the sheerest presumption or guess-work. The apologists for the theory assert, however, that the length of time differs in different individuals. Apparently those subjects who are healthiest throw off the vaccine disease, as every other disease, most quickly. Therefore, according to the dicta of these medical dogmatists who profit by vaccination, such subjects ought the sooner to be re-vaccinated. What farcical twaddle ! Do these self-seeking doctors imagine that same people will open their mouths like unfledged birdlings and swallow unquestioningly whatever is offered them? When that logical wit, Mark Twain, declared : "Doctors have made the accumulation of ignorance the business of their lives," he probably had the cow-pox fraternity in mind.

By no torturing of logic or juggling of facts can the "cow-pox" doctors escape the inevitable conclusion that they dread perfect health as other people dread a pestilence. Do these professional tricksters wish to force the people to remember that public health never fills the doctor's pockets while public ill-health always does ?

A HEALTHY CHILD NOT-DANGEROUS TO ANYBODY.

The disgraceful and senseless utterance that a healthy child is a menace to anyone because of his pure blood not having been polluted with corruption from disease beasts, is an insult to common intelligence. Of all the grotesque medical sophistries which for ages have deluded and cursed the human race there has probably been none more pernicious and far-reaching in its evil effects than the monstrous doctrine which assumes that health can be safeguarded by the impliments of disease and death.

COMPULSION WHOLLY WITHOUT REASON OR JUSTIFICATION.

That there should be coercive legislation in support of a medical practice so empirical, devious, dangerous and uncertain as vaccination is known to be, may well excite amazement in the mind of any intelligent and thoughtful person when it is considered that, not only the world at large has always manifested a diversity of opinion as to whether the Jennerian rite be a boon or a bane, a blessing or a curse to the human race; but even the members of the medical profession have never been able to agree among themselves upon this point. Many distinguished physicians after having vaccinated thousands of persons have felt compelled to abandon the practice and bitterly repent that they had ever had a hand in it. Had the acceptance of vaccination been left optional with the people it would be deplorable enough that a certain class of the medical profession recommended blood-pollution of healthy children under the pretext of protecting them from disease; but to force such a baneful practice upon the defenseless children of the poor is a piece of inhuman folly, the injustice and tyranny of which language is inadequate to describe,

It is tyranny compared with which the most extravagant dreams of mediaeval priestcraft were but mild conceptions of despotism. The compulsory distribution of disease by the State ranks among the most odious examples of Stateguardianship which have ever cursed a civilized people. Think for a moment of the injustice and the tyranny of a mandatory statute which prescribes a dogmatic medical creed for the people, and makes the enjoyment of health by the pupils of our public schools a penal offence by denying such children school privileges in case their parents or guardians conscientiously refuse to permit their wholesome bodies to be mutilated by the vaccine lancet, and their pure blood adulterated with a mixture of human and bestial corruption!

Consider the rank injustice of a law designed for the establishment of a barbaric practice based upon the dogmatic creed of a particular sect in medicine! The enforcement of this law is State-medical tyranny of the most odious type. Any law which prescribes submission to a medical creed is an oppressive and a monopolistic law. Every medical practice which invokes the aid of the State for its acceptance and support is a bad practice. Under the blighting influence of such an oppressive law freedom of opinion is strangled and personal liberty burlesqued. Every vaccination-law is a needless and selfishly designed infringement upon the

rights of American citizens. It affords an odious example of the evils of State medicine.

VACCINATION AND ALTRUISM.

The vaunted altruism and pretended philanthropy of the vaccine ringsters and their professed solicitude for the public health are in my opinion a demagogic slogan devised to serve the very end which it seems to have done, namely, to lend color of public interest to their own selfish and greedy purposes, and thus to head off opposition which ought long ago to have nipped their scheme in the bud. All laws for the enforcement of vaccination were passed at the dictation of medical politicians who were actuated by the motive of self-interest and the sordid desire to increase their own lucrative trade. It is to my mind amazing that any legislative body could have been deluded, bribed, bullied or cajoled to pass laws so odious, oppressive, unreasonable and unjust. It is a travesty on the word freedom to use it in connection with a country in which such laws are tolerated for a single day. To my mind, the chiefest medical infernalism of this age is compulsory vaccination whereby an arrogant clique of mercenary disease-grafters is enabled to live and thrive by preying upon the body politic. Such legislation profanes the very name of law and violates personal and parental rights in the most flagrant manner.

VACCINATION SHOULD BE OPTIONAL.

Whether vaccination shall be accepted or rejected is a matter which can be rightfully decided only by the convictions of the individual which should be as inviolable in the domain of medicine as in that of politics or religion. The infliction by the state of this detestable medical quackery upon the children of dissentient parents under the penalty of expulsion from school is an evidence of the decay of the medical and the political consciences of our time. Even if it could be proven that every statement ever made in behalf of vaccination were true, and every objection urged against it were false, there would still be no valid reason for enforcing the rite upon the unconsenting. Every honest man must concede to every other man the same right to the latter's opinion that the former exacts for himself. If any parent does not believe in the vaccine doctrine and prefers that his children take their chances of catching small-pox without such protection as vaccination is assumed to afford, he has an unquestionable right to exercise his own free will in the matter. Once admitted that there is a real risk in the operation which no amount of care can guard against (even if vaccination were a preventive of small-pox,) all ground for compulsion vanishes; for it then becomes a question of parental or individual responsibility, as in the case of any other operation or treatment involving risk to life and health. No surgeon would dare administer chloroform or perform the most trivial operation without first having obtained the patient's consent; and no authority, whether medical or state, has the right to attempt to override a parent's or a patient's scruples. The matter of vaccination should be left entirely to the free will and

choice of the individual, as in the case of every other medical prescription or surgical operation. We should never forget when considering these questions of opinion to ask ourselves: Who has the right to be the judge? Who is there among us so great, so omniscient and so infallible that he can decide the matter for us? No man should be compelled to surrender his birth-right of personal privilege in the choice of his medicine any more than in the choice of his religion. When a man tries to compel you to think and act as he dictates, his desire is to exploit you in some way. He is an egotist and an impostor, actuated by entirely selfish motives. Pay no attention to him. Insist upon your right to think and to choose for yourself. Mental liberty is the most precious of earthly boons, worth all the blood and agony it has cost past generations, all the responsibility it entails upon posterity.

DOCTORS NOT INFALLIBLE.

We should all remember that the doctors are neither omniscient nor infallible, that the history of their mistakes and blunders would fill as large a volume as would the mistakes of law or those of theology. In medicine as in theology very little is definitely settled, and the laws of progress require that the state leave all questions pertaining to either subject open for discussion and experimentation, giving everyone the right to believe or accept any system or none.

THE VACCINATION-LAW WORKS INJUSTICE TO INNOCENT CHILDREN.

It has never been shown that a healthy child is a danger or a menace to the pupils or the teacher in a school. Therefore, to deprive such child of school privileges be cause of his non-vaccination is to do him a wrong and an injustice. Of himself a child could not be expected to go to a physician and ask to be vaccinated. All his instincts are averse to the operation. If anybody is guilty of violating the law it is the parents or the guardians of the child. If they are guilty of a crime let them be fined or imprisoned, but there is no precedent in American jurisprudence for visiting a hardship upon a child because his parents or his guardians have disobeyed a law. This point is covered by constitutional law which expressly provides against "strange and unusual punishments." Still, in this land of boasted freedom the federal Constitution is daily violated in the persons of the most innocent and helpless classes of the community, the little children in our public schools

EVERY VACCINE OPERATION IS A BLIND AND DANGEROUS EXPERIMENT UPON THE HEALTH AND THE LIFE OF THE VACCINATED.

The practice of vaccination is fraught with evil consequences beyond computation. Every vaccine operation jeopardizes, to some extent at least, the life of the vaccinated.

Nobody can know in any case of vaccination what the result will be until after the experiment has been made. The compulsionists themselves admit the truth of this statement. Dr. S. Monckton Copeman,

the high priest of the cow-pox cult of England and one of the world's ablest defenders of vaccination, frankly admits: "We have no means of judging the effects of vaccine except the clinical test." I am aware that there are vaccinists so ignorant or so unscrupulous as to deny that there is any danger at all in vaccination. It is not an unusual occurrence that some recently fledged bumptious medical squirt who holds salaried position on a "health board," blatantly proclaims in his official report that he has performed thousands of vaccinations and has yet to witness the slightest evil effects from the practice. Variolators used to say the same of their practice until vaccinators arose and convicted them of lying. When arm-to-arm vaccination was in vogue, the vaccinators stoutly denied that there was any danger worth mentioning in the practice; but where is the doctor to-day who dares say there was no risk in a practice by which so grave a malady as syphilis was transmitted?

No vaccine substance at present obtainable can be guaranteed free from danger. Any guarantee of the harmlessness of any one of the numerous stocks of "lymph" now in use for vaccinating purposes is absolutely refused by all "lymph" purveyors as well as by every doctor who practices this empirical art. Were the vaccinators required by law, as they should be, to guarantee the vaccinated against small-pox infection and to indemnify them for all vaccinal injuries sustained, they would soon abandon the deplorable practice out of motives of self-protection; but so long as the dupes of this horrible fetich will take the risks the doctors will take the fees and continue to spread disease, under the pretext of preventing disease. It is considered reasonable and charitable to forgive all men for the unintentional commission of error. If a medical man kills his patient while exercising ordinary care and skill in endeavoring to cure him, he is excusable and ought to be forgiven; but what are we to say of the medical men who, knowing that they are not infallible, arrogantly claim and wield a power which only infallibility should ask for, by compelling defenseless children to run the risks of serious injury and even death by forcing upon them through the machinery of the law a disease-transmitting operation like vaccination?

VACCINATION IS A DISEASE-TRANSMITTER, NOT A DISEASE-PREVENTER.

Vaccination sows the seeds of disease. To vaccinate is to designedly impart disease to the presumably healthy subject; it is to do *positive evil* under the blind persuasion that *hypothetical good* may come. The principle and the practice of vaccination involve the deliberate and intentional introduction of morbid infective poison at least twice, and according to numerous authorities, many times into the human organism. This morbid poison sets up a distinctly pathologic process, causing an undeniable impairment of health and vitality. It is an operation which can only injure health and thus increase liability to small-pox and other diseases. This fact furnishes a reasonable explanation as to why small-pox has always seized the vaccinated first in variolous epidemics.

How any reflecting mind can assent to the efficacy of an operation whereby the infective elements of disease are designedly mingled with the pure life-current of health is to my mind incomprehensible. This operation is so peculiar in its nature, so anomalous in character and so much at variance with all accepted hygienic and sanitary precautions that it cannot, except by the sheerest abuse of language, be classed with hygienic and sanitary measures. It is conceded by the vaccinists that they do not know the original source, the character, the identity or the etiology of the vaccine disease that their is no standardized "lymph," no vaccine substance obtainable that can be guaranteed as free from danger. Nevertheless these foxy doctors complacently "pull the wool over the eyes" of the gullible public by discoursing glibly about "pure vaccine," when they well know, or should know, that there is no such thing obtainable. Even if there were any vaccine substance entitled to the epithet "puré," the vaccinists, by their own admissions, have no criterion by which they can distinguish the *pure* from the *impure*. By what casuistry of reasoning, I ask, then do these men expect to justify their arrogance in attempting to foist their dangerous quack-nostrum upon the unbelieving and uncousenting? The fact that serious illness and even death have not infrequently resulted from vaccination in the hands of experts is now admitted by the defenders of this healthblighting operation, although it was for a long time strenuously denied. Thousands of healthy children have admittedly been done to death by the vaccine treatment. Vaccinal tetanus, a uniformly fatal disease, vaccinal erysipelas and vaccinal sepsis—not to mention a score of other formidable maladies which have been carried on the point of the vaccine lancet—are matters of not infrequent occurrence wherever vaccination is extensively practiced. In view of these grave dangers and unforeknowable disasters incident to the cow-pox practice, I submit that it is intolerable tyranny for the State to step between the parent and his child and insist that his healthy child shall incur the ghastly risks of the vaccine operation rather than be allowed to take the remote chance of catching small-pox, a disease to which he may never be exposed, a disease to which nobody can foreknow that he is susceptible. The State can have no moral right to require parents to submit their healthy children to *certain* bodily injury for a *purely hypothetical advantage*. Nevertheless, by a corrupt system of state-medicine behind which stands the arrogant old school medical trust, styled "The Amerian Medical Association," this health-blighting, death-dealing, money grabbing medical practice, is inflicted upon the helpless children of the poor

We have a law to prevent the sale of diseased meat as an article of food. Meat used for food is subjected to the process of cooking before being eaten. But if diseased meat even after having been thoroughly cooked is still dangerous to health when taken into people's stomachs, what must be the danger to life and health when the extract of uncooked

diseased veal is thrust directly into the circulation of young children? What could be more illogical, irrational and inconsistent than the provisions of another law which prescribes the coercive inoculation of the morbid elements of diseased veal into the life-stream of healthy children before they can be taught in our public schools?

NO DEFINITION OF VACCINATION AT PRESENT AVAILABLE.

More than a hundred years of frantic efforts and cruel experimentation have failed to bring forth a scientific or an intelligible definition of "vaccine lymph." At the present moment there is no consensus of opinion as to what the stuff is. Dr. Jenner dogmatically declared the greasy heels of ill-kept horses to be the original source of the true and genuine vaccine lymph. Vaccine stocks derived from all other sources he emphatically denounced as "spurious" and "nonprotective." It is a curious and noteworthy fact that the particular kind of lymph pronounced by the "immortal" Jenner to be the *only genuine* sort is not now used at all by vaccinators in any part of the world. In fact the whole basis of Jennerian vaccination has been swept away and Jenner's plainest teachings are flouted by all present-day vaccinators.

WHAT IS, SO-CALLED, "PURE CALF-LYMPH"?

The material now in general use for the purpose of vaccination in this country and in Europe is not the cow-pox used by Dr. Jenner. It is not cow-pox at all. It is small-pox contagion, plus other morbid impurities derived from the diseased human subject and transplanted upon and cultivated on the shaven abdomen of the calf. So-called "pure calf-lymph," therefore means small-pox contagion cultivated on the belly of the calf plus various other disease-products picked up in its transmission through the bodies of man and beast.

I have in my possession a letter from Dr. H. M. Alexander & Co., proprietors of the Lancaster County Vaccine Farms, at Marietta, Pa. This letter, which bears the date Oct. 25, 1906, is a reply to my inquiry as to the source and nature of the seed-virus used by the Dr. Alexander & Co., in their propagations. From this letter I quote the following: "Dear Dr. Hodge: In response to your query of the 22nd inst., we beg to state that vaccine virus or its active principle is a subject about which very little is definitely known. It was thought by Dr. H. M. Alexander, the founder of our establishment, that he had discovered a case of spontaneous cow-pox, and we have been using as one of our strains of seed-virus this source for nearly twenty years. It later developed, however, that the case referred to evidently was inoculated by a tramp having small-pox and who slept in the stable."

So there you are. Small-pox contagion transplanted from the diseased body of a tramp to a cow furnished the seed-virus which has been used by the Dr. Alexander & Co., for more than twenty years in propagating supplies of "spontaneous cow-pox" which the doctors have purchased and inoculated into the pure blood of healthy children under the pretext that

it would protect them from small-pox. This is a specimen of that delightful stuff which the doctors so blatantly palm off upon the gullible public as "pure calf-lymph." To infuse such morbidic filth (tramp small-pox and what not) into the life-stream of a healthy child under the pretext that it is a benign and salutiferous substance derived from a healthy calf is a crime. To call it by any other name is to temporize.

THE STATISTICAL ARGUMENT FOR VACCINATION UTTERLY
WORTHLESS.

The apologists for the crime of coercive vaccination pretend to argue from statistics; but all people of good sense know that statistics in the hands of self-seeking official doctors who have power to dictate what particulars shall be made prominent and what suppressed or concealed, can be manipulated in such a manner as to appear to prove anything desired by the manipulators. Of all the modern misuse of statistics, nothing can approximate the statistical jugglery of the "cow-pox" promoters upon which the alleged value of vaccination wholly depends for support. The making of these statistics is largely in the hands of medico-politicians whose salaries and official positions make it almost a necessity that they maintain the reputation of the state-established practice. These statistics are unfortunate as proof for two principal reasons: first, as just stated, they are prepared by the partisans of vaccination, which fact makes the evidence *ex parte*, and thus invalidates it; secondly, statistics when fairly recorded and impartially considered prove the very reverse of that which the vaccinists claim.

In considering vaccination-statistics, it should be constantly borne in mind that the statements summed up in them are the statements of the parties to the controversy who are financially, personally and professionally interested in the maintenance of a remunerative business enterprise. The interests created by the state-endowment and enforcement of the "cow-pox" practice deprives its medical advocates of all judicial authority on the subject. The emoluments distributed among the members of the commercialized medical profession by reason of compulsory vaccination disqualify these doctors to form an independent or an unbiased opinion concerning this practice which they are pledged to defend. Doctors are not angels. They do not wear wings. They are just ordinary human beings who walk the earth with the rest of humanity and are subject to the same earthly influences as are other people. Doctors are just as susceptible to the charms and allurements of the almighty dollar as are the members of other professions and callings by which men gain a livelihood. Of course there is no reason why a doctor should not be concerned about his income and his other economic affairs so long as he does not attempt to invade the rights of other people in trying to advance his own selfish interest; but it is disgraceful and contemptible for medical men to make pretensions to an altruism and a philanthropy which they do not possess, and which nobody expects them to possess, for the furtherance of their

own selfish schemes. Regrettable as it is to have to say so, the protection of the public from small-pox is but a mask used to hide a selfish scheme of power and profit on the part of the clique of mercenary doctors who are pecuniarily interested in spreading disease among the people.

Who can doubt the truth of the statement that the vaccination-laws were framed and passed for the benefit of the doctors and vaccine producers rather than for the protection of the public health, as they were professed to be? I do not charge the medical profession as a whole with these unworthy motives and mercenary schemes, but I do warn the public that they need not expect, and will not receive, the truth about vaccination so long as the making of statistics on that subject remains in the hands of a coterie of self-seeking doctors who are pledged to uphold this remunerative practice. It would be as reasonable to expect protected manufacturers to advocate free trade as to expect those whose professional prestige and pecuniary advantage are involved in the Jennerian rite to speak the truth about vaccination. Let us be reasonable. We should not expect from average human nature the virtue of its rarer forms. Like all other monopolies, vaccination endowed and enforced by law is defended with unanimity by its self-interested advocates.

Were statistics pertaining to the effects of alcoholic beverages upon the health and morality of the people who are addicted to their use prepared by saloon-keepers and distillers, where is the sane man or woman who would confide in such statistics? Is it not irrational, then, to expect that those who depend for a livelihood upon disease and ill-health will be free from bias in favor of a disease-transmitting operation which is an unfailling source of revenue to themselves and their colleagues? It is well to be charitable, but charity does not imply imbecility.

THE BASES OF THE VACCINATION ENTERPRISE ARE FALSEHOOD,
FRAUD AND POISON.

While it is unanimously conceded by vaccinologists and pathologists that they do not know the original source, the nature or the essential constituents of any one of the vaccine substances now in use, all must know they contain decaying animal matter which is itself a poisonous substance in which may lurke, undetected and undetectable, the elements of loathsome and fatal diseases. Nevertheless, vaccinating doctors and "lymph" purveyors have the audacity and the effrontery to proclaim that these complex products of undefined disease are simply "pure calf-lymph." It is the custom of the vaccinists to thus deceive the people by keeping them under the false impression that vaccine "lymph" is a beneficent gift of Nature, that it is a physiological product of a healthy cow or calf, that it is as harmless and wholesome as a dairy product such as milk, cream or butter. The manufacturers of the filthy stuff meudaciously label it "pure calf-lymph," although they well know that pure calf-lymph is obtainable only from festering sores on diseased beasts while

suffering from the effects of the contagion of human small-pox which had been inoculated upon them.

The heterogenous mass of morbidic animal poisons misbranded "pure calf-lymph," is so corrupt and so loathsome that the doctors who prescribe it and dispense it dare not call it by its true name lest they should disgust the public and discredit their lucrative nostrum. Every intelligent doctor knows that the stuff styled "pure calf-lymph" is *not pure*, because it is *corruption*: he knows that it did not originate with the cow or the calf, and that it is *not lymph*. It is a *pathological* not a *physiological* substance.

The foregoing criticisms have no application to the high minded self-sacrificing members of the medical profession who are striving to alleviate human suffering and restore the sick to a state of health. For this class of physicians the writer entertains only sentiments of admiration and respect. He gives way to no one in his esteem for these faithful physicians who are striving to save human life. These physicians do not belong to the class of doctors who spend their time in besieging legislatures for the passage of compulsory disease-laws in order to aggrandize themselves and increase their own revenue at the expense of the public health. The endeavor of the true physician is to *restore health* to the sick, not to *impart disease* to the healthy.—*The Medical Advance*, April 1909.

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IS VACCINATION A MEDICAL QUESTION?

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In these days of political graft and mischievous medical legislation by which the practice of vaccination is being pushed to the front on all occasions by a privileged class of self-seeking medical men, and its acceptance by the people made compulsory by the State, this matter is brought prominently before the public mind as a subject for earnest consideration. In the discussion of this important question now before the American people, the attempt is persistently made by the promoters of the Jennerian imposture to withdraw their practice from popular discussion. These medical dogmatists set aside the right of private and independent judgment on the part of the people concerning this matter so intimately related to the health and the lives of the rising generation. In attempting to justify their mercenary aggressions on the liberties and the intelligence of the people, the cow-pox doctors arrogantly assert that vaccination is a medical question for medical men; but the assertion provokes suspicion rather than confidence, for mystery is an invariable note of imposture.

VACCINATION AN EASY ART.

It is fair, I allow, to say of any abstruse, scientific question that it can be apprehended only by those whose faculties have

been specially trained for its apprehension; but what is there abstruse or scientific about vaccination? With a little trouble everybody may know as much about it as anybody knows. It is the simplest of surgical operations. It is almost as easy as taking pills. Instead of putting the poison down the throat, it is inserted into the skin. To be sure the operation may result in any number of pathological complications, but whether such complications be admitted or denied, that for which vaccination is prescribed, namely, the prevention of small-pox, comes clearly within the range of common observation and common intelligence.

DOCTORS NOT THE BEST JUDGES OF THE RESULTS OF
VACCINATION.

A common misconception on the part of many credulous and misguided people who have no real knowledge of, and no positive convictions on this subject is, that as vaccination is a surgical operation to guard against a specific disease (small-pox), medical men only are competent to judge of its value. But the fact is that the very reverse of this idea is true for several reasons. In the first place the doctors who vouch for vaccination are self-interested partisans of the rite, not only in a pecuniary sense, but also as affecting the prestige of their profession. In no other case would the people allow self-interested parties to decide so important a question for them. Whether iron-clad ships are safer than wooden ones is a question not decided by iron-masters or ship-builders but by the experience of mariners at sea and by the comparative statistics of loss. In the administration of a drug or other remedy for a disease, the doctor applies the remedy and notes the result, and if he has an extensive practice and is a careful and accurate observer he obtains clinical experience and a special knowledge not possessed by a layman. But in the matter of vaccination, and especially of public vaccination, the case is entirely different; the doctor administers the vaccine poison but does not see the results of his work except by accident. Those who get small-pox go to the quarantine hospital, or are treated by other

doctors in the places to which they have been removed since having been vaccinated, so that the relations between the vaccinations and the attacks of small-pox are lost sight of. These relations could only have been ascertained by the accurate registration of all the cases of, and deaths from small-pox with the facts as to vaccination and re-vaccination. When such facts have been accurately registered, to decide what they teach is not the province of a *doctor* but that of a *statistician*, and there is abundance of competent evidence on record to show that doctors are bad statisticians and evince a special aptitude for mis-stating figures in favour of vaccination.

I submit therefore, that the position taken by those who assume that vaccination is a medical question which only doctors are competent to decide is palpably absurd, unreasonable and untenable.

MEDICINE NOT AN EXACT SCIENCE.

If medicine were an exact science, and there were no vested or pecuniary interests to bias the minds of medical men, the question as to the value of vaccination might with some show of reason be left entirely to the profession to decide. But medicine is *not* an exact science, and that branch of it, therapeutics, which pertains more especially to the prevention and the cure of disease, is still almost entirely experimental or empirical. The truth of the above statement is fully vouched for by the great number and diverse methods of conflicting schools of medicine now in existence. These cannot *all differ* and *all be right*; for truth and science when discovered, never fail to harmonize all conflicting ideas.

VACCINATION AND MAMMON.

In considering the motives which actuate medical men in their persistent endeavors to uphold the Jennerian operation we must not overlook the emoluments of vaccination. As to bias of judgment, it is perhaps enough to say that the members of the medical profession are *human*. When we stop to consider that the practice of vaccination involves the transfer of millions of dollars annually from the pockets of the people to

the members of the medical profession, and that the pride of opinion alone, aside from mercenary motives, might be sufficient to prevent the open acknowledgment and voluntary abandonment of this stupendous error and fatal malpractice to which the rank and file of the orthodox regular profession have been committed for more than a hundred years, the people can readily see that it is clearly "up to" them to investigate, think and decide for themselves.

DOCTORS PREJUDICED IN FAVOR OF VACCINATION.

The vaccination-dogma is an article of faith, a medical creed which is taught to all students of the "regular" school of medicine, just as ecclesiastical dogmas are taught to students of theology. It is therefore obvious that the intellectual bias of doctors in favor of the dogmas and theories which were instilled into their minds by their teachers accounts very largely for the faith they profess to have in vaccination. As bearing on this point, I quote from Dr. Crookshank, Emeritus Professor of Pathology and of Bacteriology in King's College, London, Eng., the following extract.

"Unfortunately a belief in the efficacy of vaccination has been so enforced in the education of the medical practitioner, that it is hardly probable that the futility of the practice will be generally acknowledged in our generation, though nothing would more redound to the credit of the profession and give evidence of the advance made in pathology and sanitary science." (Vide, *History and Pathology of Vaccination*, by Edgar M. Crookshank, M.D., A. B., Vol. 1, pp. 465-466).

It is quite evident that the intellectual bias of physicians in favor of the dogmas and theories which were instilled into their minds by their teachers, accounts very largely for the faith medical men profess to have in vaccination.

A shallow argument commonly advanced by the advocates of vaccination is that it would be difficult to find a university medical professor who espouses the cause of the anti-vaccinists. The answer to this argument is that it would be equally difficult

to find a professor of theology who espouses the cause of free-thinkers or of free-thought. The reason for non-compliance in both cases is the same, intellectual bias and an unwillingness to run counter to the dogmas and theories they are paid to uphold.

In this age of ultra-commercialism, of privileged plunder and corporate greed, when doctors are "stamping in" disease under the pretext of "stamping it out," when medical trusts and combines "hold up," and poverty and politicians "hold down," when inoculated corpse-lymph from human cadavers and diseased calves is making millionaires of vaccine manufacturers and corpses of our children, when the practice of medicine, with a certain class of doctors, consists in getting the people's money in any way which will not land them in the penitentiary, the people should realize that the responsibilities of citizenship in a democratic state are greater in these days than ever before. They should comprehend the duties of parents to their children, which duties transcend in importance their obligations to any particular class of society, or to any monopolistic laws enacted without their cognizance at the instigation of a persistent faction of mercenary medical men who are pecuniarily interested in the vaccine practice. The people's own unbiased judgment on this question is likely to be far nearer right than the prejudiced opinion of medical politicians who have selfish interests in controlling them. There was a time when the practice of the "healing art" was regarded as an honorable and a beneficent profession, but it is regrettable that of late years medical practice has become so commercialized that many doctors evince a desire to convert the art of healing the sick into a trade for the transmission of disease to the healthy, under the delusive watchword of "preventive medicine," and under the hypocritical pretext of a solicitude for the "public welfare." The vaccinating doctors would fain increase their business by inoculating the contagion of disease into the blood of all healthy people and thereby bring the entire population within the sphere of their lucrative trade.

*

HEALTH THE BEST DEFENCE AGAINST INFECTION.

The world's most distinguished sanitarians assure us that there is no other defence against the invasion of disease so efficacious as a sound body and vigorous health, while the vaccine inoculators strive to persuade gullible humanity that disease is a necessary and desirable thing to have, that it is only by the products of disease professionally administered to healthy people that the human body can be fortified against otherwise inevitable attack. The hygienist and sanitarian on the other hand strives to protect the temple of health from the invasion of disease-elements; he watches over nature's supreme gift of a sound body and good health as a faithful guard watches over a castle. The vaccinist, on the contrary, attacks and assaults the sound and healthful body with lancet and scab, wounds the natural barrier (the skin) against infection, and infuses into the pure life-blood of the dimpled babe the contagion of disease.

So long as people can be deluded into the acceptance of a practice so preposterous and pernicious, and so long as doctors depend upon disease and its treatment for their livelihood, just so long may we expect the supply of disease to meet the professional demand therefor. This is one of the established principles of trade, and the healing art cannot, under any shallow pretext, claim exemption from its operation. All trades and professions fulfil the law of their existence by striving after advantages and extension. The art of disease propagation has already attained such formidable proportions that the names of diseases inimical to human life have reached a sum total which it is appalling to contemplate. The human race, while groaning under the grievous burden of its own diseases is having added to its own stock the diseases of the brute creation. The most recent addition being the "foot and mouth disease" of cattle. This medical crime of inoculating the products of bestial diseases into the healthful human body is being committed in the name of "public health" under the sanction of the law. This is a common subterfuge. All

measures designed to promote a special interest, or to perpetuate an existing evil, are labelled for "the public good." Through the instrumentality of priest-craft theological dogmas are imposed upon the people through the machinery of the law, while through the instrumentality of the doctor-craft, medical bigots are similarly imposing their senseless dogmas and disastrous practices upon the unbelieving and unconsenting.

This is not the first time that human history has been sullied by such outrages. The souls of men were at one time thought more important than their bodies. The priests under the pretence of caring for the soul established an inquisition which reached the minutest details of private life. The pretence of clericalism was the care of man's soul. The pretence of Jennerism is the care of his body. In both cases the real object of these despots is self-interest. No ecclesiastic ever traded more energetically on the imaginary terrors of hell than the vaccinists of to-day trade on the imaginary terrors of infection.

The grievous scourge of vaccination, which for more than a century has afflicted the people, should long ago have awakened them to a realization of the fact that life and health are matters of too grave importance to be exclusively entrusted to anybody's hands but their own. Matters pertaining to the health of the people should never be delegated to the custody of doctors who are pecuniarily interested in the propagation of disease.

VACCINATION NO LONGER A MEDICAL QUESTION.

I allow that vaccination may at one time have been a medical question for medical men, and might have remained such to this day had the doctors been content to practice their empirical art upon those who desired it, just as they prescribe and practice other medical measures and surgical operations from time to time as circumstances seem, in their judgment to call for them; but from the moment that the doctors took their medical prescription and incorporated it into a state legislative act, and by that act made it mandatory upon the people to accept it against their will, they then took the matter, once and for

all, out of the exclusive hands of the profession and placed it in the hands of the people where it now is. In the discussion of this question it should be borne in mind that whenever a medical prescription is written in the statute books it becomes essentially a political question upon which every individual citizen is entitled to the free exercise of his own private judgment.

As a medical prescription, accepted at discretion, vaccination might have survived unquestioned and paid for, but its translation into an aggressive statute removed it from the safe realm of professional mystery into the jurisdiction of common sense and common observation, and thus made it a matter of every man's business. At the time that the acceptance of Jenner's nostrum was made a subject for legislative enactment, it ceased then and there to be a subject for medical dictation. The medical dogmatists who profess a belief in the supposed efficacy of inoculated disease as a hygienic measure are free to entertain whatever absurd notions they please, but when they proceed to force their notions upon the unbelievers and dissenters, they cannot reasonably complain if they are required to answer for their aggression and to encounter rough usage at the hands of those whom they seek to dominate and oppress. Enforced by the law of the State, vaccination became intimately related to the life and the intelligence of every citizen, and it is therefore vain to claim for its exemption from vulgar discussion. Apart from its compulsory infliction, vaccination might be, and remain an esoteric rite; but with compulsion, the privilege of sanctity is lost.

It then becomes a *people's* question and one which, as a subject for legislation, the common people are as competent to judge of as is the most learned physician, and in many cases far more so. I submit, therefore, that when vaccination was translated to the domain of politics it was thus made every man's business; whilst the interest created by its endowment and enforcement deprives its medical advocates of all judicial authority in the controversy as to its alleged efficacy. Take away first the coercive law, then take away the state

endowment and the professional emoluments of the practice, and when these have all been removed, and not before, will the now self-interested partisans of the Jennerian operation find themselves free to discuss the question of vaccination on its merits; but just so long as laws for the infliction of this disease transmitting practice upon the unwilling and the unconsenting continue in operation, and so long as the people are taxed to support it, they have the common right of investigation, free discussion and individual judgment.

As a medical tenet or dogma, the people might readily leave this question to the medical "authorities" to dispose of; but when the machinery of the law is invoked by the self-seeking promoters of this practice to make its acceptance by the people obligatory, then the people have an unquestionable right to know what they are getting for their money. Since vaccination has become endowed and enforced, it is futile and foolish to try to reserve it from popular discussion. Since healthy children are denied school privileges in case their parents refuse to submit them to this health-blighting, death-dealing operation, it becomes the stern duty of all parents to satisfy themselves as to the character of the operation for which they are taxed, and with which their children are menaced; and should their convictions be adverse to its asserted utility and safety, they could not do their children a better service than by bearing testimony of open resistance against it. I admit that the origin, character, nature and action of the various viruses and so-called "vaccines" and "lymphs," are mysteries, and might remain mysteries with general indifference; but when it is claimed by a faction of impetuous doctors that the inoculation of these infective animal poisons into the bodies of healthy children will prevent small-pox without removing its contributing causes, and that whosoever refuses to submit his healthy child to said inoculation must incur the hardship of having such child deprived of school privileges, then the matter is brought clearly within the jurisdiction of every parent and guardian in the state, and he becomes entitled to the fullest information, to the unrestricted expression

of his opinion, and to the full and free exercise of his own private judgment in the matter.

As a *mystery* vaccination belongs to professional experts, but as a *state measure* for the proposed prevention of small-pox, it comes clearly within the jurisdiction of all who can observe and appreciate the evidence of figures.

VACCINATION A STATISTICAL QUESTION.

While it is fanatically asserted by the doctors who are peculiarly and professionally interested in maintaining the practice of vaccination imposed upon the people, that it is a question which belongs exclusively to the medical profession, that the people have no business with it, but to accept it unquestioningly and to pay for it liberally, yet these self-same doctors, with their characteristic inconsistency, declare that they rely on statistics alone for its maintenance. Dr. W. B. Carpenter, than whom there has probably never been a more enthusiastic and able advocate of vaccination, in a paper defending the rite, said: "Over the door-way leading into the temple of vaccination should be written: *Whoever enters here leaves science behind*" "Is vaccination a preventive of small-pox," asks Dr. W. A. Guy, F. R. C. P., another distinguished defender of the Jennerian doctrine, and he replies: "*To this question there is, there can be no answer except such as is couched in the language of figures.*" The language of figures is statistics, hence *statisticians, not doctors*, are the only competent judges of this question. Testimonies similar to the above are to be found in the writings of Sir John Simon, M. D., as well as in those of scores of other high priests of Jennerism. It is thus seen that according to the testimony of the most distinguished exponents of the Jennerian doctrine, that the determination of the value or the uselessness of vaccination is not a *medical* but a *statistical* question and can be answered in no other way than by the evidence of figures.

THE VACCINISTS CAN TELL US NOTHING OF THE RATIONALE OF THEIR PRACTICE.

In the proceedings of the Royal Commission on Vaccination, when medical experts from all parts of the world were called

upon to explain how it is that vaccination works its alleged benefits, one after another they all declared that they could not explain it, that they did not profess to explain it, that they judged vaccination only by its results. But that is just the way the people judge it, and who will say that they are not as competent to judge as any doctor in the land?

THE AFFIRMATIONS OF FACTS ARE MORE ASSURING THAN
THE ASSERTIONS OF MEN.

The people see that vaccination kills their children, and they see that vaccinated, re-vaccinated and many times re-vaccinated subjects take small-pox and die of it. These unmistakable evidences of their own senses are far more convincing to the people than all the authoritative pronouncements of self-seeking doctors who have pecuniary interests in the maintenance of this disease-transmitting practice. Now, if statistics are to settle the question as to the value or the uselessness of vaccination, if science has refused all aid in its maintenance, then it is *not* a *doctor's* question, but a *people's* question for the people themselves to decide. Lawyers, preachers, school teachers, publicists and the common people can read and compare statistical figures just as well as any doctor of medicine can.

The apologists of the Jennerian imposture having been driven to the wall on every scientific proposition for the defence and maintenance of vaccination, and having as a last resort taken refuge in statistical figures of their own making, they now find themselves confronted with overwhelming evidence of that character against them.

Dr. G. F. Kolb, of Munich, Member Extraordinary of the Royal Statistical Commission of Bavaria, and the author of several statistical works of acknowledged merit, says: "From childhood I have been trained to look upon the cowpox as an absolute and unqualified protection. I have from my earliest remembrance believed in it more strongly than in any clerical tenet or ecclesiastical dogma. The numerous and acknowledged failures did not shake my faith. I attributed them either to the carelessness of the operator or the badness of the lymph.

In the course of time the question of vaccine compulsion came before the Reichstag, when a medical man supplied me with a mass of statistics favorable to vaccination, and his opinion conclusive and unanswerable. This awoke the statistician within me. On inspection I found the figures were delusive; and a closer examination left no shadow of doubt in my mind that the so-called statistical array of proof was a complete failure."

Dr. Adolph Vogt, Professor of Hygiene and of Sanitary Statistics in the University of Berne, and one of the foremost statisticians in the world who had at his command the statistics of all Europe, said: "After collecting the particulars of 400,000 cases of small-pox, I am compelled to admit that my belief in vaccination is absolutely destroyed."

Statisticians tell us that when statistics have been faithfully recorded and impartially considered that the upholders of the Jennerian doctrine have not an inch of tenable ground on which to stand in their last battle field, because figures utterly overthrow all the claims in behalf of vaccine inoculation as an anti-variolous measure. This fact explains why the apologists for Jenner's nostrum obstinately refuse to meet their opponents in public discussion before an intelligent audience. The following incident furnishes a characteristic specimen of the subterfuges resorted to by the medical Robespierres when challenged to meet in public debate the opponents of the Jennerian imposture.

Recently an invitation signed by a committee composed of a number of prominent and influential gentlemen of Philadelphia, Pa., was extended to Dr. Samuel G. Dixon, State Health Commissioner of Pennsylvania, requesting him to meet Mr. Porter F. Cope, a scholarly opponent of vaccination, on the rostrum of Witherspoon Hall in Philadelphia, for the purpose of engaging in a joint discussion of vaccination before a public audience. Here was presented a splendid opportunity for Dr. Dixon, the official apologist of the cow-pox ring of the Keystone State to meet and publicly vanquish a foe of vaccination. Did Dixon improve this grand opportunity for public defence of a discredited quack nostrum? Did he evince the candor and

courage of his convictions by coming out and meeting Mr. Cope on the forum in public debate? No-sir-el "Not on your life!" On the contrary, the diplomatic beauocrat resorted to the shifty device of skulking in safety behind the flimsy mask of professional dignity. Dixon ignobly dodged the challenge by sending to the chairman of the committee a letter of which the following is a verbatim copy :

"Commonwealth of Pennsylvania,
Department of Health,
Harrisburg ; Pa., may 7, 1906.

MR. JOHN PITCAIRN, Philadelphia, Pa.

Dear sir :

In answer to your invitation to speak with Mr. Porter F. Cope on vaccination, I beg to say that I will have to decline upon the ground that the value of vaccine as a prophylactic against small-pox is one of the best settled medical questions ; and further, for the reason that I find it absurd to discuss medical questions of such importance with laymen.

Yours truly,
SAMUEL G. DIXON."

What brazen effrontery ! What a puerile bluff for a State Health Commissioner to put up when called upon by the people whose servant he is, to show cause for his profession of faith in an antiquated and discredited medical nostrum which he was at that very time endeavoring with fanatical zeal to impose upon the people of the Keystone State !

If the question of "the value of vaccine as a prophylactic against small-pox" is so definitely "settled" as Dixon pretends, why did he refuse to go upon the public platform like an honest man and a faithful public servant and tell the people of Philadelphia how, when, where and by whom the question had been "settled" ? The answer is that Dixon, who is a foxy politician, was too diplomatic to undertake this impossible task. He did not have the timidity to place himself in a position where utter defeat was sure to be his.

Dr. Dixon had met Mr. Cope before a legislative committee in Pennsylvania and the Legislature had then by a vote of 160 to 20 in the two houses voted to pass the measure that Mr. Cope had upheld and Mr. Dixon had opposed. Having suffered one defeat the doctor discreetly refused to take the chances of another.

In matters of medical doctrines and theories pertaining to the healing art there is no such thing as a question being absolutely settled beyond future investigation and discussion. Every medical doctrine has its beginning from an anterior supposition, and may be superseded by later discovery. It is an indisputable fact that the doctrine of vaccinal prophylaxy has never undergone a critical scrutiny of the character that would be required in a court of law. Instead, it was assumed upon doubtful and equivocal evidence and promulgated just as other proprietary nostrums are to this day thrust upon the public.

THE VALUE OF VACCINE INOCULATION A MOOT QUESTION.

Nobody doubts that vaccine inoculation is of enormous money value to the manufacturers of the disease-product mis-called "calf-lymph," and to the class of doctors who prescribe and dispense it in their business. That value, which is its only value, and which has been conservatively estimated at \$20,000,000 annually in the United States, besides all the ill health caused by the disease-prescribing practice is "settled" beyond peradventure, but when Dr. Dixon asserted that "the value of vaccine as a prophylactic against small-pox is a 'settled' question," he asserted, wlfether wittingly or unwittingly, that which is grossly and demonstrably false. Nothing could be more remote from the truth than such a mendacious assertion.

I submit that there is not in the whole domain of medical polemics a more *unsettled* question than this very one. As to belief in "the alleged prophylaxy of vaccine inoculation there exists the widest diversity of opinion among medical men all over the world. There is no consensus of opinion among medical experts as to what vaccine is, no agreement as to which of the numerous and diverse strains of the

"vaccine" poisons now on the market, is the proper one or the best one to use. There is no unanimity of opinion concerning means or methods of performing the vaccine operation. The art of vaccination has never approached a stage of scientific precision to justify its definition or its safe administration. There is no agreement among its advocates as to how often the operation should be repeated or how long it is supposed to protect.

Thousands of practicing physicians in this country disclaim all belief in the asserted prophylaxy of vaccine, while some of the world's most distinguished scientists after long and laborious research on this subject deny that vaccine inoculation has any demonstrable value at all as a prophylactic against small-pox infection, and furthermore avow their settled conviction that the practice of vaccination has been, and is an unmitigated curse to the human race. Even if the doctors were all in accord on the subject, the people would not be obliged to accept their opinions, but when the doctors disagree surely the people have a right to decide for themselves whose advice they will adopt. In the face of these facts Dr. Dixon had the impudence to declare that "the value of vaccine as a prophylactic against small-pox is one of the best settled medical questions." When the doctors disagree as to the value of vaccination, who shall deny the people the right to decide the question for themselves?

TRUTH NEVER HURT BY PUBLIC DISCUSSION.

The practice of vaccination although affecting the welfare of millions of people, is calmly asserted by its fanatical advocates to have passed beyond the domain of argument; that its value as prophylactic against small-pox has been "settled." Even if such a statement were true, there would still be no valid reason for evading discussion of the question, because no truth was ever hurt by exposure to the rays of publicity, no matter how pitiless they might beat upon it; nor, on the other hand, does truth ever gain by slinking behind professional dignity, conventional phraseology, vested interests or "authoritative" pronouncements.

It has been well said that, "Nothing overshadows truth more completely than authority." Justice and truth flourish in the light of publicity. Error and fraud evade the light of investigation and are ultimately cured by the wholesome influence of its illuminating rays. No candid, informed and intelligent observer will deny the truth of that statement. Involving as it does the destinies of the human race, either for good or for ill, vaccination deserves the calm and serious consideration of every thinking man and woman in Jennerized Christendom.

To Dr. Dixon's untruthful dictum, I here oppose a quotation from the classical work of Professor George W. Winterburn, M. D., Ph. D., entitled "The Value of Vaccination." Dr. Winterburn says: "To my colleagues everywhere, I appeal for a sober, thoughtful consideration of this subject (vaccination), as one of the most momentous questions of the day, a question which no man can rightfully set aside. The silence of medical men who are skeptical as to the value of vaccination, gives opportunity to ardent pro-vaccinists to claim that the medical profession are unanimous in its favor; that the argument is closed; that vaccination is proved beneficial beyond peradventure. But it is not closed; it is a wide open question; and we who have patiently studied its history and results, will never be silenced until every compulsory vaccination law is swept away, and sanitation recognized as the only scientific protective." (Vide pp. 147-148, *The Value of Vaccination*, by Geo. W. Winterburn, M. D., Ph. D., late lecturer on clinical medicine and physician in chief to the Manhattan Hospital, etc.)

PRIEST-CRAFT IN MEDICINE PERSISTENTLY ENCOURAGED

BY MEDICAL BIGOTS.

As is to be expected the policy of presenting medical questions to the general public, or of discussing such questions with laymen is vehemently condemned in certain quarters, and attempts to create a priestly craft in medicine are persistently encouraged by men who aim to establish by legis-

lative enactment a medical priesthood, under the plea that the people are too ignorant to judge for themselves. I congratulate myself that I do not belong to that class of doctors who sympathize with mystery and mysticism in medicine. I believe the more rational and enlightened the general public may become on the subject of vaccination, the better for themselves, for medical progress, and for the medical profession as a whole. Medical men have never been any better than the public demands, and the surest and most rational way to elevate the standard of professional character and achievement, and to drive professional fraud from the field is through the demands made by an intelligent and exacting public.

Although vaccination was at one time regarded by the people as a mystery for experts, it now lies an open secret, unscientific in origin, useless and pernicious in practice, sordid and fraudulent in defence.

Why does Dr. Dixon "find it absurd to discuss medical questions with laymen"? Assuming for the sake of argument that vaccination is a "medical question," what is there about it that disqualifies any intelligent layman to discuss its understanding?

VACCINATION THE SIMPLEST OF ARTS.

That the vaccine operation is an entirely unskilled one is amply attested by the vaccinists themselves. I submit that an intelligent boy of seventeen years of age or a granny of seventy can perform it equally as well as the most skilful surgeon. There is no standard method of scraping or scratching off the epidermis or of making incisions or abrasions for the insertion of the "vaccine" poison. Medical writers on vaccinology are at present disagreed as to the proper shapes, areas and numbers of abrasions, what to make them with, whether glass scrapers, steel combs, ivory points, cambric needles or escharotics. The fools and the wiseacres are all on the same plane, so far as means and methods of performing the vaccine operation are concerned. The method employed in each case depends entirely on the whim or caprice of the operator. So long as the scarf-skin is scraped off sufficiently to permit the disease-matter, miscalled "calf-lymph" or "vaccine," to reach

the absorbents, nature does the rest by spreading the infective poison thus locally implanted, throughout the entire system.

It is quite obvious, therefore, that the vaccine operation is one which any intelligent layman can accomplish just as well as any medical man. Jenner when booming the cow-pox enterprise held out as one of the merits of the vaccine operation, the fact that it did not require any medical or surgical skill for its performance, and that anybody could do it. That vaccination was regarded by the "immortal" Jenner as an easy art is attested by the writings of his contemporaries who tell us that "Dr. Jenner entrusted the performance of the operation to clergymen, women and other busybodies whom he encouraged in the diffusion of vaccinal salvation from small-pox." "The women were Jenner's most devoted allies," says one historian. "He took pains to teach them to operate with 'a light hand,' and boasted that one of his pupils had ten thousand patients to her credit, all rescued from the terrors and perils of small-pox." Benjamin Moseley, M. D., an old school physician of repute, writing in the early part of the 19th century, said: "The mere operative practice of vaccination has been carried on chiefly by lady doctors, wrong-headed clergymen, needy and dependant medicasters, and disorderly men-midwives. . . . It has been, and now is in the hands of the most ignorant of medicine." (Vide, work on "Jenner and Vaccination," by Chas. Creighton, M. D., p. 184.)

Charles T. Pearce, M. D., F. R. C. S., a distinguished old school physician of London, Eng., on page 30 of his classical work on "Vital Statistics," 1882, says, "Inoculation with cow-pox was done by means of a darning needle by thousands of old women, and done effectually."

William White, a talented English historian, in his fascinating work, "The Story of a Great Delusion," on page 305 says of early vaccination: "All the fussy folk who had a taste for doing much good at little cost were playing the cow-pox lancet. Encouraged by Jenner, they got vaccine, inoculated a victim and propagated the virus from arm to arm."

With this interesting bit of history in mind it is really amusing to witness the rhetorical nonsense indulged in by

the present-day vaccine experts in discussing what they ludicrously style "the surgical technique" of the vaccine operation, an operation which medical men assure us has been "effectually performed by thousands of old women and grannies."

The "learned" and ludicrous nonsense of the cow-pox doctors when discussing the "surgical technique" of an operation which is simplicity itself furnishes material for a farce-comedy which it would be difficult to parallel outside of a comic opera performance in a dime vaudeville theatre.

I submit, therefore, that there is nothing essentially medical or scientific about the art of vaccination, no phase of it beyond the comprehension of any ordinarily intelligent lay person, and any attempt to hedge it about as a something with which the people have nothing to do, but pay liberally and unquestioningly for, should be resisted.

Having shown by the recorded testimony of its advocates that the vaccine operation is the simplest of surgical procedures, and one which can be duly accomplished by any intelligent layman, let us now turn our attention to "vaccine lymph," that indefinite compound of the mixed contagia of the diseases of men and beasts which is used to infect the wound made by the vaccinator. "Vaccine lymph" is an article of commerce. Its production is associated, not only with mercenary motives, but with empiricism as well. Commerce has usurped the field here as everywhere else, and the doctor who is merely a "middle man" between the vaccine dealer and the vaccinated, knows no more about the nature, the vital chemistry or the composition of his vaccine stock than he does about the baking powder or the canned beef he uses in his family; whether the former is free from adulteration, or whether the latter has passed through the hands of the embalmer. Doctors buy their vaccine poison on "trust," and have absolutely no means of determining as to its purity or impurity except by the clinical test, that is by experimenting upon innocent babes and gullible adults. Any layman knows just as much about the essential nature of "vaccine" as does any doctor who uses the stuff—that is, nothing at all.

The doctor buys the stuff from the dealer, the manufacturer or propagator who himself admits that he does not know what the stuff is; however, he does not hesitate to misbrand it "pure calf-lymph." It is quite obvious to anybody who has given the matter serious attention that the practice of vaccination is the rankest charlatanry, and that "vaccine lymph" is a quack nostrum the nature of which is shrouded in obscurity. Neither the analyst, the bacteriologist, nor the pathologist can give us any definite information as to the original source, the nature or the composition of this mysterious compound of human and bestial corruption. From what has been stated it is evident that the doctor is unable to measure the danger which may lurk undetectable in any specimen of vaccine; that it can be tested only by its results; that these results are not immediate and obvious, but are often not completely developed until years after the operation; and that no amount of care or precaution on the part of the vaccinator can be depended upon to obviate the possibility of danger and disaster.

OLD SCHOOL DOCTORS THE SPONSORS FOR VACCINATION.

In discussing the subject of vaccination, let it be borne in mind that for more than one hundred years the self-styled "regular" profession has been committed to its practice and its emoluments. Professional credit is, therefore, at stake. To surrender this ancient idol at this late day would be a tacit confession that during all these hundred and more years the disciples of "scientific" medicine had been worshipping at the shrine of a fetish. It is, therefore, quite evident that for the maintenance of orthodox medical "authority" and for the saving of professional credit, vaccination must be shielded and upheld by its pledged advocates at any cost to the public life and health. The relation sustained by the "regular" medical profession to vaccination is of the same nature as is that of an attorney who has a murderer or a swindler for a client. The lawyer's one purpose is the defence of his client. He may know that his client is a murderer and a swindler, but his business is to put his client's case in the best light possible, and to win a verdict in his favor if he can, by dis-

crediting the testimony on the other side. The doctors who advocate the cause of vaccination have a murderer and a swindler for a client. What else could these doctors be expected to do under the circumstances than to plead their client's cause as best they can? By common usage an advocate is expected to do the best he can for his client, and some advocates are not over-scrupulous in the choice of means and methods to which they resort in their efforts to rescue a guilty client from the just deserts of his crime. Let it be remembered that vaccination is not the only disastrous delusion to which the old school medical profession has been blindly and fanatically wedded. The profession as a whole has been committed before now to grossly erroneous doctrines and pernicious and deadly practices which were upheld by its solid authority for generations together. Medical doctrines which were so grotesquely absurd as to defy the exaggerations of burlesque were maintained through a long series of centuries because the people were so ignorant and credulous that they fell easy victims to the vagaries of the medicine-men.

In the foregoing pages I have adduced evidence in support of the contention that the question as to the merits or the demerits of vaccination is one to be fairly determined, not by the self-seeking partisans of the rite, but by statisticians and other non-partisan investigators, and by the common people themselves. Vaccination has received careful investigation at the hands of some of the ablest medical scientists of the 19th and 20th centuries. These investigators after prolonged and laborious research have all condemned this practice as being unscientific, useless and injurious. Among these doctors are Chas. Creighton and E. M. Crook-shank. In the "Summary and Conclusion" of the chapter on vaccination in "The Wonderful Century," Dr. Alfred Russel Wallace, the "dean of English scientists," places the seal of his condemnation upon the Jennerian delusion in the following scathing words: "Whether we examine the long-continued records of London mortality, or those of modern registration from England, Scotland and Ireland; whether we consider the 'control experiments' or crucial test afforded by unvaccinated

Leicester, or the still more rigid test in the other direction, of the absolutely re-vaccinated Army and Navy, the conclusion is in every case the same; that vaccination is a gigantic delusion; that it has never saved a single life; but that it has been the cause of so much disease, so many deaths, such a vast amount of utterly needless and altogether undeserved suffering, that it will be classed by the coming generation among the greatest errors of an ignorant and prejudiced age, and its penal enforcement the fullest blot on the generally beneficent course of legislation during our century." (Vide *The Wonderful Century*, by Alfred Russel Wallace, LL. D., F. R. S., P. 314). This blistering arraignment from the pen of one of the world's most distinguished scientists I oppose to the vaporings of a class of medical sciolists who uphold this national scandal by declaring that "the value of vaccine as a prophylactic against small-pox is one of the best settled medical questions."

Herbert Spencer, another intellectual giant of the age, in his last published work, "Facts and Comments," placed the seal of his disapproval on this "grotesque superstition."

ABOLISH COMPULSION.

In concluding this discourse, I earnestly urge upon the people that this is a question not only involving the rights and the liberties of the American people, but one affecting the lives of their children and the health of the entire community; and that they will be individually accountable if they do not inquire into this important matter for *themselves*, instead of accepting on trust the assertions and opinions of others. I appeal from the testimony of the medical and the official apologists of vaccination, which testimony is necessarily *ex parte* and worthless, to the intelligence and good sense of the American people, and I earnestly urge them to strenuously insist upon the immediate and unconditional repeal of all legislative measures for the support of this useless, dangerous and pernicious practice. Only by this course is it possible to emancipate the rising generation from the errors and the sins of State-medicine.

I appeal especially to parents of school children to consider their duties and responsibilities as the rightful guardians of the health and lives of their helpless children by insisting upon

the entire abrogation of all disease-prescribing laws without a day's unnecessary delay. Every American citizen who is not dead to every sentiment of liberty and duty should arise in solemn protest against this infamous scheme of privileged plunder and legalized crime. Let it not pass into the annals of history that this infamous outrage upon the health and lives of defenceless children chronicles the eternal cowardice and shame of the present generation. Every citizen is confronted with the duty—stern, imperious and uncompromising, which confronts us—the sacred duty of rescuing the rising generation from the merciless clutches of these disease-prescribing statutes.

What the people of this nation should demand is the unconditional and immediate repeal of every vaccination law in the land; the disestablishment and the disendowment by the State, of vaccination, the abolition of all regulations in regard to vaccination as a condition of employment in governmental departments, or of admission to educational or other State institutions. The opponents of the Jennerian imposture ask for nothing more than this and they will be satisfied with nothing less.

All talk about amending such detestable legislation is mockery. *Absolute and immediate abolition* is the only rational course open to us. Every day the vaccination laws remain in force, children are being poisoned, diseased, crippled, tortured, maimed and killed by this barbarous and cruel malpractice inherited from our ignorant and superstitious forebears of a pre-scientific age.

EDITOR'S NOTES.

Musicotherapy.

"The hyperæsthesia of our overwrought civilisation," as it has been somewhat pompously designated, is evoking new, or adapting old, therapeutic remedies—among the latter, according to Dr. F. Stoduto in the *Medicina Italiana*, being that of music, which Plato theoretically, and the Father of Medicine clinically, recognised as part of the equipment of the healing art.

"As martial music is to fighting men,
should song be to humanity,"

sings the Victorian poet, and there is no doubt that the first of these æsthetic resources, with its appeal to rhythm and harmony, has its salutary uses, whether to soldiers on the march or to the public in quest of recreation, mental as well as physical, in the concert room. Its extension to the treatment of the invalid, particularly in the weary hours of convalescence, is a not unnatural development of the same idea—empirically recognised by the great Napoleon when he ordered the band of the "Regiment d'Orient" to play under the windows of the hospital, as well as by the military authorities of France in the days now passing, from whom the regimental bands in the provinces have orders, once or twice a week, to perform in hearing of the invalid wards of the garrison. The eminent French alienists, Pinel and Esquirol, were fully alive to the efficacy of music in many cases of mental disease, melancholia particularly; Dr. Fodéré found in the same art a stimulant or a sedative indicated in special forms of insanity; and another authority, Dr. Rocquas, attests its clinical value in hypochondria. Dr. Stodato has many other witnesses to tell us, or remind us, of in the same sense; while, in the normal subject, the exercise of the voice in singing or, as Celsus recommends, in elocution needs no vindication as an adjunct to the promotion of health. The subject, as handled by the Italian physician, is a fascinating one and will doubtless attract to its discussion many other experts who are votaries at once of Hygiea and Melpomene.—*The Lancet*, August 7, 1909.

Destruction of Sweat Glands by Roentgen Rays.

"The reports which we receive concerning the action of the X-rays on the skin are not always flattering and encouraging. Among the latest we must not omit that of A. H. Pirie, in whose experience the use of the X-ray in its application to areas of skin over which the sweating is excessive resulted in the destruction of the sweat glands. We learn that six sittings are all that are required to accomplish this result. One each month and the use of the maximum dose that the skin will stand is all that is necessary. The sweat glands are the ones most easily affected by these rays in the entire body, and, in addition, are the ones most readily destroyed. By making efficient applications to the axillæ, not only are the glands destroyed but the hairs as well."—The *Homœopathic Recorder*, August 15, 1909.

Two Rattle Snake Bite Cases.

The March issue of the RECORDER for this year, page 121, contains the treatment of a rattle snake bite with prompt recovery, related by Dr. H. D. Beckwith; the remedy was *Cimicifuga* internally and externally. Patient out the next day. Now a case of a similar bite is given in the *Journ. A. M. A.*, May 5th. On the thirty-third day the patient was far enough along to be discharged. The scientific treatment consisted of cauterizing and then, either externally, internally or hypodermically, he received potassium permanganate, strychnine, whiskey, salt solution, irrigations, bichloride of mercury, Calmette's antivenous serum, ichthyol ointment, Blaud's pills, and on the twenty-second day the finger was amputated. The case related by Dr. Beckwith was treated by a native Indian doctor, whose like would quite properly be hustled to jail if he attempted his ignorant practices to-day.—The *Homœopathic Recorder*, June 15, 1909.

Vegetable Cookery.

One of the ways of cooking vegetables formed the subject of a communication made by M. Maurel and M. Carcassagne at a meeting of the Biological Society held on July 10th. In this particular method, called *blanchiment des légumes*, the first water was thrown away after the vegetables had been boiled for 35 minutes,

the natural consequence being an important loss of mineral constituents. Experiments made by these two observers with several kinds of vegetables, including cabbage, celery, asparagus, and beans, showed that on an average their total saline constituents were diminished by 36 per cent. and their potassium constituent by 50 per cent. after *blanchiment* continued for 30 minutes. As vegetables prepared in this way seemed to be easy of digestion, especially by dyspeptics, the process might be advantageous, especially in cooking for vegetarians.—The *Lancet*, August 7, 1909.

Antipyretics.

It is of interest to observe that antipyretics are now experiencing the fate of so many instruments of treatment in the orthodox school; they are first adopted with enthusiasm, then are considered indispensable, and finally are recognized to be useless and possibly injurious. The treatment of influenza by antipyrin and antifebrin has gone through these stages. So did that of enteric fever by quinine at an earlier period. We now have the *Lancet* devoting an article to showing that as a general rule antipyretics are to be avoided. It quotes Roltz, who has shown that the parenchymatous changes produced in the organs during fever, the increased metabolism, the loss of weight and appetite, the vasomotor disturbances, delirium and other disturbances of consciousness, and any severe blood changes, especially in the red and white corpuscles, are all the result of the infective agent or its toxins, and are not due to the accompanying febrile temperature. On the contrary, further experiments go to prove that the higher temperature assists the protective processes of the body; it stimulates phagocytosis and the production of agglutinins, bacteriolysins and antitoxins, and so has a beneficial influence on the course of the infection. Professor Adami, discussing the influence of the febrile state, concludes that "just as inflammation is the process of adaptation of the tissues to local injury, so is fever the process of adaptation to such toxic agencies as can be neutralized by the development of anti-bodies." Naturally the conclusion to be drawn from these facts is that antipyretics can only interfere with this beneficial action, and should therefore not be given in ordinary cases of fever.—The *British Homœopathic Review*, July 1909.

A Vegetable Source of Iron.

M. P. J. Tarbouriech and M. P. Saget, in the *Bulletin des Sciences Pharmacologiques* for May, describe some experiments which they have made to find a vegetable drug containing a relatively high proportion of iron. As a result they have been able to show that the dried root of one of the docks, *Rumex obtusifoliosus*, contains 0.447 per cent. of iron, a proportion greatly in excess of that yet found in any other plant. Further experiments showed that the iron is present in organic combination. It is a difficult matter to isolate and identify such complex substances, owing to the readiness with which the inorganic element is split off, but evidence was obtained that the compound is analogous to the ferric derivatives of the nucleones. These substances, as shown by Siegfried, are present in milk and in the muscles and other tissues of the body, and it is thought that iron, calcium, and phosphoric acid are carried from one part of the body to another in the form of nucleone derivatives. It is believed by many pharmacologists that a large proportion of the iron administered in the inorganic form is not assimilated in the body, and on this account various organic compounds of iron have been introduced into medicine, including the glycerophosphate and the so-called "peptonate" of iron. The administration of iron in the form of a nucleone derivative as present in this species of rumex would appear to offer advantages over the other compounds of iron, and this view is supported by results that have followed the administration of the powdered rumex root by the mouth.—The *Lancet*, July 17, 1909.

Playing with Sand.

The amusement which children find in making "castles" with sand on the seashore, in digging trenches and pits, and tracing designs on the alluring surface is innocent enough and serves to keep the youngsters occupied and to give them exercise in the healthy environment of sun and fresh sea air. A somewhat similar end is gained by providing sand heaps inland, in public parks, and in various open spaces, and as a matter of fact such heaps of sand are a source of joy to many children. It would be a pity to kill such joy, for the lot of the poor city child is, as a rule, a poor one, but we would suggest that some attention be paid to a certain insanitary aspect of these inland sand games. It must be remembered that the

sand of the seashore is continuously washed by an advancing and receding sea, and so is made clean every tide. But that is not the case with the sand heap at home, which, after the play of a few weeks, becomes very dusty, and this dust during the play is scattered in all directions, and no doubt a good deal of it is swallowed and some inhaled. Infection may follow, for no one could be bold enough to say that the sand after days of use would be free from infective material. It would be a great gain if the sand could always be kept damp and free from dust, but it would be better still if damping could be associated with the application of an inoffensive antiseptic — *The Lancet*, August 21, 1909.

Radium Emanations in Skin Diseases.

Dr. Radcliffe Crocker, Physician for Diseases of the Skin at University College Hospital, publishes in the *Lancet* of May 22 an account of some cases of skin disease which he had treated by means of radium emanations. The emanations were supplied to him by Sir William Ramsay and were given off in the form of gas from a solution of radium bromide. The amount of emanation given off from 150 milligrammes in twenty-fours was estimated to equal in bulk about the fortieth of a large pin's head. To test the emanation locally it was diffused through a jelly which was melted and applied to the surface to be treated, which was then covered first with muslin and then with tinfoil and bandaged on.

A fireman who had for two years suffered from troublesome eczema of the fingers, and a girl, aged 12, with hard patches of psoriasis of the knee, were both cured of their complaints by this means. In two other cases of granulomatous tumours due to mycosis fungoides the emanation was dissolved in 2 cc. of distilled water and injected subcutaneously in the interscapular region: in one case thirteen and in the other three injections were made, with considerable benefit to both. In the case of a lady who had long suffered from a chronic scaly eruption, extending all over the covered parts of the body and the limbs, eight injections were made, some effect was produced, but the results were not striking enough to warrant the continuance of the injection, which had produced some amount of induration and soreness at the site of injection. — *The British Homœopathic Review*, July 1909.

Syphilis Before the Conquest of Peru.

The question of the site of the earliest appearance of syphilis in the world has often been debated and will probably never be satisfactorily settled, the unenviable distinction having been variously claimed for Asia, Europe, and America. A good deal has been written to prove that the Spaniards introduced the disease into Central and South America; and, on the other hand, certain authorities have believed themselves justified in claiming that Europe was free from it until it was introduced by the Spaniards on their return from the New World, through whom the Army of Charles VIII. of France, which invaded Naples in 1494-95, was infected, this being the first well recognised epidemic of the disease of which we have clear historical accounts. Though it is now pretty well ascertained that syphilis existed in Europe long previously to the return of Columbus, it is still very possible that his soldiers did bring back a virulent form of the disease. From the writings of the early Spanish missionaries and others it would appear that the disease called huanthi in the Peruvian Indian dialects was no new phenomenon, but had been well known among these peoples long before the conquest, and it is generally agreed amongst the medical men who have studied the question on the spot that this word is practically the native name for syphilis. It was recognised by the early missionaries that the lives of the Indians were exceedingly immoral, and that huanthi was spread in consequence of their licentious practices. It was even alleged that the disease was natural to certain animals, especially the alpaca, and that Indian herdsmen contracted it from them; but according to the most recent authorities it would appear that though the alpaca disease attacks the anus and genital organs and is highly contagious amongst these animals it is not communicable to human beings and is certainly not identical with syphilis. Its existence is, however, looked upon with special disgust by many merchants, so much so that they avoid all traffic in these animals and their skins, even though the trade is a lucrative one. A good deal of controversy has raged round the question of the nature of the terrible epidemic occurring in the neighbourhood of Quito which caused the death of the great Inca Huana Cápac. Cieza de León, writing about 1548, says that it was a pestilence of such terrible virulence that more than 200,000 persons perished. He describes it as small-pox, as also does Pedro Pizarro, writing in 1571. The Indian historian,

Don Juan de Santa-Cruz, speaks of it as measles, and Pedro Sarmiento Gamboa as "a kind of fever (*infermeded de calenturas*), which is thought by some to have been small-pox and by others measles." More recent writers have variously suggested malaria, leprosy, typhus, peruvian verruga, and syphilis as being the true nature of this remarkable epidemic. The reasons adduced for some of these guesses—for they can hardly be much more, are not very convincing. With regard to syphilis, though that disease may not have caused the death of the great Inca, proofs are not wanting that it existed in the New World long before the arrival of the Spaniards. Very recently a young Peruvian medical man, Dr. Julio C. Tello, has published as a graduation thesis an account of a large number of human skulls which he has occupied his vacations in collecting from the tombs in the district of Huarochiri in the province of Yauyos, thus adding to the knowledge of these interesting memorials of an age long antecedent to the conquest obtained by Davila Briceno, McGee, Dr. Albert S. Ashmead of New York, and Dr. Robert L. Nitsche. Many of the skulls found by Dr. Tello presented exostoses, sometimes single, sometimes multiple, of the frontal or parietal bones. In other instances there were perforations or loss of substance which may in some cases have been due to rude attempts at trephining. Dr. Tello thinks that though doubtless blows and wounds of the head were frequent enough amongst the old Peruvians many of the lesions presented by the skulls in his collection were due to a combined effect of the specific disease and the traumatism. This immense collection of pre-historic remains, which has been given to the University Museum in Lima, has already been an object of great interest, pathological and antiquarian, and the energetic young investigator has found no lack of professors and other medical men who are in agreement with him as to the probable syphilitic nature of many of the pathological conditions presented in the specimens.—The *Lancet*, August 21, 1909.

CLINICAL RECORD.

Foreign.

TWO CANCER CASES.

BY DE AGOSTINO MATTOLI, M.D.,

Rome, Italy.

On December 20th, 1906, I for the first time saw Mrs. S. of New York City. She was seventy-five years old, of strong constitution, never had been sick until two years before when she began to have gastric derangements, anorexia, difficult digestion, sometimes constipation and sometimes diarrhœa and dull pain in the region of the liver. She had been treated homœopathically always and her doctor had sent her to Italy hoping that the trip and outdoor life in a mild climate during the winter would help her general condition. She had been losing flesh for one year and when she reached Naples, about a month before I saw her, she took a severe cold that pulled her down considerably, so that when she reached Rome, about three weeks before calling on me, she had been unable to leave the hotel or go downstairs to her meals. Upon examination I found the patient very weak and emaciated, could hardly speak aloud, complained of continuous dull pain in the epigastric region and oppression on the chest. She had jaundice, ascites, dyspepsia, pulse small and intermittent, œdema of the inferior extremities; the caput medusae was noticeable. Urine voided in 24 hours, 800 grams, showed the presence of glucose 0.80 p.c.

Upon palpation of the region of the liver I found a hard tumor, that seemed connected with the liver, the inferior margin of which extended down as far as the umbilicus. There was the characteristic sign that almost all tumors from the liver have respiratory modification, because with every respiratory movement of the diaphragm the tumor moves down with the liver.

My diagnosis was primary cancer of the liver and guided by the symptoms presented by the patient I prescribed *nux vom.* 3rd every three hours. The next day I found the patient a little better. She could take a little more liquid food (milk, beef juice, yolks of eggs) and said she felt a little stronger. General condition the same.

The husband of the patient, naturally alarmed by my bad prognosis, and hoping that surgery might do something for her, asked me to call a consultation with some clever surgeon, and as Dr. S. of

Detroit, U. S. A., considered one of the best consulting surgeons of the State of Michigan was then in Rome, I sent for him. He confirmed my diagnosis but gave the patient only a month or two to live. Later on I called Professor D., the first surgeon of Italy, and he confirmed the diagnosis and prognosis already made, as did also a few days later a third surgeon, a younger man, who saw my patient. Mr. S. was especially distressed that the doctors should consider it doubtful, if not impossible that he should be able to take his wife to New York alive, but I consoled him by explaining the resources within our system of therapeutics, that the regular school men were ignorant of, and declared that I still hoped not to cure the patient but to improve her general condition sufficiently to send her home safely and a little better in health.

The next remedy I prescribed was *hydrastis can* tincture applied externally over the region of the tumor once a day, and the same remedy, third dilution, six drops of water morning and night. The patient gradually began to feel better, especially relieved of the dull epigastric pain and the dyspnea that had been very troublesome and disturbed her sleep at night.

By the end of February the patient was able to go down to the dining room once a day with the aid of her nurse, the ascites, and all the other symptoms had diminished; the urine was 100 grams in 24 hours and showed only traces of glucose. The tumor was about the same size.

By the first of April the patient was able to take a little solid food (boiled eggs, scraped beef, chops, gluten bread, gluten maccheroni, etc.) and by the end of April she improved generally still more so that on May 8, she was able to sail from Naples for her home in New York. The medicine she took had been always *hydrastis can.*—as she stated above and occasionally she had had *nux vom.* 1st and 3rd dilution.

After her arrival in New York she was examined by several homœopathic physicians of that city and I had the satisfaction of receiving a very appreciative letter from Mr. S. telling me of the entire approval of my treatment by my colleagues of New York and saying that they were still following the directions for the care and treatment given in Rome.

She lived through the following winter until the Spring of 1908 and passed away, as they wrote me, slowly, from exhaustion without suffering.

SECOND CASE.

Mrs. M. an American lady of very delicate constitution, sixty-eight years old, came to my office toward the end of March, suffering with rheumatic pains in the right arm, shoulder and shoulder blade. I asked to examine her but she refused, saying that she had taken cold and that was all. Judging from her symptoms I prescribed bryonia and said that I could not give her other medicine until she would submit to an examination. On the first of April she returned suffering extremely, for examination. I found in the right breast a tumor, the nature of which was plain: a cancer. It proved after the operation to be a scirrhus carcinoma. From her history I had gathered that the tumor had begun, after a blow upon the part affected, about two years before, as a hard lump that did not give any pain and to which the patient had given no importance whatever. In this case the growth occurred backward also and the glands of the axilla had become enlarged. The patient had lately been losing flesh, as she said, and the color was not so good as before, and she felt weak and did not sleep well. She absolutely refused to try any medical treatment and on April 5th was operated upon and the breast amputated; all the cavity of the axilla was emptied of all the glands that, in great number, surrounded the big vessels of the arm pit. The convalescence was very slow, as the wound did not close entirely because of the lack of vitality of the tissues and the presence of very few good granulations, until May 15th. Her color was always rather cachectic, the arm a little swollen and so weak she could hardly move it. The supraclavicular glands on the right side were enlarged and of the same consistency as the tumor we removed some weeks before. The patient seemed older than before the operation, easily tired and greatly depressed. Her tongue was white, she complained of a bitter taste and had all the symptoms of atonic dyspepsia. I advised her strongly to begin the homœopathic treatment and this time my advice was followed at once. I gave her *hydrastis can.* 3rd dil., 6 drops night and morning, and *hydras*, to be used locally over the scar and the right clavicular region every evening. After two weeks she began to show a decided improvement in the general condition, flesh, color, strength, etc., and after about a month the pain and the swelling of the arm ceased entirely. Her arm grew stronger, so she could carry her umbrella, fix her hair, etc. The swelling over the supraclavicular

region remained stationary, the patient's weight increased several pounds. Undoubtedly so far this remedy has improved her greatly and I will later on report the future progress of this patient and others affected with malignant tumors that at present are under treatment.

It is a great comfort to see with every day how much we can do for sick people "given up" by our regular school colleagues. Sometimes it is an improvement, sometimes a cure, but even when the patients must die, we can prolong their life and make their death easier.—*The North American Journal of Homœopathy*, August 1909.

A VIOLA TRICOLOR CASE.

BY DR. McCANDLISH :

J. S. W., a young man of 23 years of age, came to consult me about a pustular rash on his face in the beard region. It was not like sycosis but more like a pustular eczema. I prescribed *Antim. tart.* 3x and a simple ointment. The rash did not disappear quickly enough for his liking, so he took internally and applied externally eleven different preparations within one week. He got very much worse and began to feel very ill in himself, so came back to me in about fourteen days from the time I first saw him. I found that the rash had spread all over his face and ears. He could not open his mouth properly to speak or to take his food. I now made him promise not to try any remedy but the one prescribed by me. I then ordered *Viola Tricolor* 3x t.d.s., and told him to dust a little *Pulv. ac. Bor.* on to the worst patches to prevent the pus running down his neck. I saw him in five days' time and was astonished to see the change in his appearance. The whole of the rash had disappeared, leaving a very dry scaly condition of the skin. The scales were removed easily—in fact, he kept picking them off with his fingers; he almost looked as if his face was peeling after scarlet fever. He felt very much better in himself and was looking forward to his next shave, which I advised him to postpone for a day or two. He shaved three days afterwards with absolute comfort.—*The Homœopathic World*, September 1, 1909.

Gleanings from Contemporary Literature.

THE MARRIAGE PROBLEM AND THE PHYSICIAN'S PART IN ITS SOLUTION.

BY ORREN B. SANDERS, M.D.

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From the editorial page of a Boston newspaper is taken the following, which appeared last December under the heading "Horrible Statistics."

"The Census Bureau has just made its report on the marriages of the last twenty years. There have been nearly a million divorces, the average being one for every twelve marriages. In some States the average is greater, in others less. Divorce has increased in Massachusetts rather less than in most States. Nevertheless we have gained 17² divorces for every 100,000 inhabitants. But, taking the country as a whole, divorces are increasing three times as fast as the population.

Now to the public at large the marriage problem is, to all intents and purposes, the divorce problem. And although a statement like the above excites after all only a limited amount of comment, yet the great majority of those good citizens who constitute "the bulwark of the nation," would doubtless, if their attention were attracted to it, highly approve the heading "Horrible Statistics," and be very properly shocked at the state of affairs so recently brought to light.

But as it happens the divorce problem is but a single phase of the problem, however lamentable and startlingly conspicuous it is. Also, in the discussion of divorce—a discussion comparatively spasmodic and infrequent—the public, the press, and the pulpit consider chiefly if not exclusively, causes which are but secondary to others lying deeper, and which are at the root not of the divorce problem alone, but of the entire marriage problem itself. We know or we ought to know that this is not merely unfortunate, but dangerously wrong; that were it only a matter of the alarming increase in the number of divorces in proportion to augmented population, it would still be reason enough for those who know more about the underlying causes to make them widely and fully known, to demand that they should have a public hearing, with a view to arousing a public sentiment productive of remedial measures.

True it is that this may not be a pleasant task, but that is beside the question. When marriage, instead of being a safeguard to the community, is rapidly becoming discredited as an avenue to greater health and happiness, to a greater identity of interests between men and women, and to the fulfilment of the ideals of home and a more stable existence, it is time that everything pertinent to the question, and especially

everything that is vital should become common property. This is the point, and not whether it is a pleasant, a thankless, or a difficult task.

The present public attitude of distaste and disinclination for a wider and more saving knowledge is largely due to three factors, namely, ignorance, prejudice, a bad conscience. To all these charges the medical profession itself must plead guilty to a greater or less extent. I will not dwell on this, however, but write as to professional men and women, clear-visioned in sexual matters, unprejudiced as to the need for greater general comprehension of them, and with good consciences as to their own thoughts and actions.

Marriage is a failure according to the popular interpretation because of some one or more of the following reasons: too great precipitancy in marrying; ignorance of house-keeping on the woman's part, or non-support on the man's; mercenary motives; the desire for social advancement or freedom from certain restrictions; cruelty; notorious unfaithfulness; sterility; desertion; alcoholism or the drug habit; "incompatibility of temperament," that all-embracing phrase; lax divorce laws inviting the repudiation of marriage obligations for almost any cause, defensible or otherwise. In the great majority of instances, however, the basic reason is of sexual origin.

Now whatever protest may be occasionally raised because of the full accounts given in the newspapers of some particularly unsavory case in the divorce courts, the fact remains that the press is not debarred from reporting domestic infelicities in extenso, no matter how pernicious an influence such a recital may have on the minds of a certain not small proportion of readers. Or let any tragedy the outcome of unbridled lust occur, and the news is spread broadcast by nearly every journal in the land, the court proceedings detailed, and the whole horrible business "featured" in Sunday editions, with numberless photographs of degraded men and women principally concerned, as occurred in New York two or three years ago in a notable instance not yet forgotten.

But let the educated man or woman, with the burden of the dense ignorance of the people as a whole, of any correct and saving knowledge of the true causes that furnish the largest proportion of divorce and other cases involving the relation of the sexes, let them attempt to give enlightenment in things sexual, and to natural obstacles will be added a score of artificial ones; custom, prejudice, and prudery will give tongue as if hydra-headed.

Yet would it not seem a self-evident proposition to physicians, at least, that marriage is a union, and alliance, requiring for its success some preparatory training. Like citizenship upon which it has the strongest possible bearing, early and continuous teaching will best qualify each member of the community for the privileges and duties of adult life.

Bitter experience proves that unless boys and girls as they approach puberty are instructed as to the nature and functions of the sexual organs, they are very unlikely to take proper care of them, or in the least to realize that these organs are anything except shameful appurtenances to be ignored, if possible, or if not, then to be secretly dallied with either alone or in the company with the like-minded for the satisfaction of impulses they vaguely believe to be as wicked as their gratification is enjoyable. What preparation is this for marriage, an association more intimate and responsible than any other in the business or social world, but too long regarded, save sentimentally, as a mere incident in life. Surely, marriage should be the most universal and productive sphere of the activities of men and women, and a stimulus to the highest development of the race. But so long as neither sex is required to intelligently qualify for it, failure in the majority of instances is well-nigh inevitable.

It is pertinent to ask if the medical profession is doing its part in moulding public sentiment so that youth may soon receive this invaluable education which will serve also as the greatest possible protection to civic health, whether marriage is the invariable outcome or not. While undoubtedly a very large number of physicians are endeavoring to better existing conditions through personal instruction, and through such admirable agencies as the National Purity Federation, the American Society of Sanitary and Moral Prophylaxis, the Chicago Society of Social Hygiene, etc., they are by no means a unit either in conviction or service.

One or two instances of this unrecognizing spirit will suffice. In an editorial appearing in a semi-western homœopathic medical journal not much more than a year ago, the proposal of a Chicago physician that marriage should be regulated by Government, and contracted only by permission after physical examination of the contracting parties was condemned in the following intemperate and inapposite language :

“Here is an odious outrage proposed upon human rights, the entertainment of which can only occur in the mind ignorant of history, ignorant of human nature, and densely ignorant of the true and only function of Government. A hundred times better it is that a million bow-legged men should marry a million cross-eyed women, and each couple have a dozen bow-legged, cross-eyed children, than that a single man, however humble, should be denied the right to select his own married partner.”

Comment on such balderdash is unnecessary. Another instance, however, better deserving of consideration occurred but a few months ago, when a prominent physician of Ohio read a paper before his State Medical Association—not homœopathic—on “The Medical Profession and Purity.” In conservative, dignified language he pointed out the need of sex education at all ages before and after marriage ; presented statistics of venereal

diseases, and of others the consequence of infection, and made a manly appeal to his hearers for co-operation in the great work of remedying existing conditions.

Then, according to the official report from which I take the incident, the first man who opened the discussion said :

"The medical profession is not used to discussing that kind of a paper. If that man had been a minister he would not have gotten a chance at this body. It was a good paper, but is hardly susceptible of discussion."

And another physician while acknowledging it was a good paper said, in effect, that he questioned the propriety of instructing young girls in regard to sex knowledge, lest it draw their minds too much to that part of their nature. He spoke of young women he knew who entered upon marriage "absolutely innocent of any knowledge whatever of sexual life," said he thought most men would prefer such, and ended by saying that he thought it better "to allow young people to develop in the natural way."

Quite so ; and physicians ought to know pretty well by this time what the "natural way" is among the masses and the classes alike, and it is by results that most methods are judged to-day. The Surgeon-General of the Army in 1904 reported "more soldiers rendered permanently unfit to follow their professions by syphilis than by any other disease, and the ratio of syphilis to gonorrhoea among the men as one to four, among officers one to one." Soldiers are not a continent class ; picture for yourselves the devastation wrought by them in and out of wedlock.

In 1906 it was estimated that 16,000,000 of people infected with venereal diseases were walking the streets of the United States. In that same year it was stated that two-thirds of our men and women marry. The census of 1900 showed there were about 20,000,000 men in the United States between twenty and fifty-five years of age, and in 1907 the estimate was made that between 70 and 80 per cent. of men had or had had gonorrhoea. A still larger percentage is claimed as the result of gonorrhoeal infection of women forced to undergo abdominal operations. And still marriage is a failure !

Now do men deliberately infect their wives or even deliberately expose themselves in their young manhood to venereal infection knowing the consequences of self-indulgence ? Not by any means. Nine times out of ten these men who make up the 70 or 80 per cent. cited who are sexually dangerous to themselves and others were boys who were allowed "to develop in the natural way."

And the women, chiefly married women, who are rendered sterile by infection, who come to the operating table in such numbers, or who drag out an invalid existence at home who conceive a pardonable disgust for the marriage relation, they also were allowed "to develop in the natural way," and, as the physician already quoted said, so doubtless it is true, that most men would prefer them uninstructed ; lest being instructed,

we may add, they come to require as clean a bill of health from their would be husbands as they are prepared to furnish.

There is something more behind the widespread opposition to sex education than custom and prejudice ; there is the uneasy conscience that, while pleading guilty to sexual sins, would fain hush them up or gloss them over, in other works let bad enough alone.

Surely it is time for the members of the medical profession, so much better qualified than any other body of men and women to act as leaders and teachers, to co-operate as never before in giving aid in the solution of a problem affecting directly the integrity of our national life, our national character and development.

Causes other than sexual enter largely into the marriage problem, but many of them are in a way self-curative. Women, for instance, are initiating widespread movements for better household education, the development of business capacity teaching their sex the value and proper expenditure of money. Men and women both are actively engaged in warfare with the excessive use of alcohol and tobacco. The dangers of the drug habit are calling forth appropriate legislation, and fruitful denunciation by the press. The man who does not support his family has public opinion strongly against him, and receives little countenance from his fellows. The wife-beater meets with no such tolerance in this country as he has long received across the water.

Therefore while the physician's part in the solution of the marriage problem is still to bear his testimony, supported by indisputable facts, to the evil effects of the indiscriminate use of alcohol and drugs on the nervous system even it may be to the third and fourth generation, still the great, and, in proportion to its extent, almost unoccupied field of work peculiarly his own is the one I have pointed out.

To touch upon still another phase of the subject. There is a cruelty worse than wife-beating, that of sending the young girl to the marriage bed all unprepared for the new relation she must sustain. It is no less cruelty to the honest young man newly-wed to allow him to approach his bride without knowing that even had she preliminary education for wifehood, its consummation should be deferred until growing familiarity with his presence and marital attentions should awaken in her a natural desire for a perfect union. .

My own professional experience recalls personal knowledge of a case of the entire failure of a marriage between two young physicians in the west, simply and solely because of the above reason. Yet it was undoubtedly a marriage of mutual affection. Our medical schools do not graduate sufficiently educated men and women, although they are doubtless well educated in the recognized branches of medicine.

Many cases of frigidity so-called are really primarily due to the pitiful ignorance which has caused undue haste on the part of the husband in

establishing marital relations. Women are not "cold-blooded," but they often do require time for the full development of their sexual capacity.

Normal marriage was never intended to be based on any merely platonic affection. Too many women are misled by the exaggerated secretiveness regarding sexual matters, and by the deprecatory attitude society superficially assumes, until they come to believe that the sexual impulses are immodest, even highly reprehensible. Let us change this false and fatal viewpoint, be frank, and clean, and decent. Let us be unashamed of any part of our nature bestowed by an All-Wise Creator to be recognized and used in his fear, and with due regard for the rights of others. Let us openly oppose the monastic and conventual life; advocate normal marriage, and aid in qualifying youth for it; demand that the light of right knowledge be let in on dark places, as the police call to their aid in the shadowy slums the glare of the electric light, which makes the deeds of darkness difficult of secret commission.

The sins of pathological marriage, of excessive indulgence in the sexual act which, reacting upon both participants, paves the way to separation or divorce from mutual satiety and loathing, of the perversions which produce mutual dissatisfaction and ill health whether due to abnormal sexual desires or directed to the prevention of conception, of criminal abortion with its thousands and thousands of cases known to the profession, and its sequence of sterility and disease, all these sins can be largely eliminated and certainly greatly lessened by a widely disseminated knowledge of what constitutes right sexual relations.

Education has been the war cry in the tuberculosis campaign, a slogan leading to world-wide victories. Out of education has come a revulsion of public sentiment creating strong disapproval of the man who would conceal the existence of a case of consumption from the proper authorities, or of the infected individual who would be so criminally careless as to expose his family or the community to contagion through careless personal habits, and the law has power to punish the offender. Yet the human carriers of venereal diseases go unchallenged. By cup, spoon, towel, contamination of toilets by soiled underwear and bed linen, as well as by personal contact, these diseases may be spread in homes, hotels, or wherever the affected person may go, and go he may wherever he chooses. He may marry and poison wife and children without fear of fine or imprisonment. Under theegis of "privileged communications" the mouth of the physician may be sealed even should he be called into court, and although the culpability of the accused be known to him in every damning detail, and the welfare of the community as well as all that sanctifies marriage be endangered.

Everywhere the medical man must report cases of smallpox, yellow fever, bubonic plague, cholera, tuberculosis, scarlet fever, etc.; of gonorrhoea and syphilis he need as a rule give no account. But the day is

coming, shame upon us that it has not yet arrived, when these loathsome and contagious diseases will be added to the list.

How can marriage be anything but a problem aside from all the recognized economic factors entering into it, when the economic to say nothing of the moral factor of sterility, outraged wives, of blinded and otherwise afflicted offsprings is permitted, even encouraged, to exist by failure to adopt safeguards such as those employed against other less appalling diseases?

In some states laws partially covering this ground and including physical health as a pre-requisite to marriage have been enacted or are being framed but in so few states as merely to indicate the magnitude of what remains to be done. Laws cannot make people good, but if they are wise laws, honestly interpreted, and honestly enforced, they can restrict and punish evil-doing, and make it increasingly difficult.

Of prostitution as a complication of the marriage problem I will say nothing, save that it is estimated to be 138,000 who die annually of tuberculosis in the United States there are 40 to 50,000 deaths of prostitutes, and almost any man of the world can conjure up for himself the relative proportion of the probable infection caused by the two classes, to say nothing of the living professional prostitutes in the United States, numbering 300,000, and their clandestine counterparts whom no man can number.

The above inadequate reference is chiefly made to emphasize the great need of hospital facilities for the treatment of venereal cases. In the *New York Medical Journal*, May 2, 1908, Dr. Knopff states that in New York, where Noeggerath claims that out of every thousand men married eight hundred have had gonorrhœa, the City Hospital and the Metropolitan Hospital are the only two institutions having beds, only 153 in all, for the treatment of venereal diseases as such.

Similar conditions prevail in all our large cities where venereal diseases chiefly flourish. It is a ghastly commentary on our common sense that we refuse a suffering man or woman hospital treatment in the early acute stage when sequelæ might be prevented, and then when stricture, prostatitis, or as the case may be, salpingitis, peritonitis, gonorrhœal rheumatism, affections of the brain, spinal cord, organs of sense, etc., etc., develop, open hospital doors and let them in for prolonged and indefinite periods.

A bill has recently been introduced in the national legislature for the appropriation of a quarter of a million of dollars for a sanatorium for the tuberculosis to be established in Colorado. Very good, although our country is already dotted with sanatoria, still there are a million and a quarter of cases of tuberculosis all the time. But stop, there are 16,000,000 of cases of venereal disease. How about making some

even partial city, state, or national provision for the staying of the greater scourge.

We must turn from this discussion, however. The marriage problem even in its phases peculiarly adapted for the consideration of medical men is many-sided, and cannot be presented in its entirety in any one paper. But that which has been emphasized surely may suggest that there are a number of ways in which we can and ought to exert ourselves toward establishing more normal conditions. We can, if we will, bring about such a change in public sentiment that the old illusion of innocence through ignorance may vanish to be replaced by the saving reality of purity through right knowledge, expressed not in fanaticism but in normal living.

Some of the means to be adopted subject to additions and modifications may be briefly summarized.

Education first of all, for education from the youngest to the oldest is the *sine qua non*. But first let us say education of parents, clergymen, lawyers, of teachers and students in normal schools and universities. There must also be education of the general public, as I have outlined in other papers, and instruction in the upper grades of elementary schools, but with discretion and in some natural connection such as the study of biology affords, and such instruction should be given only by the best qualified medical men and women.

Physiology and hygiene, also, are not subjects to be assigned to teachers as convenience or expediency dictates, but teachers specially trained or physicians should be the instructors. Text-books on hygiene and physiology should be revised, and passed upon by our state medical societies independently of any school board.

Again in connection with the education and the evolution of an intelligent public sentiment we must have helpful legislation to check counter-prescribing in pharmacies which works untold mischief in venereal diseases; legislation to eliminate from newspapers advertisements of quick cures for all sexual ills, and the thinly disguised lure of the abortionist; legislation safe-guarding marriage by requiring freedom from infectious disease in the contracting parties; legislation requiring under penalty the reporting of venereal disease; radical revision of the law of "privileged communications," for as has been well said: "Professional confidences in law so far as venereal diseases are concerned, seem born to protect the guilty at the expense of the innocent."

There is a close connection between these last two measures advocated. Dr. M'Kee of Cincinnati sums it up as follows: "If we must report mumps and measles on account of their contagiousness, why not syphilis and gonorrhoea? Effective measures should be taken to prevent any one suffering from syphilis or gonorrhoea from communicating it to others, in spite of the law of confidential communication. One who knowingly

communicates these terrible maladies is a criminal of the worst type, and should be dealt with according to law."

There should be immediate revision of the laws on obscenity so that physicians and scientists writing on vital questions of the sexual life may not be as now at the mercy of a capricious censorship, the imposition of fines, or imprisonment.

These and many other measures with, as has been said, any necessary modification are entirely practicable, and their adoption is but a matter of time. Time, however, should not be wasted; delay means a constant increase in the number of polluted and sterile marriages, of diseased offsprings, and of other direful social consequences.

Finally, in this connection it is peculiarly appropriate to urge that general practitioners inform themselves more fully about modern methods of diagnosis and treatment of syphilis and more especially of gonorrhœa. "No other disease," says the *Medical Bulletin* editorially, "needs the advice of a specialist more than gonorrhœa." If the general practitioner elects not to treat these cases, or will not fit himself for their exacting demands upon his skill, let him turn them over to the specialist, and not allow them to wander about causing new infections, and, it may be, developing sequelæ of permanent detriment to their own health and usefulness. All the resources of modern science applied to the diagnosis and treatment of venereal diseases are not more than each infected individual requires, but too seldom receives, and the specialist, at least, will give no mere cursory attention and instruction since he has announced himself ready to assume a responsibility the extent of which is well known to him.

But when all has been said, when the human best and the human utmost have been done to make marriage a safe, satisfactory, and permanent contract, there will still remain the problem which the factor of human nature always introduces. Human nature, however, has already demonstrated its tremendous capacity for development, its capability of reaching great heights as well as great depths, therefore, we should not despair of a still greater attainment, that of the happy medium, the constant normal level of well-being.

The physician's part in this evolution is evidently to turn away from the old-time drugging panacea for all ills, and while not discarding scientific medication, to devote his energies more abundantly than heretofore to social service as leader and instructor in those movements for the improvement of the race peculiarly in accord with his province, namely, that of securing a perfect interaction between the organs and functions of man. There cannot be a normal human body without a normal mind, and *vice versa*, nor success in marriage or the begetting of offspring until men and women are educated to the normal life, and a knowledge of all that makes normal living possible.

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BRITISH HOMŒOPATHIC CONGRESS.

The Annual British Homœopathic Congress was held in the Board Room of the London Homœopathic Hospital, Great Ormond Street, Bloomsbury, W.C., on Thursday, July 1, '1909. The chair was taken at 10 o'clock by the President, Dr. Thomas Wesley Burwood, of Ealing. The room was crowded by members from various parts of the kingdom and others of the public interested in homœopathy.

The President opened the proceedings with his address which was entitled "After Forty Years: a Retrospect."

PRESIDENTIAL ADDRESS.

LADIES AND GENTLEMEN,—I thank my friends who were so kind as to confer upon me the honour of being your President this year. It is an honour totally unsolicited and undesired on my part, as I never anticipated or aspired to occupying so distinguished a position. Those who know me best are aware that I am a modest man, preferring to be seen rather than to be heard. The honour bestowed upon me was too great to decline, though I doubted whether it would be possible for me to rise equal to the demands of the occasion. I therefore cast myself unhesitatingly on your support and brotherly kindness, and trust that with a whole-hearted unity of feeling we may all

look back with pleasure to the Congress of 1909, to which I give you a very hearty welcome.

The first Homœopathic Congress in England was held at Cheltenham in 1850, and then annually in various places until 1856, from which date until 1870 no Congress was convened. Since 1870, however, each year has seen its Annual Congress. This, therefore, is the forty-fifth Congress of homœopathic medical men practising in Great Britain.

During these years I have seen many Presidents, men of conspicuous ability, learning and skill, men who have done lasting honour and shown unwavering loyalty to the cause of homœopathy and an undying belief in the doctrine evolved from the brilliant intellect of Hahnemann, which doctrine is summarized in our motto, "*Similia similibus curantur.*"

I can only bow my head, as we all do, to the memory of this great and good man, to his noble character, his splendid genius, his immortal discovery and its startling originality. To-day I have no fresh offering to lay on Hahnemann's shrine.

Every Congress always brings its note of sadness at the absence of some well-known faces that have passed away and are no longer able to make the annual pilgrimage to the gathering of their brethren.

To-day our ranks are thinner by the death of Dr. Arthur C. Clifton, who was one of the most fearless stalwarts of our school, which he loved so well and served so faithfully. His loss is as the falling of one of the monarchs of the forest, and I, who knew him intimately for more than forty-five years, can say with truth: I am not acquainted with any man who knew his Homœopathic *Materia Medica* better than he did, nor who brought its treasures into fuller use for curing his patients."

The names of Black, Madden, Bayes, Sharp, Pope, Hughes, and others of my predecessors who occupied this chair have in their excellent addresses made clear the scientific bearing and, at the same time, the common-sense view of homœopathy.

I do not purpose to take up your time by entering into any arguments in favour of homœopathy, as I am quite sure it is

not in my power to bring forth anything new. The names I have mentioned show the galaxy of talent which homœopathy had in its fold—men who were solidly true—who were not only able to show a good reason for our practice, but to define how far the law of “*Similars*” was in complete *rapport* with the discoveries of modern science. These are a few of the many names of the early pioneers who unfurled the banner of homœopathy and formed the striking vanguard in the march of medical progress—men who were not ashamed of their convictions, but who “nailed their flag to the mast,” by consistently practising what they conscientiously believed in—that is, a system of healing which has stood the test of nearly a century, and has passed through the most scathing criticism unhurt! To follow in the footsteps of such a grand array of warriors there cannot be much left for a late-comer to deal with.

We want the same dogged enthusiasm they had, which brooks no failure, if we are to combat with the blatant stubbornness of our opponents of the old school, who will not acknowledge anything that savours of homœopathy any more to-day than they did forty years ago.

Ladies and Gentlemen, in the following “*Retrospect*,” which may appear as ancient history to some, I shall only touch on the salient points of interest during the last forty years. To attempt anything but a survey would take up too much of our time.

BRITISH HOMŒOPATHIC PHARMACOPŒIA.

Early in the period one of the most important pieces of work was the publication of the *Homœopathic Pharmacopœia*, which was mainly carried through by the energetic action of Dr. Madden and of Dr. Drury, who at that time was also Secretary of the “*British Homœopathic Society*.” This work was especially called for, as we were taunted by the other side “that our medicines were neither prepared nor dispensed with accuracy or precision.” This was perfectly true. Much care, trouble and skill were brought into the work to ensure the purity and establish the quantity of the dose in our various attenuations.

Since then our chemists so carefully prepare our drugs that we now know exactly what each dose is. Dr. Drury was greatly assisted by the chemists of those days, notably the late Messrs. Henry Turner, Ross, Pottage, Gould and others. The book they compiled is the standard work used by homœopathic chemists to-day, copies of which are also to be found on the shelves of the British Pharmaceutical Society.

LECTURES ON HOMŒOPATHY.

Nearly fifty years ago it was felt necessary by the homœopathic physicians of that day to establish a systematic course of clinical instruction and occasional lectures on homœopathy. These were given by Dr. Rutherford Russell, Dr. Yeldham, and others, but they imposed such a considerable amount of labour on the part of those who undertook the burden, that they eventually fell through.

In 1875 Dr. Richard Hughes and Dr. Dudgeon delivered a course of lectures at the London Homœopathic Hospital in Great Ormond Street on "The Principles of Homœopathy" and the "Materia Medica Pura," which were advertised in the *Times*, but the *Medical Times and Gazette* and the *British Medical Journal* considered the advertisement "was hardly fitted for their columns." Since then spasmodic efforts have been made to establish a "Homœopathic School," notably that initiated by my old friend Dr. Bayes. He argued, and rightly, that what "we wanted to establish is a system of education in homœopathy for the protection of the public, by insuring that physicians professing homœopathy should be qualified for such practice."

Most excellent lectures on *Materia Medica* have been given from time to time by Dr. Dyce-Brown, Dr. Galley Blackley, and others, while clinical instruction has occasionally been carried on in the wards of the hospital.

The newly established "British Homœopathic Association," which has its home at "Chalmers House," 43, Russel Square, W.C., is putting its shoulder to the wheel to further the interests of homœopathy in this matter.

What is urgently wanted at the present time is a teaching staff to consist of men of standing, experience and repute, who wholeheartedly believe in what they teach; and follow up this teaching at the bedside by prescribing pure homœopathy for their patients.

The London Homœopathic Hospital is naturally the sphere for this work. The authorities there are giving it their serious consideration. By this means they publish to the world at large the great advantage of homœopathy as a power in healing the sick poor. They thus advertise their existence as a philanthropic institution, and should consequently add to their funds.

BACTERIOLOGY AND THE INFINITESIMAL DOSE.

During the last forty years the fascination of the microscope has, by its influence on "Clinical Research," opened up such a field of interest in bacteriology as some of us in our student days never dreamed of.

To-day everything points to some *pathogenetic germ* as the Alpha and the Omega of all diseases, but while these labourers in science have been able by their laudable exertions to unearth some of the bacilli, I am inclined to think in very few, if any instances, having caught the "Mighty Atom," have they been able to inform us how to kill it; nor how to treat effectually the unfortunate being whose life and health may be in jeopardy by possessing it.

These most praiseworthy investigators tell us that vaccine lymph contains certain organisms, no larger than *one-twenty-thousandth* part of an inch diameter, and if but one of these germs enter the blood all the phenomena of vaccination follow.

It has been said with great truth that neither the microscope, nor chemical analysis, nor the most delicately constructed balance, nor even the spectrum analysis have been able to detect the germ of scarlet fever or small-pox one may unfortunately pick up in a railway carriage or a tramcar, and yet this infinitesimal dose of poison can, as we all know, produce the most fatal results.

If organisms of such extreme minuteness, which are far and away smaller than the particles of a drug in our dilutions and attenuations, have been proved able to cause the most disastrous effects in the human body, and have been accepted as gospel, why should there be any surprise that the rightly and carefully chosen similitum of a homœopathic drug should not be equally far-reaching in its effect, but in a beneficial form, in the human organism ?

We have a mass of evidence to prove the action of small doses in curing diseases, and even in the writings of those who profess to ridicule our system we find many instances in its favour. In order to make it certain it only remains for each searcher after truth to test for himself if he will not take the evidence of others, as to "whether these things be so or not."

The globule won the early victories for homœopathy in curing its cases, and at the same time brought ridicule on the system, but "let those laugh who win."

Apropos of the effects of small doses, a Mr. Pearman, an allopathic doctor, published some years ago a pamphlet entitled: "The Great Sulphur Cure," in which he states "that a gentleman subject to asthma had a bad attack induced by accidentally inhaling the fumes of sulphur, and that in other cases of asthma, sulphur fumes proved curative," and ends the paragraph, which might have been written by members of this Congress, by saying "that the maxim '*Similia Similibus Curantur*' is just a plain common-sense truth on which so much nonsense has been raised."

RADIUM AS A CONFIRMATION OF THE INFINITESIMAL DOSE.

It is only some five or six years ago that Monsieur and Madame Curie astonished the world by publishing the results of their experiments with *uranium*. In it they discovered an *element* to which they gave the name of "*radium*." I am wondering whether the *nitrate of uranium* we, as homœopathic physicians, prescribe for our diabetic patients has this *element* of "*radium*" in it, and which may be or is the curative agent in diabetes.

I leave this interesting point to be worked out by "The Research Department of the British Homœopathic Association" !

It is a curious coincidence that homœopathy was first introduced into England by an intimate friend of Hahnemann in the person of Dr. Curie, the grandfather of the discoverer of *radium*, or rather, whose wife, by her experiments with "*pitchblende*," discovered this wonderful element known as "*radium*."

Of its uses medically they knew nothing ; they simply knew "it will burn," and that is all they could tell us. We, as homœopaths, know its action on the skin is such that it will *produce* changes in the tissue *very like* malignant growths, and that it has also *cured* certain diseases of the skin and neoplastic growths.

Up to the present time *radium* has been going through the stage of experiment, and only recently does it seem to have claimed a place in therapeutics. It looks as though in certain diseases, whether malignant or otherwise, it may be curative. Much, however, seems to depend on the quantity administered, and this must be in the most infinitesimal dose, which the orthodox school would hardly like to have it termed "a homœopathic dose" !

The price of *radium* is so great as to make it almost prohibitive, so that only a few will be able to avail themselves of its application. It has been given internally by homœopathic physicians, and even in the 30th dilution it has had surprisingly good effects in some forms of skin disease, when administered according to our formula, "*Similia similibus curantur*."

During these last forty years a great many changes have taken place in medical thought, but the homœopathic physician still adheres to the principle of "likes curing likes," and continues to consider the "small dose as part and parcel of his belief" by following Hahnemann's dictum, to "cure your patient

with the least possible amount of medicine." The small dose, however, has nothing to do with the doctrine of homœopathy.

HEREDITY AND THE SMALL DOSE.

This same idea has shown itself especially in the "Doctrine of Heredity" which has come so much to the front in recent years and is a confirmation of our theory of "infinitesimals," Has not "The Old Book" said: "The fathers have eaten sour grapes and the children's teeth are set on edge"?

We not only see the taint of heredity in relation to blood diseases, we see it also in the same degree in nervous diseases, as being evidence in favour of the small dose.

What an infinitesimal, incomprehensible portion of nerve centre it "must be, when handed down from parent to child, to produce such phenomena as are seen during an attack of epilepsy! Have those who laughed at what they cynically call the "homœopathic dose" ever considered the minuteness of the influence of the dose heredity has in its action? For instance, in what is termed "*Cerebration in utero*," this infinitesimal essence is most remarkable and interesting, even in the matter of memory and dreams. This may not be considered as having much to do with my subject, except in the matter of the small dose, but it is a factor not to be sneered at nor ridiculed.

I know of an interesting fact, for the truth of which I can vouch, and which supports my argument.

In the month of July, many years ago, a family went to Eastbourne for their summer holiday, the mother at that time being five months advanced in pregnancy. Being a great admirer of the beautiful in Nature, she was very much impressed as she drove through the town at the charming idea of beautifying the streets by planting of trees, so much so that during her stay she much preferred walking under their shade to sitting on the parade or promenading on the pier. In the following November after that visit, her son was born. When the little fellow was 9 years old he was taken to Eastbourne, and while driving from the station in an open carriage he jumped up suddenly and looked around, to the surprise of

his father and mother, and exclaimed, "O! I have been here before." Yes he certainly had, but only *in utero!*

A few years ago, while I was on a trip down the Mediterranean as far as Naples, I struck up a friendship with a Scottish gentleman, a distinguished *litterateur*, who in conversation started the subject of "heredity," not knowing at all that I was interested in it. In confirmation of the theory he said, "When I was 14 years old, I went to stay with an aunt who resided in one of the old border castles on the other side of the Tweed. One morning, when she and I were at breakfast, I told her of an extraordinary dream I had had the night before, and when she enquired what it was about, I told her I had seen in my dream a terrible struggle between two men on the walls of the castle, when one of them threw the other over the parapet into the keep 60 ft. below, and so killed him. I described so vividly what I had seen in my dream, that my aunt with much excitement said, 'My dear nephew, never utter a word to anybody about that dream.' Seven years later I was on a visit to that same aunt, at the same castle, and sleeping strangely enough in that same room, and I had exactly the same dream. On coming down to breakfast the next morning I told my aunt what had happened, and asked her why she had forbade me on my previous visit to mention the fact. She said, 'Now that you have arrived at manhood there is no reason why you should not know. I may tell you, your great, great, great grandfather had a family feud, and he in his quarrel with his enemy on the walls of the castle was seen to do the deed by your great, great, great grand-mother, who on her deathbed divulged the terrible family secret.'"

BATTLES FOUGHT AND VICTORIES WON.

During the period under review there have been battles fought and victories won in which homœopathy has enlisted among its ranks many stubborn defenders of the truth to which we have pinned our faith.

Among these party strifes is the "Oliver Pemberton" struggle, so called because that gentleman started a crusade in 1875 to prevent homœopathic medical men being admitted members of "The Birmingham Medical Institute." This was fought out on the issue of "perfect freedom of opinion in the domain of medicine." The controversy was the source of much heat and bitterness, but finally, at a meeting of the Institute, at which over 100 members were present, sixty-four were in favour of our eminent colleague, the late Dr. Gibbs Blake, and other homœopathic physicians being admitted, and only thirty-five against it.

Later, in 1881, the columns of the daily press were occupied with a discussion on homœopathy in connection with the illness of the late Lord Beaconsfield. This great genius and politician having the courage of his convictions and faith in homœopathy, had for his medical attendant a homœopathic physician in the person of Dr. Joseph Kidd. Her late Majesty, Queen Victoria, looking upon Lord Beaconsfield as a personal friend, intimated that she would like Dr. Quain to be called in in consultaion. He, of course, under such circumstances could not exactly refuse, and eventually Dr. Kidd retired from the case. There was great fluttering in the allopathic dove-cote.

Professionals and laymen among the homœopaths fought side by side doing gallant work and, as in the "Pemberton" cases, we came out victorious. All the public who were interested in it at the time said that "jealousy and prejudice were at the bottom of the whole conflict," as our opponents could not *realize* that we *cured* patients, and if we did they were annoyed that we should succeed where they had failed, showing "where the prejudice is strong the judgment is weak."

But the great campaign was that known as the "Odium Medicum," which was fought out in the columns of the *Times*. The first shot was fired by the late Lord Grimthorpe in our defence. The fight was fast and furious, lasting some weeks.

The best fighters of both schools were engaged in the controversy. On our side were ranged the brilliant intellects of many laymen who splendidly supported the cause we were fighting for. After some weeks the combat was brought to an end, the *Times* closing the battle with a slashing leading article, which concluded by saying "the homœopaths had had the better of the argument." The editorial began: "We do not know exactly what end our orthodox correspondents have proposed to themselves; consequently it might be unscientific on our part to express any positive opinion upon their mode of conducting the controversy. If they wrote merely to relieve their feelings and comfort those who already agree with them, they probably have every reason to look complacently upon their own performances. But if they desired to convince homœopaths of the greatness of their delusion, or sought to enlist the sympathy and command the confidence of the lay public, we are quite sure they have made an egregious mistake."

Lord Avebury says: "Argument is always a little dangerous; you may gain your argument and lose your friend, which is probably a bad bargain. Few people know when they have the worst of an argument, and if they do, they do not like it; and moreover, if they know they are beaten it does not follow they are convinced." It is an old saying, "Convince a man against his will, he is of the same opinion still."

THE SCIENTIFIC METHOD.

We do not wish it to be thought we possess a sort of monopoly of medical wisdom and skill, but we do adhere to our principles, that in the matter of treatment we have the best of it, having a "*scientific method*" to depend upon. Professor Huxley said: "The 'scientific method' was nothing but organized common-sense, and I think no one here will dispute that statement, but it may not be out of place for me to add that the quality of common sense is not in the possession of mankind in equal proportions—to some it has been granted in fuller measure than to others—but to most men a fair share has fallen. The man of science sees that no single view of a

subject absorbs the whole truth, and though he is strong in loyalty to his own opinions, he is quick to respect the opinions of others."

We, as homœopaths, believe in our cause, and though humble-minded, we uphold and stand to our opinions with unhesitating confidence. We are not so narrow-minded as to think any one school is large enough to contain the whole of what is good.

Professor Dr. M'Clelland (Pittsburg, U.S.) says: "In America homœopathy advanced itself because it was worthy, and commended itself to the intelligence of the people"; while the late Dr. Dudgeon said: The civilization of nations could be tested by the number of their homœopathic physicians, and for that reason it was certain that in the United States civilization had outstripped anything Europe could show, seeing they had between 3,000 and 4,000 homœopathic medical men in their midst."

OUR ALLOPATHIC OPPONENTS.

During these last forty years the medical opponents of homœopathy have positively refused to see a fact which can be proved to a demonstration before their eyes, viz., that homœopathic remedies selected on the principle of "*Similia Similibus curantur*" are infinitely superior and more efficacious in the cure of diseases than any they make use of, because ours are chosen according to a law proved by induction and verified by a long "course of experiments." The homœopathic physician knows he has an unerring law to guide him in his practice, notwithstanding all the *à priori* arguments of their opponents.

It will come as a surprise to the public who have never heard of it that in 1883 St. George's Hospital was in such low water financially that the *Times* wrote a leading article on its necessitous condition, also mentioning the fact that a meeting was to be held that day at "Grosvenor House," to be presided over by His Royal Highness the Duke of Cambridge, to raise funds for the support of the hospital. Major Vaughan Morgan, who was at that time Treasurer of our London Homœopathic

Hospital, telegraphed to the Chairman of the Committee of St. George's at Grosvenor House, "I will subscribe £1,000 a year for five years to be devoted to beds, to be given up to Homœopathic treatment." To this generous offer, strange to say, Major Vaughan Morgan never had any reply either by wire or letter!

Hahnemann said, "When it is a question of cure, to neglect to learn is a crime." He also said, "Don't take my word for it, verify the facts." You may take a horse to the pond but you cannot make him drink. A recent writer says, "In medicine it is particularly unfortunate to reject offered truth and discovery, because medicine is at heart both science and philanthropy, and the non-acceptance means both lack of knowledge and the non-relief of patients. If knowledge is strength, ignorance must be weakness!"

Nothing is more deplorable than the bitter pride and suspicion that mark, and have marked, for all these forty years the so-called orthodox school in this and other countries, as though that school only had the key to unlock the storehouse of Nature to the exclusion of every other. This is provocative of profound contempt of all sane and sensible minds. The ordinary Englishman, who is known nowadays as the "man in the street," is indifferent to the petty strife which exists, and is quite ignorant of the intolerance of the old school, who say "many things against us falsely," lest by our superior mode of treatment we should succeed where they have failed; forgetting, if they ever knew, that Homœopathy is completely *en rapport* with the present day physiology, pathology, and other cognate sciences.

One had always been led to suppose that all medical men had at heart the cure of the sick, the lame and the halt; that medicine was an honourable and liberal profession entirely for the benefit of the public at large; yet a large number of men ring out a war-whoop against homœopathy, which is a branch of science they will not even look at.

We, as homœopaths, are simply medical men who seek the improvement in the art of healing by studying the action of medicines on the healthy body, according to Hahnemann's theory of "*Similia similibus curantur*," because we believe it is better than any other, and would give it up to-morrow, if we were shown a better.

There is one factor which in the eyes of some militates against homœopathy, and that is, in acute curable cases it cures its patients too quickly—not too quickly for the patient, nor for the doctor; but the other side puts its tongue into its cheek, and laughs, saying, "The case must have been one of wrong diagnosis."

ALLOPATHIC OPPOSITION.

There have been great campaigns for the furtherance of civil and religious liberty, which rights were not readily granted nor easily obtained. What more logical, then, that *our* cause should be one of "Civil and medical Liberty?" and in fighting for it, we do not intend to bate one jot or iota of our faith to gain the favour of the old school whose opposition is brought to bear against us.

Even the Church, with its old dogmatism of the past ages, as regards the traditional theory of "Apostolic Succession," is beginning to acknowledge, by some of her bishops, that that was the one hitherto insuperable obstacle to the recognition of the Nonconformist churches, and that the apostolic succession theory was a thing of the past.

Hahnemann, in a letter to Dr. Stapf, says: "Believe me all these attacks only weary the assailants of truth, and in the long run are no obstacles to progress. We do well to let these specious but nugatory articles alone, to sink themselves into the abyss of oblivion and natural nothingness. All these controversial writings are nothing but signals of distress alarm given from a sinking ship. To me they are simply ridiculous and not worth the time spent in their perusal." And in another letter he says: "That those who find their toes trodden on by the new system should utter cries of malice and rage

is perfectly natural, the only remark a dispassionate man of sense makes upon such outcries is that they show the case to be serious and that they wish to overwhelm a better system than they practise, because they are too indulgent to study it or too proud to admit they are in the wrong. What is true cannot be minted into falsehood by the most distinguished professors."

During these forty years the conduct of the allopathic fraternity as a whole is one of unwarrantable impudence. One would think the mantles of Hippocrates and Galen and others were their sole property, so that they, as it were, were of the "Apostolic Succession." Have we not all gone through the same schools; Have we not been educated for our profession on the same lines, passed the same examinations many of our *confères* gaining the highest possible honours, thus giving us the same right to practise as they have? Some, however, are disposed to fraternize with us, and while it would be delightful for a brotherhood to exist between us, the day is not to be hastened by those who are ready to lick the blacking off the allopathic boots.

I so agree with Dr. Clarke in his address to the British Homœopathic Society, that I cannot refrain from quoting it for the benefit of those who were not present to hear it, nor have had the opportunity of reading it. He asks: What is our duty as homœopaths to the allopaths? My reply is that we ought to leave them severely alone. Individually, allopaths are no doubt jolly good fellows, like the rest of us, but the allopathic body as such claims no allegiance and no respect from us. The "profession" is one thing, the "allopathic sect" is another; we are as much of the profession as they are, and are just as much entitled to make our own rules as they are, and just as little entitled to impose rules of our making on them as they are to impose rules on us. Our business is to go our own way absolutely regardless of anything they think, do, or say, to treat them, in short, exactly in the same way they treat us. If they presume to talk to us about manners, ethics or etiquette,

we can reply that when their representative journals and societies freely welcome our communications, we will listen to anything they have to say about 'manners' and not before."

For my part, I do not see why we should distress ourselves about the enemy "taking to" homœopathy, and why we should spend our energies in trying to persuade them. It is against our interest in doing so. As long as the public are satisfied with our treatment, what matters? For those of the public who are in accord with our views I am thankful, but extremely sorry there is so much ignorance concerning homœopathy among the great body of the people generally.

We are sometimes told homœopathy does not "go ahead" with the public because there are those amongst us, supposed to belong to our school, who do not believe in the system they practise. It is these very men whose duty it is to give their reasons for not believing it! During all these years the homœopathic public have stood by us, and when they demand homœopathic treatment we should see they get it. Homœopathy must be true to itself; there must be no departure from our principles in order to win favour from the opposite camp by "running with the hare and following with the hounds."

The old school still use their utmost exertions, by every petty meanness and contemptible action, to try to take the butter off our bread; why, then, should we help to put the butter on theirs?

THE OPPOSITION OF PUBLISHERS AND JOURNALS.

In the forty years we are looking back upon, we have seen this jealousy carried so far that not only have we been refused admission into allopathic societies, but their medical journals have closed their doors to us, so as to prevent anything savouring of homœopathy appearing in their columns. Pressure has been brought to bear on publishers and booksellers, compelling them to refuse to publish or even sell homœopathic works. Some years ago the *British and Foreign Medical Review*, within a week of publishing an article on homœopathy in its pages, received 1,400 notices from subscribers stopping their subscriptions.

This conduct drew the attention of the medical profession of that day in Germany, and the following comment was made in an allopathic journal, the *Berliner Medizinische Central Zeitung*: "The agitation against homœopathy has given rise to excesses which are more than laughable, they are utterly contemptible. At the instigation of some fanatical medical men, a large publishing house in England has announced that henceforward it will neither publish nor sell any homœopathic works, and it is expected other publishers may follow their example. This mode of attempting to stop the child's mouth is absolutely revolting, and all the more barbarous, occurring as it does in a land where the right to give expression to one's opinion is sacred. That it must fail to be of the slightest use is so self-evident we cannot comprehend the blindness with which Englishmen, who are generally held to be so calculating and practical, have acted in the matter."

A Liverpool daily paper says: "The public are not troubled by the angry denunciations of the *Lancet* and the *British Medical Journal*; they will judge by results. A journal which will go to the length of excluding advertisements having reference to homœopathy is hopeless: it can only be remembered in our prayers."

And yet these journals which consider it their mission to maintain the "honour and dignity of the profession" will stoop to receive advertisements of "patent quack medicines, cheap wines, and bitter beers," while they refuse even to-day to advertise of our lectures or the £150 scholarships in connection with the British Homœopathic Association and the London Homœopathic Hospital "as being hardly fit for their columns."

ALLOPATHIC POACHING.

By repression, misrepresentation, and by isolation, have the majority of the profession during the last forty years been trying to smother homœopathy, while at the same time they have poached in our preserves and fished in our waters, and, without the slightest acknowledgement, used our remedies. Whoever heard of *aconite* in inflammatory conditions, *arsenic* in cholera, and *gastritis, ipecacuanha* in vomiting, *bichloride of*

mercury in dysentery, *kali bichromicum* in ulcer of the stomach, and many other medicines, until they were unearthed by the homœopath from the great book of "Similaris" ?

We are often taunted that, as homœopaths, we have made no discoveries. Who but the homœopaths discovered the many remedies now so freely used by allopaths? What about *cactina pellets*, so much prescribed by them nowadays in functional heart troubles? Who brought this drug to the fore but Dr. Rubini, a brilliantly clever homœopathic physician in Naples, and who among us would care to be without in it treating some of our cardiac cases ?

Claude Bernard, in his physiological experiments with *nitrate of uranium*, produced diabetes so exactly that it could not be distinguished from the malady occurring idiopathically. This however was proved by our much-lamented Dr. Gibbs Blake, and yet we find the enemy now prescribing it in cases of diabetes in their practice.

It would make Rip Van Winkle open his eyes with astonishment to see the change in the old school treatment of the present day, and all brought about by the permeating influence of homœopathy.

When Dr. Sidney Ringer's "Handbook of Therapeutics," which is a very superior book of its kind, was first published, the *Lancet* as much as said "Dr. Ringer could not have written a more homœopathic book had he been a homœopath."

What are we to say of medical duplicity when allopathic physicians, not having the courage of their convictions, are known to have their prescriptions made up by homœopathic chemists, even to the 200th dilution ?

This lack of honesty is instanced by Sir Samuel Wilks in an article on "Aconite and its Uses in Inflammatory Fever." He says: "As regards aconite. I am acquainted with two medical men who in the course of a long practice have been in the habit of using it daily, but have not cared to speak of it openly for fear of having their names associated with an eminently quack system; and it may be mentioned that the late Mr. Liston brought no little odium on himself on account of his advocacy of the drug in erysipelas."

I would whether Sir Samuel, in his vulgar prejudice in insulting men who claim an equally cultured experience as his two friends, saw the testimony given, not by a homœopath, but by an allopathic professor of *materia medica* in the University of Gratz, who to his students said: "It was Hahnemann who first introduced and recommended *aconite* in pure inflammatory fever, with or without eruption, as well as in inflammatory diseases generally, in obedience to his principle, '*similia similibus curantur*,' by which the effusion of blood, except in exceptional cases, is wholly obviated. If we were under no other obligation to Hahnemann by this simple discovery, he would, like Jenner, deserved to be ranked among the greatest benefactors of suffering humanity."

DRUGS.

During the last forty years the chief object of the profession has been in the direction of "preventive medicine." Sanitary science and hygiene are doing great and praiseworthy good, even to point of "killing the goose that lays the golden eggs." The faculty has no law of cure to depend on. In preventing diseases rather than curing them, the very existence of the bulk of the profession in the future is threatened, and perhaps it is just as well, seeing the fraternity has not belief in drugs.

The incredible variety of medicines thrown on the market and thrust on the profession in recent years by speculative and pharmaceutical chemists is enormous; not one in a hundred of them has any scientific basis, except in the brains of a few unreliable so-called servants. Hence it is we so frequently hear of sudden deaths from "heart failure" in otherwise healthy constitutions, who have been treated by some allopathic remedy, and this is especially so in influenza. Surely it can only be one of these new remedies of which the administrators know nothing.

Some of us remember when *chloral* was launched. It went through the usual stages of new allopathic drugs, being first belauded as "unique," later it was a "popular panacea," later still it was violently abused by both doctors and the public, and finally thrown on one side as doing more harm than good. And well it might, when, to begin with, a dose of 20 grains

would be given at night, and eventually ending by 150 grains in twenty-four hours. These remarks apply to a host of other drugs, such as *phenacetin*, *antipyrine*, &c., which are quite as dangerous as *chloral* and as soon to be relegated to the lumber basket of useless and dangerous rubbish.

As showing the "hit or miss" manner of prescribing by our opponents, I had once an assistant who had been with an allopathic doctor. Before he had been with him many days he noticed nineteen out of twenty of the patients were given the same physic, drawn by a tap from a large stone jar, standing in the corner of the surgery, over which the letters L. H. P. D. were painted. On enquiring of his principal what they meant, he replied it was "A London Hospital Pharmacopœial Decoction," but I call it "Lord Help the Poor Devils who take it!"

HOMŒOPATHY AND THE PUBLIC HEALTH.

Of late years "health of nations," according to a recent writer, "has become an even more absorbing study than the wealth of patients. We live in an age of surgical and medical miracles, the forces of disease are more and more subdued, the weak who would formerly have perished are preserved, and the average span of life lengthened."

To my mind the health of the public is a most important asset of State, and consequently a system of medical treatment which cures its cases more pleasantly and more quickly, and with little or no so-called convalescence, as homœopathy does, thus enabling the patient sooner to return to his duties, saves a man's money, whether he be engaged on the Exchange, behind the counter, workshop, or the factory.

The country had been stirred of late at the enormous death-rate among children. Have we not eleven millions of children in our midst who from the nursery-graden of the nation and are its most hopeful asset? According to some authorities the frightful death-rate is to be lowered by sanitation, hygiene, and pure milk. My conviction is this great mortality would be checked if these little ones were treated homœopathically. The nauseous medicines which have to be forced down their

little throats by mothers and nurses must certainly do them more harm than good.

The old school, with its usual depreciation, says that "Homœopathy is only good for children"; if that is so, then surely "diseases of children" is the very sphere in which to put it to the test. If this were done, the result would certainly not only commend the system to the practitioners themselves, but to the public at large.

I am sure many of my *confrères* here can say with satisfaction they have never lost a case of scarlet fever, measles, croup or hooping-cough, to say nothing of other diseases, under homœopathic treatment.

Our medicines have very little, if any, taste, so that their pleasantness appeals to the little folks, which is a great advantage. These little ones certainly have no "faith," and this therefore disposes of the idea that homœopathy is only a question of faith. I assert that any man or mode of treatment making for the better health of the public, as homœopathy does, is a benefactor to the State and therefore deserves "State recognition."

(To be continued).

EDITOR'S NOTES.

Treatment of Neurasthenia.

An interesting discussion took place at a recent meeting of the Medical Society of Paris on the Pathology and Treatment of Neurasthenia. Dr. Godleski sought to define clearly and distinguish neurasthenia from other neuropathic conditions with which it is often confounded. True neurasthenia, he maintained, is always due to an intoxication produced either by physical, intellectual, or especially moral fatigue, of an infective nature. This intoxication leads to nutritive disturbances of the cells of the body, and especially of the nervous system. Hence the rational treatment of neurasthenia should be directed towards a disintoxication and reconstitution of the cells. He did not deny the mental or psychical factor involved in the disease, but the weakening of volition is only a result of the physical morbid condition. Psycho-therapy, persuasion, re-education of the will are of value, but they can only be regarded as complementary, and do not form the basis of rational treatment.—The *British Homœopathic Review*, June, 1909.

Results of Bismuth Treatment.

A list of 192 cases treated by this method is given, of which 66 per cent. were cured, 28 per cent. improved, and six unchanged. They consisted largely of tubercular diseases of bones, joints and glands; many also of osteomyelitis of various bones. Empyema of the chest was cured in fourteen instances, with four failures recorded. In sinuses after abdominal operations thirteen out of sixteen were cured, and in fistula *in ano*, thirteen out of eighteen, with five failures. These results were announced by Dr. Emil G. Beck, of Chicago, in a paper presented by him to the International Congress on Tuberculosis. Several other surgeons, who had used the method, spoke highly in its favour. Dr. Ochsner speaking before the Chicago Medical Society said: "I have employed this method in about twenty cases of old tubercular sinuses. The possibility of application of bismuth paste is so great, and the proportion of satisfactory results from it so large, that I look upon it, in appropriate cases, as the most important advance in surgery that we have had during the past two years. I have applied the mixture in practically every part of the body, with the exception

of some special parts like the nose." There is said to be little fear of *bismuth*, poisoning, unless extravagantly large quantities of the paste are used; 100 grammes is said to be the safe limit. If space requires more, the proportion of *bismuth* should be diminished. If any of our surgeons have had experience of the method we hope they will let us know their results.—The *British Homœopathic Review*, June, 1909.

Three Cases of Hysterical Loss of speech.

Sanz reported three cases of hysterical loss of speech before the Medico-Surgical Academy of Spain. (*Annales des Maladies de l'Oreille, du Larynx, du Nez et du Pharynx*). Case I, an adult, peasant, received a blow on the mouth from which he lost consciousness. Five hours later he revived. He was able to understand, but was not able to speak a single word. There was contracture with semi-tonic spasm, semiclônic, and trembling of palpebrum as in hysterical crises; from time to time there were violent motions of the thorax which the patient later explained were due to efforts to speak. Pupillary and cutaneous reflexes normal. Reaction to touch and heat normal. Field of vision contracted and a zone of hyperesthesia at the vertex. For two days he refused solid food and was contented with milk; the third day he was offered a roast which he rejected with extreme repugnance. He vomited violently and recovered his speech. Case II, a young girl of 17, subject since the onset of puberty to attacks of hysterical loss of speech accompanied by hysterical convulsions. These were finally ended by psychical treatment of the patient. Case III, a woman of 25 attacked with trismus and inability to speak, although she could understand and could make herself understood by signs. Anesthetic zone on the extremities and $\frac{c}{c}$ the face and front of neck. This condition appeared and reappeared a number of times in several hours. Patient subject to convulsive crises. Reflections: The two last cases showed the intimate correlation between speechless attacks and the convulsive attacks which either accompanied, just followed, or preceded them.

In the discussion, Dr. Erneste reported two cases where he had obtained a cure by intralaryngeal applications. He made the patient believe he was using strong caustics. The characteristics of hysterical mutism are: (a) appearance and disappearance under causes that produce lively impressions on the subject. (b) The coexistence or

coincidence of other hysterical phenomena. (c) The persistence of the sonorousness of the voice. (d) The anatomophysiological integrity of the larynx as shown by examination by the laryngoscope.

Dr. Valas reported having cured one case by electricity applied to the neck, and another by suggestion. Dr. Abredoredo said a tuberculous patient in the early stages presented periods of mutism, alternated with periods of difficult phonation. Paryngeal anesthesia which was marked led him to suspect hysteria. He believes that hysteria stigmata have a real value in diagnosis. The *North American Journal of Homœopathy*, September, 1909.

Alcohol and Tuberculosis.

It is already well known that alcoholism creates a state of receptivity particularly favorable to the development of tuberculosis, says a writer in the *Revue Scientifique* (Paris, June 12). Mr. Jacques Bertillon has presented these relations somewhat strikingly in a set of maps embodying the latest French statistics. Says the writer cited above :

"On the map of France it may seem that the northern departments drink, per inhabitant, more brandy than the central and southern departments. The line of separation is represented exactly by the limit of culture of the vine. In the wine-drinking countries, the consumption of brandy is comparatively small; it is considerable in the cider and beer regions. The dwellers in the east of France drink some brandy and much absinthe. The second map presented by Mr. Bertillon shows that the frequency of tuberculosis is much greater, with some exceptions, in the regions where most alcohol is consumed. The phthisis map may be superposed on the alcoholism map. On the other hand, phthisis is more frequent among saloon keepers than with other merchants (579 deaths annually, in 100,000 persons, as compared with 245). It is probably alcohol also that makes phthisis twice as frequent, in Paris among men than among women." The *North American Journal of Homœopathy*, September, 1909.

The Germ Theory.

This theory is receiving some quiet knocks these days. Dr. C. S. Grulee, of Chicago, recently read a paper on the summer diarrhoea of children, or cholera infantum. He does not think that the *bacillus dysentericus*, or the *b. acidophilus*, *b. enteritidis*, *b. pyocyaneus*, or *b. coli communis*, are any of them the cause even though the learned bacteriologists have so asserted. Dr. Grulee said: "Usually, although the onset apparently is very sudden, still if we inquire more closely we will find that there have been present for days, weeks and even months, symptoms which point more or less directly to derangement of the gastrointestinal functions and the normal metabolism of the child. Why should we resort to infection to explain a condition which is more easily explained by a graver error of the same sort or a continuation of the same error past the point of tolerance?" Also: "At present it seems to me that the infection nature of summer diarrhoea has not been proved; in fact, quite the contrary." Probably the same thing will some day be said of all the germ diseases, *i. e.*, that the "germ" has nothing to do with the cause of the disease.—The *Homœopathic Recorder*, September 15, 1909.

Constipation with Infants.

The worst cases of constipation are found in infants and sucklings. Many children suffer unspeakably from this cause, especially as the ordinary treatment with laxatives only aggravates the situation. A considerable improvement may often be attained by dietetic measures, but an actual cure is usually only attained by the use of the specifically acting remedy, selected according to the laws of similars, and this will then not only act upon the intestines but also on other morbid symptoms of the body. Children who suffer from glands in the abdomen tend to be the most obstinate constipations. These cases are usually cured by *Plumbum*, and especially by *Plumbum acet.*

With a delicate child suffering from an obstinate constipation and prolapsus of the rectum, *Silicea* gave immediate relief.

Another case, that of a little girl, two and a half years of age, who first suffered from bloody evacuations, and afterwards with constipation attended with a white coating of the tongue and lack of appetite, *Lycopodium* brought great relief.—The *Homœopathic Recorder*, September 15, 1909.

The Resurrection of Homœopathy.

The reader is implored not to be downhearted at the pessimistic future said to be before homœopathy. Such utterances as are to be found in the *Illinois Medical Journal* reveal a narrow vision and the writer's very circumscribed horizon. In the process of evolution we look for change in all things, and homœopathy can hardly be expected to be an exception to the rule. So now the keen observer sees a resurrection of homœopathy, an evolved homœopathy coming into its own. In the meantime there is a silver lining to every cloud, and it is a pleasure to confront the above forecast by that of Dr. A. Gimeno at the last National Congress of Tuberculosis, held in Zarasora, Spain. Dr. Gimeno acclaimed Hahnemann as "a genius, who, at the beginning of the nineteenth century, foretold the modern routes which science would take." He pointed out that the efficacy of the infinitesimal dose is daily demonstrated by physicists and bacteriological therapists, and "consequently we owe veneration to the founder of homœopathy, who anticipated what the course of events has come to sanction." This eminent professor of Therapeutics of the Medical Faculty of Madrid, and ex-Minister of Public Instruction was big enough to make the amende honorable. "What I have stated is so certain, that I, the author of a work on the therapeutics, published in Valencia twenty-five years ago, and a text-book in the universities of Spain, highly deplore to have devoted in said work some depressive pages to Hahnemann and his followers, a wrong which modern discoveries are now committed to mend; pages I wish I were able to tear from my book."—The *North American Journal of Homœopathy*, May, 1909.

The Opium Question.

We learn from the *Medical Record* that the United States has invited all the countries "which participated in the meeting of the International Opium Commission at Shanghai, China, last February, to send delegates to a second conference, to be held at The Hague in the near future, at which means will be considered for the international control of the production, manufacture, and traffic in opium, with a view to the complete suppression of the use of opium, except for medicinal purposes. Dr. Hamilton Wright, who was one of the American delegates to the conference at Shanghai, is preparing a programme to govern the discussion of the conference. It is hoped that the conference will also take up the question

of the use of cocaine and other narcotics and habit-forming drugs. Dr. Wright is preparing legislation for submission to the United States Congress, which, if enacted, will place the manufacture of and inter-State traffic in habit forming drugs under the supervision of the Bureau of internal Revenue.—The *British Medical Journal*, August 7, 1909.

The Revenge of Homœopathy.

The Gazette has received a translation from the *Bruxelles Illustré* of Juillet 21, 1907, of an article that will be of interest to its readers.

Our physicians have usually only a disdainful shrug of the shoulders when one dares to speak to them of homœopathy.

Homœopathy, which sees itself so often vilified, even denied by allopathy. The official doctrine of the faculty has been covered with eulogy by one of the most distinguished members of the Academy of Medicine, by one of the most learned physicians of the Paris hospitals, Dr. Huchard. This excellent practitioner terminated his series of six conferences, to which from all parts of Paris crowded the doctors, anxious always to be instructed.

Before an enormous audience Dr. Huchard covered with flowers the homœopathic doctrine, saying impressively :

Gentlemen :—We give too much medicine ! And by it we are often injurious (nuisibles) to our patients. The same medicine has entirely contrary effects, according to the strength or weakness of the dose. Thus, a large dose of strychnine administered to a dog paralyzes him. Whereas, a moderate dose augments the contraction of the muscles (et le tetanise.)

You heard me recommend one to give in certain of our cardiac cases one or two drops in water, per day, of the 1000th solution of digitalis (au millième), and I saw you were astonished at the administration of such infinitesimal dose. It is important for you to know that the organism profits and derives much advantage from this—our cells are more sensitive than we can imagine to small doses of medicaments, and they are more easily impregnated by them. Thus, trinitrine works marvellously in doses of one drop of an alcoholic solution 1-100 in water. The more I advance in the practice of medicine the less medicine I give.

Look at my friend, Albert Robin, who administers to his patients a 500th milligram of gold or silver (ferment metallique), and obtains great results.

And our grand Pasteur—what has he done in injecting considerable doses of his virus, of his toxins against the ravages of diphtheria according to homœopathy. And the illustrious Trouseau, and so many others. What have they so often practised, if it is not homœopathy?

But the very word seems to make one afraid, and is not pronounced. Very well—I—then pronounce it and I render it homage. Let us have courage of our opinions. Do not be sectarian. Let us take the good wherever we find it.

This lecture, which was a review of his six admirable conferences, has recalled the thesis of Van Zype in his beautiful comedy of *Les Etapes*: "Those who despise the pest must sooner or later render it justice."—The *North American Journal of Homœopathy*, May, 1909.

The Cumulative Effect of Serum.

The *Jour. A. M. A.*, May 8th, contains a letter from Dr. H. D'Arcy Power, of San Francisco, relating his personal experience with serum. In 1902 he gave himself an injection of antitoxin as a prophylactic with no inconvenience. A few months later he received an injection of Haffkine's prophylactic against the plague, to which there was a severe reaction and malaise. This year, 1909, he again had a prophylactic dose of antitoxin, an interne at the same time receiving one. A very decided and serious state followed it.

"Now the main interest of the case lies in the fact that in 1902 I was not susceptible to the toxic action of the serum; in 1909 I was intensely so. The serum of the latter date was not toxic in itself, as shown by its lack of action in the case of both patient and interne—ergo it would seem as though I had been activated by the first dose and remain so after a period of seven years. We clearly need the aid of a careful investigation into the question of time limit. It may well be that my experience was not so exceptional as it appears."

And while investigating the time limit it might be well to look into the permanent changes for the worse wrought in the body by

those injections of brute serums into human beings. The fact that it happens to be the "correct thing to do at the present stage of the game" does not guarantee its being harmless. It may be laying the foundation for another kind of poison.—The *Homœopathic Recorder*, June 15, 1909.

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**Lines to Hahnemann on the Anniversary of his birth,
April 10, 1755-1909.**

Translated from the German of Br. Heine, *Leipziger Zeitschrift
für Homœopathie*, April, 1909, by P. W. Shedd, M. D.

Ye think, because in alien land
The elements long, long ago
Dispersed his mortal frame, that he
Is dead, with none to love and know !
Ye err. His work, his spirit great,
His potent words are consecrate ;
Nor longer shall ye mock him.

In his achievement still are traced
The ardors of a puissant soul
That fled no conflict, and whose glaive
Still driveth, flame-like, to its goal.
Who shall compute the myriads, who
With us give land where land is due,
And gratefully extol him ?

Close upon truth, though knowing not,
Great Science plods its rugged way ;
At each turn finding guide-post placed
By him long dead, ere it saw day.
That ragged jest of ancient schools,
The magic power of molecules,
They're now assimilating.

Why fear ye, then, the simile,
Why teach ye its abhorrence ?
Your sera are but isons tagged
With modern science warrants.
Ay, ye are close to truth. Proceed
Courageously in word and deed,
And ye shall know your master.

Till then, with hate and witless quip
 Scorn not instruction from the peer ;
 Ye, whom Hippocrates hath sworn
 To use all means to cure and cheer.
 In equity, prove ye a law
 That fears no test. Seek ye a flaw,
 And bide by the conclusion.

He is not dead, for in the hearts
 Of grateful men he ever lives.
 His therapy law-governed, gave
 Relief and health,—and ever gives.
 Think ye that those drawn from death's gate
 By Hahnemann shall prove ingrate
 Or e'er forget their saviour ?

So, in his spirit let us bide ;
 In steadfast hope unshaken.
 The victory shall yet be won,
 And truth at last shall waken.
 Though hard beset with many foes,
 By each new foe the honor grows,—
 And ours the final triumph.

The *Homœopathic Recorder*, June 15, 1909.

Professor Pflüger.

Pflüger, the doyen of German physiologists, had just celebrated his eightieth birthday, and although we are a little late, we join very heartily in the congratulations he is receiving. His vigour in research and in teaching appears to be unabated, and we sincerely hope he has still many years of useful work before him. Among the tributes of respect and affection he has received is the publication of a little pamphlet by his former pupil and now his colleague in Bonn University, Professor Nussbaum, *E. W. F. Pflüger, als Naturforscher*. This gives a complete list of his publications, and an appreciative account of his work in connexion with the multifarious physiological subjects he has investigated in relation to histology, embryology, chemistry, metabolism, philosophy, psychology, and the nervous system. To the student of physiological textbooks, Pflüger is best known as the author of the law of contraction, and as the originator of sound views on the nature of

protoplasm, and the part played by the living cell in metabolism. These, however, constitute but a small fraction of his many contributions to the progress of natural knowledge, for every subject he has taken up he has illuminated. His publications to date reach the number 199, stopping just short curiously enough of the second century, if we may borrow the phraseology of cricket. Like most cricketers, too, he is a good fighter, and his love of polemics is well illustrated in the list of his papers. No notice of Pflüger, however short, should omit to mention his celebrated *Archiv*, which has formed part and parcel of his life, and is now recognized as the standard physiological periodical in Germany. He founded this journal in 1868, and its 128th volume is now in course of publication. May it, like its author, long continue to flourish.—*The British Medical Journal*, August 14, 1909.

Bismuth Paste in Sinus Cases.

Sinus cases are often a bugbear to the surgeon, and especially to the general practitioner, when they are left in his hands after an operation. The various methods of inducing healing by freshening up the walls of the sinus with caustics, mercurial, &c., are uncertain and troublesome. Persons in otherwise good health may be condemned to a life of semi-invalidism by chronic discharge from an unhealed channel or tuberculous ulcer and exposed to the constant risk of septic poisoning. Any reliable treatment for the cure of these conditions is to be welcomed, and we note with interest the experiences recorded in the *Medical Brief* of several American surgeons with Beck's *Bismuth Paste*. This has been used successfully in all kinds of sinuses, except biliary, pancreatic, or cranial. It consists of one part of subnitrate of bismuth mixed with two parts of vaseline and boiled. This paste is injected whilst fluid, and not too hot, with some pressure into the sinus, a sterilized glass syringe with a urethral tip being used. This is carefully withdrawn and a sterile gauze sponge quickly substituted, to maintain gentle pressure until the paste has cooled when it is less likely to be forced out. If necessary a little white wax or soft paraffin may be added to raise the melting point of the paste. The injection may be repeated every four or five days, but often one injection suffices.—*The British Homœopathic Review*, June, 1909.

CLINICAL RECORD.

Foreign.

IGNATIA AS A RECTAL ANODYNE.

BY HARVEY FARRINGTON, M. D., Chicago.

CASE I. Mrs. M. W., age 37, stout, plethoric, excitable, has suffered from piles off and on since early childhood. Her mother died of cancer of the rectum. She came to me on Dec. 19, 1901, with the following symptoms: Pain in the rectum for hours after stool, whether it be soft or hard—throbbing and pricking, relieved by either cold or hot applications. Headaches in the vertex accompanied by nausea. Menses three to five days early, profuse, clotted. Burning of the soles of the feet. Craves sweets of all kinds especially cake. Much flatulence in the abdomen after eating so that at times she is obliged to loosen the clothing. Occasional spells of diarrhoea which drive her out of bed at 5 a. m. Sulphur relieved her for some time and later a course of Carbo veg. from the 1m. to the millionth, so ameliorated the symptoms that she stopped coming for treatment.

October 6th of the following year she came to the office saying that the same old pain had returned with redoubled severity, and she feared that a rectal cancer was developing. A homoeopath—and a supposed Hahnemannian—who was attending a relative whom she was nursing had added to her anxiety by telling her that she would never find permanent relief until she was operated on. The general aspect of the case had changed. She was more nervous and excitable than ever characterizing her symptoms with adjectives all in the superlative. The headaches still persisted and she stated that she was hungry while they lasted. The menses came every three weeks. Rectal inactivity; can with great effort void a normal soft stool, but usually without pain. In an hour or so after evacuation the most horrible throbbing begins and persists for a long period of time. At various times during the day there are sharp, sticking pains which shoot upward into the rectum. The hemorrhoids protrude after stool and at times they bleed. Pain in the rectum when coughing. A close study of the case led to the selection of Ignatia, which gave immediate relief in the 1m. potency.

December 10th, the symptoms returning, the same potency was again given. One dose of the em. was administered about two years ago and since that time there has been neither pain nor soreness in the rectum.

CASE II. Mrs. W. H. K., age 38. Thin, spare, dark hair and blue eyes. For several years she had suffered from hemorrhoids and fissura ani, with bleeding and extreme pain. She had been told by two physicians in San Francisco that surgery was the only means for her relief. But she, being timid and nervous, refused to be operated upon and decided to try a trip east, as she said "for the benefit of her nerves." Accordingly she packed up and went to visit some relatives in Connecticut.

On reaching her destination the rectal trouble became so much worse that she consulted a local physician. This man, evidently of the old school, claiming that he could not help her until he understood the condition more fully, attempted to introduce a speculum. The resulting pain was so intense that Mrs. K. leaped from the table and vowed she would not let him touch her again. In a few hours she was on the train homeward bound but suffering such agony that she feared the loss of her reason. At one time it required all her power of will to keep from jumping through the car window. The only relief she obtained was through frequent swallows of whisky, and judging from her own account she must have taken enough to intoxicate any one under less of stress and nervous tension. She had planned to go right through to the coast, but on nearing Chicago her courage gave way entirely and she stopped off, taking refuge at the house of a sister of hers living here, who was also my patient. This is how I came to prescribe for her. She lay with knees drawn up and spread apart, moaning with pain, nervous, trembling and talking rapidly and excitedly. She said that the pains were burning, throbbing and knife-like, coming immediately after stool and lasting for a long time. There was always more or less bleeding. She also described her state of mind while riding on the train and said that it was not new, as she frequently woke in the morning with a horrible sensation of depression.

Of course I thought at once of Lachesis. An examination revealed a tightly constricted sphincter, one or two small hemorrhoids and a small fissure. Since the patient had come direct from allopathic hands, I anointed the parts with a little olive oil for

the mental effect, and gave a dose of the remedy in the em and sat down to await results. After twenty minutes the pains being no better I gave another dose. No effect. Then I remembered my former experience, and dissolving Ignatiâ B. & T.'s one thousandth in water gave the patient several teaspoonful doses a few minutes apart. The effect of the first dose was almost immediate, and in half an hour she was almost completely free from pain. A normal stool the next morning caused considerable suffering, but the patient was able to resume her journey with comfort at the end of a week. Her sister told me afterward that she thought that I had used cocaine. About a month ago Mrs. K. passed through Chicago and stopped at my office to thank me for saving her from the surgeon's knife.

CASE III. Mrs. Myrtle C., age 34. Dark hair, black eyes and rather fleshy. She had been a patient of the late Dr. H. C. Allen. On hearing of the doctor's death she applied for treatment to the only physician she knew, the dean of one of our homœopathic colleges. He made an examination and at once told her that operation was the only cure for the condition he found. This verdict was so at variance with what Dr. Allen had told her that she determined to hunt up his successor and so came to me.

Dr. Allen's record showed that she had been taking Sulphur. This I repeated with benefit finally reaching the millionth of Fincke. But the relief was only partial. Nitric acid and Lachesis were absolutely ineffectual—evidently chosen with too much regard for the nature of the local trouble. One night about six weeks ago I was awakened by the night bell and found a messenger from Mrs. C., who said she was almost insane with pain and wanted immediate relief. Her symptoms were as follows :

Boring in the rectum like a worm ; burning, rasping like a hot toothed instrument turned in the rectum, < during and long after stool.

Ignatia 200, seven doses at two hour intervals relieved the pain and in two days a normal stool was passed without suffering.

There is one feature of this case that I have failed to mention but which is of interest from a clinical point of view. The messenger who came for the medicine must have been nearly three hours making the journey. The patient, anticipating this, and suffering intensely, suddenly thought of a box of morphia tablets she had

Oct. 1909.]

Clinical Record.

stowed away. She got them out and took one. In an hour experiencing no relief, she took another, and even after the medicine arrived she took the tablets until in the space of four or five hours she had ingested four quarter grain tablets of the drug. The only effect was a drowsy, stupid feeling, which clung to her for three days. The pain did not abate till she had reached the third dose of Ignatia, and then it gradually passed away. Whether the overdose of morphia had anything to do with the relief of the pain I cannot say. I believe that the remedy would have acted more promptly if it had not been for the alkaloid, and yet it went right on, healed the rectal tissues, and there was not the slightest sign of constipation following.—*The Medical Advance*, August, 1909.

Gleanings from Contemporary Literature.

MEDICAL INSPECTION OF INDUSTRIAL PLANTS.

BY C. T. GRAHAM-ROGERS, M.D.

New York City.

Large industries in America show a strong tendency to concentration, due to the introduction of machinery replacing hand work, the necessity of power to operate the same, and the generating of power at least expense. It was found that unskilled labor could operate the machines, which meant cheap labor was needed; this created a demand for women and children as workers.

While the output was increased, and accessions made to the number of employees, no additions were made to the size of the plant, unsanitary conditions were thus introduced, the workers subjected to monotony, deprivation of open air life, and loss of opportunity for proper social entertainment. This became a great factor in causing degeneracy and illiteracy.

Society and state recognized the need of proper supervision to combat this condition, especially for economic reasons, so there was established the inspection of factories; as it became apparent that sanitation and hygiene played a most important part in the remedying of conditions in industrial plants, and should be handled by those properly trained to deal with the subject, there was provided the medical inspection of factories.

Medical inspection is of but recent date and made possible by the progressiveness in the sanitary sciences. Medical inspection of industrial plants, though of the utmost importance, is comparatively new. Great Britain in 1898 provided for a medical inspector of factories. Belgium a few years later provided for a central medical inspector of factories, with several district inspectors. Holland has provided the labor department with a consulting medical officer.

New York State is the pioneer in this country to provide for a medical inspector of factories, provision for same having been made in 1908.

The peculiarities of the laws in those foreign countries which have provided for medical inspectors of factories, has made it possible for such officers to devote their entire time to questions of industrial poisoning and occupational diseases, leaving sanitary matters to the police and health officers.

In Great Britain there is a close co-operation of the local health officers with the factory inspectors, besides, provision is made for a number of certifying surgeons, one of whose duties it is to examine children as to their ability to perform the work they intend entering upon.

In foreign countries, especially Great Britain, the method of investigation has been that of legislative commissions; at various times committees have been appointed to look into matters relating to the effects of various industries upon the health of the workers, and the remedial measures applicable to same; also the subject of ventilation of factories and workshops. The reports of these commissions had much to do with creating the office of medical inspector of factories.

In this country, statistics must first be gathered as a basis to show the necessity of appointment of inspectors; hence the bureaus of statistics have preceded, and been the cause of the creating of bureaus of inspection. Especially is this true of factory inspection, being the reverse of the foreign methods which serve as a model for many of the states of this country.

While we may look to Great Britain for advanced laws in respect to factory inspection, a glance at our own country will show New York State standing preeminent and second to no country in the soundness of its laws relating to labor, and the efficiency of its factory inspection service. But all laws are not perfect, and it is only by enforcement that we may find ways of betterment. It is necessary to be progressive, and keep pace with industrial conditions and problems arising therefrom, that legislation may be of service to producer and worker alike; this is especially true of laws relating to sanitation and hygiene, due to the progressiveness and vast strides made in the science of medicine.

Factory laws are intended primarily for the protection of life, limb and health of the worker, and ultimately to increase the physical and intellectual efficiency of the present and future generation; hence the necessity of medical inspection of industrial plants.

In industrial employment, especially where the worker is confined indoors, with the opportunities of poor sanitation, exposure to dust, and vitiated air, it is not as conducive to good health as work in the pure outdoor air.

Occupation, both mental and physical, is a physiological necessity, regular systematic labor contributing to the health, while lack of it is a frequent cause of illness. Occupation is harmful if performed under unhygienic conditions, if it requires too prolonged attention, or results in fatigue; physical deterioration is due therefor to controllable causes.

Physicians should be advisors, not critics; they should direct and participate in all movements for reform that aim to improve hygienic conditions; medical inspection of industrial plants then, should include the questions relating to sanitation, ventilation and industrial hygiene. We must also consider the relationship thereto of the question of vital and morbidity statistics, with a view toward the important bearing they have upon economic conditions.

SANITATION.

While the term sanitation really means all that is conducive to good health, it is generally accepted as applying to plumbing, drainage, sanitary conveniences and cleanliness. Such close attention has been given to this subject by the health department, both state and municipal, that the general public has in a way come to realize its importance.

The labor department through its bureau of factory inspection has done good work along this line in industrial plants; open plumbing and flush bowls are replacing the obsolete and unsanitary school sink pattern of water closets, and the unhygienic and unsanitary outdoor water closets are gradually being removed.

The labor law contains sections dealing specifically with sanitation. One section provides a very effective and immediate remedial measure for use of the department in punishing those having unsanitary conditions present in tenant factories, which are buildings in which there are two or more separate factories; also in workshops, in tenements and in bakeries.

If upon the visit of a deputy factory inspector, he finds unclean or unsanitary conditions present, a special inspection card covering the subject is made out and at once forwarded to the department; upon receipt of same, the commissioner of labor or the first deputy commissioner, who is also the chief of the factory inspection bureau, issues an order to apply tags if conditions are not remedied; two deputy inspectors then visit the place, and if conditions have not been remedied all work is stopped, and the goods are tied into bundles to which is attached a red card bearing the word unclean. When the conditions have been satisfactorily remedied, and not until then, are the cards removed and permission to continue work granted. One dose of this medicine is usually sufficient, and the fears of these summary measures are more effective than the long, tedious process of the courts, with its sometimes unsatisfactory results.

In bakeries, the oven doors are sealed; in tenement houses, the license to carry on work is revoked.

Air, water and food, are the essentials of life. The subject of food adulteration has received special attention and pure food laws have resulted. The water supply is guarded by the health officer, physician and general public, so that there may be no pollution, and that it may not become a medium for the spread of disease. What has been done regarding the air, that first indispensable necessity of man? We find but very little has been done, despite the fact that all investigations into industrial poisonings, or diseases, have resulted in the recommendation of "air," "pure fresh air," as a remedial measure; though the scientific world has insistently proclaimed of the harmful contents and dangerous results of vitiated air, and beneficial influences of pure air,

all of its teachings and warnings from a hygienic standpoint have been of little avail.

One of the most important subjects coming under sanitation has been left severely alone, and that is the subject of ventilation.

Tupper in his *Proverbial Philosophy* says :

“For good men are the health of the world, valued only when it perisheth.

Like water, light and air, all previous in their absence.

Who hath considered the blessing of his breath till the poison of an asthma struck him ?

Who hath regarded the just pulses of his heart, till spasm or paralysis have stopped them ?

VENTILATION.

The question of ventilation should interest not only the medical officer and inspector, but the physician and general public ; yet it is only within a few years that any marked attention has been paid to it ; most of the work has been in regard to schools, the result of the victorious campaign now being waged against pulmonary tuberculosis.

Ventilation means not only the supplying of pure fresh air, but the removal of impure air, all without discomfort to the worker ; in other words, ventilation is the maintaining of a proper degree of temperature and humidity while imperceptibly changing the air. So little real thought has been given the matter, that in up-to-date buildings where expensive ventilating systems have been installed, the results of tests showed the system to be faulty, necessitating great changes. Where exhaust fans were installed, they were useless owing to being wrongly set, and creating great draughts. Where the ordinary small electric cooling fan was used, the air driven about by the fan was found to be more impure than that at the breathing level in portions of the room having no fan.

The greater part of the diseases from which workers suffer are respiratory diseases, due to lack of fresh air, and to the improper degree of temperature and humidity maintained in industrial plants and the home, and investigation has shown a reduced death rate following installation of proper ventilation in hospitals, prisons and even among horses in stables.

Outdoor air is now recognized as the best remedial measure to be used in respiratory disorders, and it is not merely because of its purity, but because outdoors we find a proper degree of humidity ; given the same condition indoors, and we proceed to eliminate the cause of respiratory diseases. We have thermometers to measure temperature, and even the most ignorant of the laity have some knowledge regarding it, but the question of measuring humidity, which is of far more importance than temperature, is given very little thought even by physicians ; we should get just as well acquainted with the hygrometer, and realize in this manner

what is undoubtedly a great factor in the cause of respiratory diseases among workers.

In 1900 a special committee was appointed by the British Home Office (which supervises the work of factory inspection) to enquire into and report upon, the means of ventilation in factories and workshops, with especial reference to the use of fans; the use and construction of respirators for the protection of work people exposed to dust or dangerous fumes.

It was not until 1902 that a first report was made, mainly the work of Dr. John Scott Haldane, the eminent ventilating authority. The results of large numbers of air tests which were made, showed conclusively the need of artificial means of ventilation in industrial plants.

During the past year the labor department had its medical inspector make a large number of air tests in various industries, with the result that windows and large amount of cubic air space per person, were shown to be no guarantee of, nor proper and sufficient means for ventilation, proving conclusively the necessity of artificial means of ventilation in industrial plants.

Since the creating of the office, the greater part of the work of the medical inspector of factories was directed toward enforcing the section of the labor laws dealing with ventilation; tests in various industries showed a very high percentage of CO₂ and shortly after the work began there was a sudden waking up, not only of the factory owner, but of the ventilating engineer. While there was some slight opposition, necessitating the institution of prosecution, there has been found a general willingness on the part of the large plants to comply with the law and remedy any evil condition found.

The large number of tests made by the department in so short a space of time was due to having an apparatus whereby the determination of CO₂ could be made directly within a few minutes time, and without having to calculate for temperature or pressure; tests were completed upon the spot.

After some investigation, the Peterson and Palmquist apparatus was selected and used for the work, and its value demonstrated; while it is somewhat bulky, after a year's experience, I made some changes of value in the apparatus whereby it has been reduced in size, and can be conveniently carried about from place to place, and would prove a valuable aid in the hands of health officers and inspectors, in determining the purity of air, as heretofore to make air tests one must be a fairly skilled chemist and mathematician, and provided with much apparatus and a laboratory; this way it is merely a matter of fine manipulation.

Many of the British tests were made with Dr. Haldan's apparatus which is very portable, but in my opinion not as accurate as the Peterson and Palmquist apparatus.

To the state, the welfare of the workers has ever been a subject of great importance, because of its influence, social and political; so to

its notice has been brought the fact that the existence of harmful conditions in industrial plants affects not only the health of the workers, but that the health of the public in general is directly, and indirectly influenced by unhygienic industrial conditions; and that to thoroughly understand the evils, ascertain the cause, and secure effective remedies for amelioration or removal, an unbiased and searching investigation is necessary, and a proper supervision must be maintained.

Well meaning but inexperienced workers in the field of social economies, present exaggerated pictures of factory conditions, especially regarding women and children, based mainly upon reports and observations of others made some years ago, or upon isolated cases seen; no real statistics have been obtained, nor close inspection been made into all conditions, or of the laws as existing at present. Advocacy of drastic laws alone will never cure evil results; where we tear down we must be prepared to build better than before, and to build at once. Where we prohibit labor we must substitute that which will build up physically, mentally and morally, and at the same time decrease poverty.

The subject of industrial hygiene embraces all these questions, and plays an important part in economical conditions, and deserves careful study on the part of those engaged in the medical inspection of industrial plants. To present the subject properly would take up much of our time and it is with reluctance that I must omit much that would be of interest, and provide subjects for valuable discussion.

The Labor Laws of this state contain many sections relating to health and safety, and a careful perusal of the annual report of the department will show the beneficial results obtained from rigid enforcement of same.

The physician, be he medical inspector or statistical investigator, seeks the cause of disease and prescribes a remedy. In all habitable buildings hygienic rules should be followed, for by these rules alone can we prevent the many diseases, resulting from defective construction of building or effect of industrial occupation.

It must not be expected of the physician to have ability to pass upon architectural plans or structural details; it is the duty of the technical engineer to solve the problems put by the physician, but not entirely from a technical standpoint; there should be close co-operation between the engineer and physician; while it is essential that the physician have some knowledge of architecture and mechanics, and the engineer a knowledge of the elements of hygiene, neither should presume to advance too far into the domain of the other, as there are times when local conditions will require modifications or changes in hygienic requirements.

Great sanitary reform need not be impeded by economic reasons; and the enactment of legislation alone will never secure proper industrial hygienic observance until the workers themselves are educated to the

dangers of particular occupations, or by co-operation make regulations effective.

The hygiene of the home is beyond the control of the labor department, but education and the local health officer can accomplish much. The aim of the working class has ever been to improve their condition sanitary and hygienic, and should be encouraged. The hygienic conditions existing not only in some of the places where they work, but in the places where they live, are an injustice to the working class, and there are times when the general public, through epidemics, pays a great penalty for these conditions.

Medical inspection of factories is necessary to secure a high standard of health and well being, economic efficiency, and a longer average duration of adult life ; and there should be a close co-operation with the labour department on the part of the health officers and educators that these results may be brought about.

The question of employers' liability is receiving the close attention of legislators, therefore the important need of statistics relating to industrial plants, especially those bearing upon the effects of labour upon women and children, occupational diseases, and injuries.

The labour department has for some years, through the medium of the section of the law requiring the reporting of accidents to the Bureau of factory inspection, secured valuable statistics upon the subject of accidents.

The reason given by the many factory owners and superintendents, for the cause of accidents, especially where automatic machinery is used, has been carelessness due to familiarity, and that despite the guarding of the machines. A careful observation has led me to believe that the cause is mechanical hypnotism, made possible by the constant, steady watching of the fast moving work aided by fatigue, bad air, poor nourishment, strained position, and rhythmic monotonous din of machinery usually in a gloomy room where artificial light is necessary to illuminate the work. Mr. Chaney of the Federal Bureau of Labour says, "that results of observations made by him as to accidents occurring in ventilated and unventilated shops showed, that in the early part of the day, results were about even, but in the latter part of the day there occurred about twice as many accidents in the poorly ventilated, as there did in the well ventilated places, showing that there must be some connection between lowered vitality and accidents, and not merely carelessness on part of worker."

The general practicing physician finds most of his patients among those who work for a living ; and it is surprising the few statistics, and the very little that has been written or advocated regarding the occupational diseases, industrial hygiene, and the effects of labor upon women and children.

Facts of industrial life measured wholly from statistics can never be entirely accurate, but should we reject the statistical method we would be unable to inquire into many problems of the greatest importance both to public and worker. While there may be wide differences of opinion as to the importance attached to the statement of facts, the facts stated should be beyond question, and the appeals to statistics should always be final as to the facts.

The wrongs of the weaker class are not righted by arbitrary interference which seeks to aid them at the expense of those with whom they have economic relations; so when unexpected changes relating to sanitation and hygiene in industrial plants, beneficial not only to worker, but to the public, cause extra expense to certain individuals, they have no right to demand that their losses shall be shifted from themselves to other persons with whom they have industrial relations. It will require persistent agitation, and emphatic demonstration, that an effective warfare may be conducted against conditions injurious to health, both in trade and industry.

Vital morbidity statistics together with physical records of the school and factory child are a basis for improving conditions. The children of to-day are the nation of to-morrow, and it is our duty to make it stronger physically, for it then becomes easy to make it stronger mentally and morally.

The physician must realize the importance to himself, the benefit to the profession at large, worker, capitalist and public, and general economic effect resulting from reliable statistics made possible by his co-operation in accurately reporting such statistics; morbidity statistics relating especially to those diseases due wholly to or influenced by industrial conditions are of importance because of the bearing they have both upon sanitation and economics.

While we obtain statistics relating to adults, the child, especially the growing girl must not be lost sight of; school conditions have done more to weaken than factory condition. Physical and mental conditions of the factory child are not wholly caused by the amount of work required, but the condition of the child itself. Recommendations for correction should be made along the line affecting individual, and this after careful investigation of causes; it becomes a matter of economic importance to the State that the child be educated along lines toward developing a type.

America needs skilled workers, hence the need of technical schools more so than high schools.

The medical profession should see that proper safeguards surround the physical welfare of the child; the obtaining of useful facts at the expense of ill health and mental deterioration is too great a price to pay. That we may have statistical facts as a basis for remedial measures tending toward the betterment of industrial conditions surrounding the worker,

we should have : First, a physical record of the school child. Second, a physical record of the child made by the local health officer, and written upon the working certificate. Third, a physical record of the working child. Fourth, a physical record of the working child.

Thus with the co-operation of the education and health departments, and the reporting of morbidity as well as vital statistics, much will be accomplished toward showing the benefit of closer medical inspection of industrial plants, as well as of industrial workers.

The workers look to the state for betterment of their hygienic and sanitary surroundings, which ultimately reflects upon the general community ; such betterment tends to secure a more stable economic condition, and raises the physical, mental and moral standard of our citizens.—*The North American Journal of Homœopathy*, June, 1909.

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Forty-seventh Annual Returns of the Government cincona plantation and factory in Bengal, for the year 1908-09.
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BRITISH HOMŒOPATHIC CONGRESS.

(Continued from page 426.)

ALLOPATHIC CONSULTATIONS WITH HOMŒOPATHS.

During the past years the "ring fence" of opposition, by which many of us felt we were more or less enclosed, is not the "bugbear" it once was.

There was a time in days gone by in which we were greatly exercised in our mind by this fact, that if we were in any difficulty, by virtue of our isolation, and a second opinion was urgent and necessary, our opponents snubbed us by refusing to give us a helping hand. We were probably greatly concerned about our patient, we had given the case every care, we had considered it from every possible point of view, we were quite satisfied with our diagnosis and our treatment, and yet we felt we should like another to share our burden and so divide the responsibility; this being especially the case in surgical emergencies.

This happily is now all at an end, for with such a phalanx of exceptional ability, reputation, and skill as we have in London and the provinces, in the persons of Knox-Shaw, Burford, Neatby, Wright, Johnstone, Cash-Reed, and others, we are entirely independent. With the telephone at our elbow we can call to our aid the best abilities of the profession in our

own ranks, and their successes have been mainly due to the employment of homœopathic remedies in the after-treatment of their cases.

HOMŒOPATHIC HOSPITALS AND DISPENSARIES.

Our homœopathic hospitals compare most favourably both in medicine and surgery with results obtained in the hospitals of the old school.

Our London Homœopathic Hospital in Great Ormond Street has been established sixty years. Its income in 1870 from the usual sources was £2,700. Last year, *i.e.*, 1908, its income was £36,502 12s. 9d. In 1871 we had *five* nurses; to-day we have sixty-four. In 1871 we had forty-five beds; to-day we have 104. Those of our friends who were fortunate enough to be present yesterday at the interesting function of laying the "Memorial Stone," by the Right Hon. the Lord Mayor of London, of "The Sir Henry Tyler Extension," or new wing, will have heard with pleasure that on its completion we shall then have a full complement of 170 beds. I have been unable to obtain the number of the patients treated in the wards in the early years under retrospect, but during 1908 there were treated medically 28,855 and surgically 22,174, making a total of 51,029, while from the foundation of the hospital the number of in-patients and out-patients make a grand total of more than half a million—563,042. Since the London Homœopathic Hospital was first opened the total amount subscribed to that institution is £453,034 19s. 5d. These facts are a sufficient guarantee of the estimation in which the hospital is held in the minds of the public. The work it does is needed, and we know it is done efficiently and successfully.

The Hospital Sunday Fund was created in the early seventies and in its first year our hospital came in for £239 11s. 8d. as its proportion of the fund. Some idea of the status of the hospital in Great Ormond Street may be seen from the fact that twenty-eight hospitals received a smaller amount and twenty-four a larger. Last year (1908) we received £495 from

that same fund; from King Edward's Hospital Fund £550, and the Hospital Saturday Fund £138.

HOMŒOPATHIC NURSING INSTITUTE.

I cannot leave this part of my address without mentioning in connection with this hospital, that we have in recent years established a nursing institute which sends out fully-trained, capable women to help our physicians and surgeons in private practice. I cannot find words to express the value I put upon these nurses. I have employed them for many years, having had as many as seven nursing for me at one time. From my experience of them I can speak in the highest terms and say with truth I have always found them most intelligent, competent, reliable, and more—having been taught the value of symptoms, I have never known one to lose her head. This is a great comfort to a medical man, as he knows he is not likely to be sent for for every trivial fresh symptom that may arise, while to the patient it imparts a sense of confidence and peace of mind.

To return to the subject of hospitals and dispensaries, I have endeavoured to obtain information for this Congress, but only a little more than one-third have supplied me with the necessary figures. From the statements furnished by the secretaries who were kind enough to reply, I find during the last ten years at these institutions more than 729,481 patients have been treated, and £23,861 14s. 1d. has been subscribed by the public. The money thus raised by the various hospitals and dispensaries in furtherance of homœopathy amounts to more than half a million pounds. *Times*, ladies and gentlemen, does not look as though homœopathy was indigent, decadent, or bankrupt, or even moribund.

"Nothing succeeds like success." It is the success which can be seen in our hospitals and dispensaries, as well as in private practice, which is the *bête noir* to our opponents. If they would give our system a trial they would be able to solve the problem for themselves. It is something gained to get a man to read and try to understand what homœopathy is;

but take him to the bedside and let him see for himself the cases cured—he then cannot for very shame shut his eyes to facts so palpably cogent and convincing.

LITERATURE.

During these forty years our homœopathic writers have not been idle, one of the most important contributions being from the pen of the late Dr. Richard Hughes, and known both at home and abroad as “Hughes’ Pharmacodynamics,” a most reliable book, not only for students, but for all professional men. It is not only found on the shelves of our own school, but may be frequently seen in the libraries of the enemy, who thus have an opportunity of studying pure homœopathy at their sweet will, and from its pages cull the gems they palm off as their own.

The classic book, however, which after years of toil was brought to its finish mainly by Dr. Hughes is “The Cyclopedia of Drug Pathogenesis,” and without which no homœopathic physician’s library would be complete. This work has been received over the whole world, and our American colleagues speak of it in the highest terms.

Coming, however, to domestic and less purely professional publications, such as “Ruddock’s Text Book,” “Vade Mecum,” &c., through the courtesy of “The Homœopathic Publishing Company” my enquiries have elicited the fact that the number of copies of homœopathic works issued by them has reached to upwards of 1,591,000, the vast majority of which found their way into the homes of the public, and thus shows how homœopathy pervades the family hearth.

Messrs. Leath and Ross, the publishers of the old standard “Laurie’s Domestic Medicine,” inform me this work has gone through twenty-nine editions, and the 30th is about to be reprinted, and its epitome is in its 39th edition, and the Family Guide in its 102nd, so that more than a quarter of a million copies have been sold. Messrs. James Epps and Co., in answer to my enquiry, have informed me that since 1880 they have published and sold upwards of 100,000 copies of various

homœopathic works." These three firms alone have published over 2,081,000 copies. It is by such publications that homœopathy is promulgated, and I for one am glad when I find such works on the bookshelves of the people. It is one of the greatest factors in the spread of homœopathy among the very public we want to reach, and is a form of propagandism bound to succeed. The tens of thousands of "The Homœopathic League" tracts, written mainly by the late indefatigable Dr. Dudgeon, have done much by their distribution to disseminate the truths and principles of our homœopathic treatment, and should be circulated far and wide.

RONTGEN RAYS.

During the latter half of the period under review we have had quite a "boom" in medical surprises; it would, therefore, be a dereliction of duty on my part if, before bringing this address to an end, I did not say something of how the startling introduction of the Rontgen rays into practical medicine and surgery has been in many instances the confirmation of our law of similars in the cure of diseases.

The late Dr. Edward Madden, in his excellent paper on the subject, read at the Oxford Congress in 1907, said: "It is no strain on our belief to accept the proposition that all external agencies capable of disturbing or restoring vital processes are subject to the same law as we have long known the curative action of drugs to depend on, *e.g.*, the X-rays are known constantly to produce a falling-out of the hair, and equally frequently they have been curative in cases of alopecia."

"The action of the X-rays, on the skin, in some instances produces such a perfect picture of eczema that," as Dr. Madden says, "we homœopaths are not in the least surprised that eczema is one of the complaints over which X-rays triumphs very frequently, even in cases which have proved very rebellious to all other local treatment."

In Dr. Belot's work on "Radio-therapy in Skin Diseases" (translated by S. W. Deane Butcher, a former member of the British Homœopathic Society) the author, who is an allo-

pathist, says: "Instances have been reported of the occurrence after exposure to X-rays of epithelial tumours on the cicatrix following *dermatitis*. Thus X-rays, which usually cause regression of neoplastic growths, may in certain exceptional cases determine their production." He also says that "bio-activity of certain cells is stimulated by *slight* exposure to the X-rays, whereas the same cells are withered and destroyed by a *longer* exposure."

Professor Rowntree, of the Middlesex Hospital Cancer Laboratories, in a recent lecture says: "Evidence is brought forward which goes to show that X-rays have, in fact, two separate and distinct actions. In relatively large doses they have a paralyzing action upon cell activity, whereas in small and oft-repeated doses they bring about exactly the opposite condition, and stimulate the tissues to abnormal activity and increased growth. I am of opinion these observations may have an important practical application in connection with the treatment of cancer."

The London *Medical Times* says: "Cases of malignant growths caused by Rontgen rays are not unusual, and several have been described by English and German authors; they were nearly all carcinomatous. The genesis of the 'Rontgen Cancer' is still inexplicable in view of the fact that by the *same kind* of rays a cancer may be both *produced* and *cured*." Ladies and gentlemen, if this is not pure homœopathy I do not know what it is!

SERUM-THERAPY IN RELATION TO HOMŒOPATHY.

Among the "bombs" that have been shot into the midst of the medical world, producing a great sensation at the time, Koch's so-called discovery of "Tuberculinum" as a cure for tuberculosis must be mentioned; though, two years before, he was anticipated by our colleague, the late Dr. Compton Barnett, by his discovery of "Bacillinum," which latter is in daily use by men of our school as being purely homœopathic in its action. Just now the medical world is in a fever heat with regard to "Opsonins and Vaccine and Serum-therapy."

Our talented colleague Dr. Johnstone, who was first in the field with definite view as to the relation of serum-therapy to homœopathy, read a paper on this subject at the Annual Homœopathic Congress held at Bristol in 1897, and again brought it before the Oxford Congress ten years later. It is still *sub judice* in the minds of some of our schools whether toxins are homœopathic, or isopathic, though the balance of opinion seems to lean in favour of the law of "Similaris."

It is certain the antitoxin treatment of diphtheria, if statistics are to be relied on, has lowered the death-rate in that terrible disease from 15 per cent. to 7.6 per cent., as seen in the cases treated in the wards of our London Homœopathic Hospital. The conclusions arrived at there were —

(1) "That pure homœopathic treatment gave a lower mortality than the old school treatment.

(2) "That homœopathic treatment, combined with serum treatment, gives a lower mortality than the average serum treatment aided by allopathy"; and, Dr. Johnstone says, "of these results we as homœopaths may be justly proud!"

I have had a large experience in treating diphtheria, and have such unbounded faith in homœopathic medicines that only once have I used antitoxin, and in that case the patient was already on the road to recovery.

FINALLY.

In conclusion, if homœopaths, lay and professional, worked with true and genuine enthusiasm for the system they profess, homœopathy would have nothing to fear in the future. In the early days every man professing homœopathy thought and talked homœopathy, and was only too willing to tell of his happy experiences and the brilliant results of his treatment, simply because, after a man has been converted from the error of his ways, by reason of the fact that he was originally an unbeliever, or a sceptic, his zeal is all the greater, as his faith is built up by "patient investigation following honest doubt."

Has every homœopathic physician conscientiously done his duty by curing his patients as quickly as possible, by making

of the old school; but the number of patients we have in hospital, dispensary, and private practice compares favourably with those of our opponents. The young men in our ranks who were charmed with the wonderful results they saw for the first time in our wards, as compared with what they had seen in allopathic hospitals, must remember to keep themselves well up to the mark. This will involve ceaseless thought and study, or they will be likely to lapse into a "slipshod" habit of treating their patients by the "rule of thumb," and then wondering why the medicines they prescribed have not produced the results they anticipated, instead of patiently seeking out the medicine covering "the totality of the symptoms."

I would like to impress upon them not to let outside subjects, such as politics or even religion, so engross their reading hours that they cannot find time to devote to our homœopathic authors and writers. We have enough solid literature to fall back upon which, if consulted more frequently, would be much better for the patient as well as the doctor.

Some of us who have borne the burden and heat of the day are as aged warriors, and look to the rising soldiers in homœopathy to bear the brunt and win the battles of the future. We older ones must beware of "staleness" and not rest on our previous laurels, but be ever ready "to stick to our guns" and continue to "give a good reason for the hope that is in us." However wide may be our range of scientific reading and teaching, the Hahnemannian doctrine of "*similia similibus curantur*" must pervade the whole. There certainly should be, and still is, a wealth of enthusiasm in our ranks, if we only knew how to arouse it.

We have a great opportunity and a high responsibility, and should have the courage of our convictions and, with tact and dignity, stand to them like men.

The greatest blessing God has given us in this world is life; when that is gone we are as dust. A man may through misfortune lose his property and money, and yet eventually recover his financial position. But his life once gone is gone for

ever, and yet our patients trust their lives and the lives of their children to us! Is not ours a tremendous responsibility? One thing is certain: at the close of a hard day's work we have the satisfaction that we have not administered any medicine which has been injurious to our patients, while we enjoy the happiness of having done all we could to the best of our abilities for those who have been under our care.

I have just recently been reading again Charles Dickens' "Bleak House." The heroine of the story became a doctor's wife, who is made to say in reply to a question put to her; "We are not rich at the Bank, but we have always prospered and we have quite enough. I never walk out with my husband but I hear the people bless him. I never go into a house of any degree but I hear his praises or see them in grateful eyes. I never lie down at night but I know that in the course of the day he has alleviated and soothed some fellow-creatures in time of need; I know that from the beds of those who were past recovery thanks have often and often gone up in the last hour for his patient ministrations! Is not this to be rich?!" This extract referred to an allopathic doctor, but it applies equally to the homœopathic physician.

This "retrospect" may to some of my friends appear somewhat archaic and waste of time, but the man "who stands back and looks at his work is not losing time," or, as Ruskin says, "There is no music in rest, but there is the making of music in it, and this making of music is not in the interruption, but with the opportunity it gives for reflection." We must all acknowledge the time we live in demands our reflection, for it is one of constant change and transition.

"The old order changeth,
Yielding place to new,"

applies to medicine as much as it does to other matters.

With the flag of "*similia similibus curantur*" flying at her masthead, our "Dreadnought" has stood the strain and stress of "*The Battle and the Breeze*." But she still forges gallantly through the waves of opposition, and will continue to do so until she reaches the harbour of Recognition and Peace!

**SYMPTOMATOLOGY AND COMPLICATIONS OF
ACUTE CROUPOUS PNEUMONIA.**

By HOWARD P. DEADY, M.D.

Frequent contention with a grave and acute malady, especially when natural environment and topographical position contribute likewise to an otherwise ordinary serious prognosis, must essentially act as a decided stimulus to the intelligent efforts of those whose function it may be to cope with this serious contingency; and acute croupous or lobar pneumonia, while an affliction which, under usual circumstances and when occurring in low altitudes, is not productive of unduly high mortality, cannot be dealt with lightly after two thousand feet of elevation has been passed. From a death-rate of ten to forty per cent. in the lower climes, accurate vital statistics will often show a loss of sixty per cent. and frequently in excess of this figure in those unfortunates who are thus afflicted at an altitude of four thousand feet or more. With this thought in mind, early and positive diagnosis must essentially figure as a powerful factor in our management of this disease, and to this end the importance of an exhaustive study, and minute analysis of early signs should under no circumstances be subordinated. Unfortunately it appears to be the consensus of opinion of most authorities that the onset of the disease occurs abruptly; yet, there appears, undoubtedly, in the minority of these cases, a decided prodromal state, which, when carefully observed, may arm the attending physician with the sinews of defence as well as preclude errors in habits, etc., on the part of the afflicted, who may, in this manner, escape a degree of acuteness and serious involvement, otherwise encountered.

Prodromes. Of the more distinctive and frequent prodromal manifestations of the disease may be defined the stubborn bronchitic attack or so-called cold, which is apparently unyielding to treatment. Primarily, an acute bronchitis, the subacute is tardy, therapeutic measures are disappointing, and the malaise is exaggerated and prolonged beyond the customary limit. The appetite becomes poor, and bowels, as a rule, constipated.

Usually this stage is overlooked and the patient, refusing to be ruled by a common cold, continues his vocation with its consequent exposure and severe demands upon an already vitiated vitality. Ultimately the cough becomes suddenly dry and short, the characteristic chest pains appear, followed by the chill or convulsion, and our patient is soon in deep water facing a severe pneumonitis which might, under more favourable circumstances, have been averted.

On the other hand, the disease may develop and prior to the acute onset, be shorn entirely of bronchial or chest symptoms. A few days of malaise and headache, associated with a sense of chilliness and general weakness frequently leads up to the acme presented at the time of acute onset. Likewise, when appearing as a complication, the transitory state may be so illy marked as to escape detection even on the part of the most alert diagnostician and considerable pneumonic headway become engrafted before a true sense of the existing danger be recognized. With the aged, also, this disease may appear in its most insidious form being frequently devoid of cough or pyrexia. According to Dechambre and Hourmann, the disease occurs acutely in less than half of those patients beyond late middle life.

With infants and children gastro-intestinal derangement, as the apparent etiological factor, may antedate the actual pneumonic development. This interpolation may occupy the stage of action for from three to ten days, finally reaching the climax through frequent convulsions or violent vomiting after which the sharp febrile rise, cough, etc., clears the diagnostic field.

ACUTE ONSET marks the constitutional effect of the natural pulmonic invasion of the deplococcus pneumoniæ, and according to different authors, is most frequently subjectively ushered in by the appearance of a severe and often prolonged chill (in adults). Louis marks an initiatory chill in 61 out of 71 cases; Grisolé, 144 in 182 cases and 110 times chill was the very first symptom; in the remaining 35 chill arose only after the chest pains, dyspnea, cough and vomiting had appeared. The duration of the chill may vary from a few moments to several hours.

It has also been observed that the chill is more frequently absent in attacks appearing during the autumn and summer, and more constant during the winter and spring seasons. In children, also, it rarely develops. Next in frequency to the chill may be mentioned vomiting and convulsions as the first severe constitutional evidence of the coming attack. This cause appears almost constantly with infants, and in those below early adult life. Immediately following the chill nature sounds the alarm of the impending tempest in no uncertain manner. The rapid rise of fever, dry, semisuppressed, painful cough, lancinating, stabbing, thoracic pains, full bounding pulse and flushed or cyanosed countenance, all contribute to the general suffering and extreme anxiety of the victim. As a rule by the second day, the cough has loosened to some extent, though the characteristically tenacious character of the sputum which will be later more fully described, adds to rather than allays the burden of the patient. On the second or third day, a profuse supply of herpes appears about the mouth and nasal *alæ*, and this symptom is so constant and significant that in central pneumonia and cases obscured through complication, the appearance of herpes as above described has been in many instances a diagnostic sign of inestimable value.

DSYPNEA is both an early and extremely annoying accompaniment of the disease. At the outset, this symptom is charged mainly to the great pain resulting from the inspiratory act; but later either through extensive hepatization or cardiac insufficiency, respiration becomes extremely rapid and shallow, running from forty to sixty and occasionally more to the minute.

NERVOUS PHENOMENA vary in different individuals and are manifest by extreme restlessness and delirium. When assuming the low muttering typhoid phase, delirium association indicates in many instances a dark prognosis; in any event, a desperate struggle under these circumstances may be anticipated.

PAIN in the form of the usually described stitch in the side, appears early; occasionally prior to or directly in connection with the chill. In the majority of instances, the pain is most

acutely marked in the vicinity of the nipple on the affected side and is rarely absent except in connection with special pneumonias. This symptom may reach an extreme point in many cases and is ordinarily associated with the sympathetic pleural engorgement.

COUGH AND EXPECTORATION. Cough is a symptom of uniform constancy. In the aged and alcoholic, it may be slight or entirely negative; but as a rule, the patient is from the beginning tortured with a short, semi-suppressed, non-productive cough of such intensity as to completely overshadow the many other distressing features of the attack. At the expiration of twenty-four hours or slightly later, the character of the cough changes and the accompanying sputum obtains; but slight relief, however, regularly appears before early resolution ensues when copious expectoration indicative of inflammatory subsidence lessens the burden of the already over-taxed sufferer. The expectoration is quite characteristic and originally yellow and tenacious or blood streaked. Later, the sanguinous or rusty character predominates, and in rare instances the sputum may be composed of pure, bright, red blood. At the liquefaction period, during the process of resolution, the hemorrhagic aspect becomes eliminated and the sputum assumes a more purulent liquid form losing completely the former tenacious consistency. The frequently designated prune juice sputum appears only in connection with the aged or alcoholic patient and is not as was formerly popularly supposed, an accompaniment of frank pneumonitis under other circumstances.

A blood analysis customarily indicates the presence of marked leucocytosis and while the presence of this increase of white cells seems to have no special prognostic value, yet the absence of leucocytosis portends well nigh certain disaster and nature's defence against the virulent pneumonic toximia will under these circumstances prove usually inadequate to the trying ordeal essential to convalescence.

DIGESTIVE DISTURBANCES may likewise form an allied feature and may become manifest in the form of vomiting, lasting often

to the third or fourth day of the disease. Anorexia and constipation usually exist though diarrheal variance may occasionally develop.

FEVER AND PULSE. At the onset, the pulse commonly assumes a full, bounding, rapid character, and during the early hours, corresponds to the relative intensity of the fever, running from a 100 to a 130 per minute. Later, as prostration becomes more in evidence, cardiac insufficiency resulting from the great burden placed upon it in connection with extensive hepatization, or through central depression consequent upon intense toximia, is evidenced by a small, irregular and unreliable pulse tone. Most characteristic of all pneumonias is the rapid and often extreme temperature rise immediately following the chill.

Von Jurgensen noted: (1) In the case of a girl seven years of age, three hours after the chill and violent vomiting, the temperature was 106° F. (2) In a nine year old boy, who exhibited marked cerebral phenomena, four hours after the onset, $104\frac{7}{10}^{\circ}$ F. (3) In a fifty-six year old female person, eight hours after the chill, $104\frac{4}{10}^{\circ}$ F. Finkler found an hour and a half after the chill in a man of forty, a rise to 106° F. Generally speaking, the pyrexia exceeds $102\frac{1}{2}^{\circ}$ F. within a very few hours after the initiatory chill appears and later usually reaches 104° or more.

As a rule, the disease is further characterized by a continuous or a subcontinuous fever, though Lebert asserts most properly, "An absolutely continuous fever does not occur in pneumonia and we may only speak of such when the morning remission does not exceed $\frac{1}{2}^{\circ}$ F."

Small differences are noted in mild, as well as severe cases, and specially in the later instances the average slight remissions alternate not only changed with a greater one, but with the intercurrent drops; and these extremely intensely protracted cases not rarely later terminate by lysis.

Besides this a well marked remittent type also appears, in which daily differences of from 1° to 2° may occur. According to Lebert such constituted curves admit of early and favorable prognosis.

A relapsing course of fever is likewise occasionally prominent, in which a rapid defervescence is experienced early, even within the first sixty hours. Very shortly, however, a second sudden rise occurs, though on this occasion the acme of the original height is not reached. Under rare conditions, a third and even fourth relapse appears. The temperature then runs a continuous or subcontinuous course for several days, when the final fall may follow a gradual decline in the form of the so-called lysis; or in the more usual form of crisis.

The crisis has been noted by many close observers to occur most frequently upon the fifth, seventh and ninth days of the disease, and if deferred beyond this point, to rarely appear before the fourteenth day. It has likewise been stated that the crisis occurs more commonly by selection on the odd day and in the late afternoon or evening. As a rule warning of the impending crisis will be denoted by a sharp and sudden rise of the fever. Likewise one or more so-called pseudo-crisis may precede the ultimate febrile droop. Under these circumstances, the fever will decline for a short interval, only to again rise approximately to the original limit. At the time of actual crisis, the temperature will, within a few hours, fall from 5° to 10° and is always accompanied by extreme prostration. As the term would indicate, this is the most critical point in the disease and frequently at this juncture, the outcome hangs by the proverbial thread.

Under normal and favourable conditions, convalescence is rapid. Oddly, however, Welch, in his practical phenotoxin work and research, found that the blood taken at the time of the crisis in a pneumonic patient contained not the slightest evidence of an anti-toxin; and he also relates that one and one-half c. c. of this blood taken several days after the crisis and injected in a guinea pig, produced the death of the animal.

PHYSICAL SIGNS. Inspection usually shows the patient lying upon the affected side, and directly relative to the degree of pain, may this evidence be relied upon. In this manner, restriction of the respiratory excursion aggravating painful friction of the congested pleura may be accomplished. The facial expression is

customarily one of the extreme anxiety, and cyanosis may be a decided feature in serious cases. The respiratory murmur becomes rapid and shallow and is largely relative to the degree of fever elevation and the extent of tissue involvement. Prior to considerable hepatization, little alteration of vocal fremitous may be noted, and the physician must not be led into errors in diagnosis through this omission. Also a complicating pleural effusion may entirely eliminate the value of this usually significant manifestation. A physical sign of no little significance and of apparent value was reported by Weil in one of the French medical journals of 1901. This author claims a positive and uniform lack of subclavicular expansion on the affected side as an early and certain feature in all basilar pneumonias. In pneumo-thorax and pleurisy, this sign likewise appears but only in connection with and limited to the seat of affection. In extensive pleural effusions, it may include the entire side. In pneumonia, however, the lack of expansion favors the subclavicular site only, developing at the onset and persisting throughout the course of the disease.

PERCUSSION may elicit little or no abnormality at the initiatory chill. Shortly later, however, an active engorgement is productive of a percussion note of intensified pitch, and immediately preceding exudative activity, distinctive tympanitis may hold sway. Early in hepatization, the tympanitic percussion note yields to dullness, though never in the most massive consolidative states does dullness become complete, owing to the minute bronchial ramifications which naturally do not share in the full exudation. Over the area, immediately above the pulmonary lesion tympanitis is also marked. Hyper-resonance characterizes largely the unaffected lung tissue on both sides.

At the termination of gray hepatization and with the advent of resolution, the degree of dullness gradually diminishes and the re-establishment of tympanitis precedes the return of the normal percussion sounds. Too much stress, however, cannot be laid upon the possible absence of the expected percussion changes in pneumonic disease. With deep central lesions it must

be remembered the result may prove wholly negative: nor must the date of onset of the disease be allowed to escape the consideration of the attending physician, in the more common conditions.

AUSCULTATION discloses exactly what the pathology would seem to indicate. During the early encroachment of the infection, loss of pulmonary elasticity is plainly evidenced by the weakened respiratory murmur and with the period of exudation which may not begin earlier than the end of the first day, fine crepitant rales are usually distinguishable. Care must be shown, however, in discrimination between these rales and pleuritic crepitation, which likewise, supervenes in peripheral pneumonias. In this connection may likewise be mentioned the co-existence frequently of large and small mucous or bronchial rales, occasionally also demonstrable at this time. Also with deep central pneumonitis, which lesions or lesion, may be well covered and marked by healthy tissue; or in the event of a complicating effusion, rales may be nearly or entirely muffled, and the examiner at this time must then be guided solely by other significant subjective conditions.

With the advent of hepatization and consequent filling of the air cells with secretion, crepitant rales for the time disappear, and a progressive degree of bronchial breathing becomes established. Also in the possible event of large amounts of mucous plugging the main bronchus to the affected area, both rales and all breathing sounds may be entirely suspended over this section during the consolidative stage. At the onset of resolution, with its rapid disintegration and liquefaction of the process, the so-called crepitus redux obtains being chiefly characterized by return of numerous mixed rales of both moist and dry character. It is claimed, however, that recurring crepitant rales are distinguishable by their coarseness as compared to those appearing earlier. Even following a natural and uninterrupted resolution, it requires several weeks for the exclusion of all adventitious breathing sounds. It likewise frequently happens that adhesions of the pleura become firmly established during this time, and

the normal is never fully recovered. During the development of extensive hepatization, puerile breathing largely displaces the normal vesicular breathing sounds over the uninvolved area.

COMPLICATIONS. Pleurisy appears as a most constant complication of pneumonia, and it may be safely stated that plastic pleurisy is at all times a co-existing disorder with all peripheral pneumonic lesions. Frequently the pleurisy results in effusion, and in this event, when the fluid becomes of great volume, marked displacement of the thoracic viscera occurs, adding largely to the already hyper-embarrassed respiration. As a rule, pleurisy with effusion develops late in pneumonia, and a gradual increase in pyrexia follows the true crisis. It is well, under such circumstances, to aspirate early, as a possible presence of empyema would largely alter the complexion of the case, and much valuable time might possibly be lost through unnecessary delay. Jurgenson, in a tabulated statistical report, states that pleurisy with effusion complicated pneumonia, in Stockholm, four per cent. of cases, and in Basil, fifteen per cent. of instances. Musser reports in connection with 1,501 pneumonias, 59 serous pleurisies and 24 empyemas.

PERICARDITIS. Inflammation of the pericardium, in either a serous or purulent form, is another frequent and grave complication of this disease and when of purulent nature, is often associated with pleural infections of a corresponding type.

ENDOCARDITIS likewise complicates, though fortunately, rarely, pneumonia, and when present, usually affects more largely the left heart. A compilation of the views of different authors on the subject would indicate actual affection of the heart to appear in something less than one per cent. of all cases.

ABSCESS OF THE LUNG, together with pulmonary gangrene, figures as an occasional complication, though they perhaps may more properly be classified as sequelæ following an untoward and faulty resolution. Diagnosis of abscess cannot be formed accurately by auscultation and by percussion alone. Better points from a subjective diagnostic standpoint are advanced by Traube: "With an acute pneumonia, there may exist suspicion of an

abscess if resolution of the inflammatory exudate is slow and the fever, which occasionally is very slight, lasts beyond the anticipated point. Of special diagnostic value, however, is the sputum. This is customarily copious and very similar in character to connective tissue pus and is of usual musty or fetid odor." Somewhat more frequently, pneumonia terminates in pulmonary gangrene, though this condition compared with primary pulmonary gangrene is rare.

MENINGITIS as occasionally occurring in the course of a pneumonia, has been emphasized by different writers. The method of transmission to the cerebral meninges, together with the varied theories in connection with this process advanced from time to time, are worthy of study and thought along these lines. In 1,501 cases of pneumonia, Musser reports but ten complicating meningitis.

DELIRIUM TREMENS appears more essentially with patients having alcoholic history, and constitutes by far, the most frequent cerebral complication at this time. This factor develops as a rule at the acme of the inflammatory symptoms and later-day therapeutics, fortunately, have to some extent detracted from the former prognostic teaching.

Jaundice, nephritis, affections of the spinal cord, erysipelas and angina have all been mentioned as occasional complications of acute croupous pneumonia.

PROGNOSIS. Many factors enter into the consideration of the likely termination of pneumonia. The general condition of the patient at the time of the attack has a decided and powerful influence upon the result, and, as a rule, the prognosis is bad with the aged and in infants, and correspondingly bright when the disease develops during childhood and vigorous early adult life. Endocarditis is an especially fatal complication and alcoholic history is assuredly likewise a serious handicap to recovery.

The absence of leucocytosis has been previously mentioned as warranting an adverse prognostication, though this omission may rarely be indicative of simply a mild infection. Statistics, likewise, demonstrate the increased fatality occurring in cases

with streptococcus infection, and also death results in a great number of instances where violent gastro-enteric symptoms substitute the usual chill. Myocarditis, with its corresponding loss of circulatory integrity, many times betrays its presence through a characteristically soft, hesitating, evening pulse. It is needless to add that the prognosis under these circumstances assumes extreme gravity. Under any and all conditions, acute lobar pneumonia is an extremely grave disease, and, devoid of all complications whatsoever, shows an average death rate of approximately twenty-five per cent. This computation, however, is subject to extreme variation through the influence of environment and individual idiosyncrasy.

DISSOLUTION is usually brought about through hyper-toxemia, or is induced directly by circulatory collapse due to the impossible task thrown upon the heart through extensive hepaticization, hyperpyrexia, or associated complications.

EDITOR'S NOTES.

Is Cancer an Infective Disease?

A VERY decided answer in the negative is given to this question by Dr Bashford in his address on "Cancer in Man and Animals," delivered before a General Meeting of the Sixteenth International Congress, Buda-Pesth. He says that "the comparative and experimental work of the past seven years has demonstrated that cancer has no analogy with any known form of infective disease. Many tens of thousands of mice suffering from cancer have been under the most stringent observation in our laboratory. If cancer were communicable, animals housed along with those naturally suffering from, or inoculated with, cancer would be the first to suffer. In an experience extending over more than six years—*i.e.*, more than three times the average length of a mouse's life—exhaustive investigation, during which 200,000 mice have been inoculated, has shown that this risk does not exist. Those handling the animals incur still less risk in passing many hours daily dealing with cancerous animals in a room in which 10,000 of such mice and rats are usually housed at one time. If such a cancer house as never before existed has no dangers to human beings who spend their days in it, *a fortiori* other persons have no ground for apprehension that the ubiquity of cancer implies its transmission either directly or indirectly from animals to man, or *vice versa*. In corresponding observations on mice suffering from spontaneous cancer, no case of transference from mouse to mouse has occurred. Cancer is ubiquitous, yet there are the most striking limitations to its conveyance from one individual to another, continued growth taking place after inoculation into animals of the same species only. Inoculation is only successful by the implantation of living cells, but experiment shows that this risk is negligible if it exists at all in nature." If this is true, and no one could make the statement with so much authority as Dr. Bashford, it disposes of the theory that cancer has a parasitic origin.—*The British Homœopathic Review*, November, 1909.

Adulterated Drugs.

The alarming scale on which drugs are still adulterated, in spite of the Pure Food Act, is strikingly brought out in a paper by Dr. H. H. Rusby, of the United States Bureau of Chemistry, read recently at the annual meeting of the American Pharmaceutical Association. According to his paper, as abstracted in *The Dietetic and Hygienic Gazette* (New York, August), drugs rejected and deported from New York are again shipped to this country, consigned to some other port, and admitted. A considerable number of such rejected drugs have been encountered in commerce, and Dr. Rusby assures us that importers, millers, manufacturers, and wholesalers are wilfully engaged in the business of handing inferior goods. He says, to quote the magazine just named :

"It has been found impossible to stop all of these shipments, even in the important port of New York, as competent examiners cannot be found in sufficient numbers to make the necessary careful examination of all shipments. These goods are declared for other uses than medicine, and find their way into unscrupulous hands to be used as adulterants; they having been imported for that special purpose. As an illustration, one shipment of five tons of ground olive-pits was offered for import which the consignee, a dealer in drugs, declared were to be used as a filler for chicken food. Within a few months samples of nine powdered drugs, of this firm's manufacture, were purchased and examined, in five of which the ground olive-pits were found. The importation could not be refused, as it was correctly declared, but a suspicion that the declaration was false led the inspector to investigate with the above results. This is but one case detected, hundreds, unquestionably, went through; the stuff was distributed throughout the country undetected and numbers of cases of illness doubtless did not respond to the remedy given, death possibly ensuing as a result of impure medicines given when recovery might have followed if proper and pure agents had been given. All the time the physician is wondering why drugs of vegetable origin vary so in potency in different cases."

In drugs offered for import, Dr. Rusby found henbane leaves that contained 28 per cent., by weight, of sand. Anise contained 25 per cent. of sand; opium fruit 25 per cent. of stems and chaff; belladonna leaves from 50 to 80 per cent. of medicinally useless stems and fruit. Five spurious shipments of matico were found.

to four genuine within a year, while five shipments of spurious coto were offered and rejected, and not a particle of the genuine of this rare and valuable drug went into the market.

Dr. Rusby charges importers, grinders, and manufacturers with equal guilt in this matter, and largely blames the ignorance and shiftlessness of the ordinary retail druggist, why he regards as incompetent to judge of the genuineness of crude drugs, much less that of powdered ones. He purchases his powders, extracts, and tinctures as cheaply as possible, and is often merely a shop-keeper selling goods of which he knows nothing. We read further:—

"The pharmacopœia which should be his guide does not always show him how to determine accurately the genuine from the adulterated. Ignorance, and carelessness seem to prevail among a large proportion of dealers and handlers of medicine; members of State boards are more often than not incompetent, being more engrossed in politics than in science, while the State inspectors are usually incompetent." It is a bad mess, and yet the retail druggists are making strenuous efforts to induce physicians to prescribe these often more than useless remedies, or substitutes. It is suggested that the production of vegetable drugs by agricultural methods, with the same intelligent understanding and care as the scientific farmer grows his grains, would do away with much that we now have to submit to. A careful selection of seeds, proper cultivation and preserving of the agents grown would in time insure better drugs. Then the retail druggist should be thoroughly equipped in identification, preparation, and care of his remedies, give less time to soda-water, nostrums, either of his own or other manufacture, cigars and sundries. The curriculum for study should include four years and carry as a perquisite a better educational equipment than now, and the same should include all who handle drugs, the inspector, importer, dealer, manufacturer. A long suffering humanity demands these reforms, and is entitled to them."—*The North American Journal of Homeopathy*, September, 1909.

Clinical Thermometers.

Dr. John J. Satter, of Bluffton, O., cites a number of points well worth remembering in connection with clinical thermometers in a series of "Don'ts" which appear in the August issue of the *Electric Medical Journal*, from which we quote the following:

Don't forget that there are thermometers and thermometers and thermometers ; always buy the best ; the best are none too good.

Don't forget that all tubes of glass gradually contract for two or three years before they are thoroughly "seasoned," hence if the tube of glass is used and the scales engraved upon it before it is seasoned the readings will be altered.

Don't think that all mercurial thermometers when once accurate will remain so, for they will not.

Don't you know that the internal diameter of a thermometer must be uniform in order that the readings may be accurate throughout the entire scale? Many thermometers read correctly for a few degrees above and below the normal point only ; the balance may give very inaccurate readings.

Don't think you possess an accurate thermometer because you tested it under your own tongue and found it to register 98.6°, for all thermometers are correct at the normal point. Manufacturers engrave the glass from the normal point up and down.

Don't subject the thermometer to a sudden jar by striking the hand, holding it on table, desk or other solid object, as it is liable to fracture the walls of the tube and render it useless. Bring the column of mercury down by swinging the arm downward and backward.

Don't forget that it is possible for the thermometer to be laden with the usual flora of the oral cavity.

Don't forget to have your thermometers washed with soap and water in the presence of your patient before (and after—Ed.) taking the temperature under the tongue.

Don't forget that it will take from two to five minutes to get a correct register—yes, your double-bulb half-minute thermometer will require that time also in obscure cases.

Don't forget to dry the arm-pit, if moist, before taking the temperature in that region ; nor to leave the thermometer in the axilla until the mercury remains stationary for at least five minutes in all obscure cases in which much depends upon the discovery of a slight elevation of temperature above the normal standard.

Don't forget that it will take more time to get an accurate register of temperature in a person with a weak circulation and a subnormal temperature than in a vigorous person with good circulation and a febrile heat.

Don't be alarmed about the condition of a patient when some day you will find the temperature register far above or far below the usual average. Inspect or compare your thermometer ; you may need a new one.—The *North American Journal of Homoeopathy*, September, 1909.

Cleanings from Contemporary Literature.

FROM RATIONALISM TO LAW. A STEP HIGHER IN THERAPEUTICA OR THE HOMŒOPATHIC LAW OF NATURE AND ITS PHILOSOPHY.

By S. W. LEHMAN, M. D., Dixon, Ill.

"It is very becoming that men's zeal for the truth should go as far as their proofs, but not go for the proofs themselves. He that receives opinions with anything but fair arguments, may, I own, be justly suspected not to mean well, nor be led by the love of truth; but the same may be said of him too, who so defends them. An error is not the better for being common, nor the truth the worse for having lain neglected; and if it were put to the vote anywhere in the world, I doubt, as things are managed, whether truth would have the majority, at least whilst the authority of men, and not the examination of things must be its measure." *
LOCKE.

MY REASONS FOR BECOMING A HOMŒOPATH.

I had the best instructors that the old school could get, and I do not wish to ignore their merits nor the merits of contemporaries in relation to the auxiliary science pertaining to the field of medicine. My teachers were all artists in their line.

Therefore, I say all honor to the men who taught me physiology, anatomy, histology, pathology, and the allied sciences of medicine.

But, alas, for error, they also taught that there was no other curative principle, except as applied in what was called the principle of rational medicine which is largely, if not exclusively, the principles of antipathy as applied in resisting the forces of nature, which according to the accepted teaching of that school is the manifestation of diseases.

But deductions based upon error must forever promulgate error and the only way for any one to free himself from it is to determine facts for himself, by personal experiment and investigation.

It seems that human nature is very similar to the law of inertia, that if started in a certain direction it will go on forever in that same direction unless influenced by some power external to itself. You see what this leads to if it is in error.

We say the first law of life is the preservation of self.

The second is like unto it, the preservation of the life of others.

By egotism we mean those activities which center toward the protection and nourishment of the individual.

By altruism, those activities which protect the race.

The science and art of medicine has to do almost entirely with the latter and the true physician is above all solicitous for his patient, regarding his best interests.

A physician has no right to prejudice, nor ignorance, regarding these responsibilities. *It's a crime not to know when it might have been known.*

And while we see much to the contrary yet this spirit is so universal that it dares not openly be violated without the physician losing caste.

And he who lives on this reputation of the profession without the altruistic spirit is a parasite, a commercial vendor dealing treacherously with the most sacred trust that can be placed in confidence to another.

Our profession offers the highest type of altruism, hence the few who attain to it.

And our field is ever widening and if we are to measure up to our trust we as physicians must put forth effort and zeal to stay the tide of commercialism.

Nay, also the therapeutic nihilism which also has opened our sacred field to the quack.

As well as lost to us some of the esteem and influence the profession enjoyed in the community.

The practice of medicine devoid of its religious, mystic, sophistic, and other embellishments, resolves itself into the art of recognizing in the individual a departure from the normal, or so-called disease, predicting its course and prognosis, if not interfered with, and the instituting of measures designed to restore the individual to the normal equipoise.

The art of medicine requires no creative force, for it deals with phenomena that are already present.

And the secret of our art lies in the understanding of the laws governing the phenomena and therefore may be acquired and practiced by anyone who is able through patience and long suffering to train his mental faculties to become familiar with the phenomena of life and its abnormal phenomena, disease, along with its causal relations and external influences such as come from heredity, environment, climate, occupation, terrestrial and celestial influences.

From the symptoms, both subjective and objective, we are made to realize that the life form of the individual has been altered and second; there is a local manifestation in some organs which may be perverted function (altered physiology) tissue changes (pathology) or the organ-enlarged or diminished (morbid anatomy).

My first idea of diseases was gained from my text books, that described them as entities, i. e., an individual force that had taken hold of an organism and that its pathology was the result of that force and, of course, that its rational treatment was antipathic, or something to combat or to resist its manifestation, or overcome its power.

Every physician supposes his treatment rational from the fakir in India to the highest type of trained men in the civilized world. The word, rational, therefore is only a relative term and changes with different views of the same facts or modified by new facts or even fads or caprice.

There is nothing stable about rational therapeutics. It differs with every individual as the horizon of established facts is wider or narrower and the field within the horizon like a kaleidoscope seems to be changing with every observer; a new authority appears on the field every so

often, is seen, admired, and followed for a time and then forgotten, and each new authority is different from the old in that he has supposedly progressed. Each new year finds the old books displaced by new ones and still other new ones.

All this is based largely on the idea, whether admitted or not, that disease is an entity, that pathology is the result of *disease force*, hence antipathy or rational therapeutics.

In China they believe this entity is an evil spirit and also have therapeutic measures based thereon which to them at least seems rational. If you assume a certain premise to be a fact then all the deductions therefrom. If the reasoner be sane, will be rational. If the premise be wrong, then the reasoning, even though rational, will be wrong.

We are looking for a premise that is more stable (for a law) and for certain reasons that I will state later is to be found beyond the microscope and all the mechanical appliances of the physiological, pathological, or chemical laboratory; valuable as these are, they do not reveal to us a basis for law to guide in the therapeutic measures. The study of pathology is not the study of disease or disease forces but a study of the products of living tissue and its vital force we call life energy in its re-action to a morbid agent.

Disease is therefore altered energy, a force normal and natural to the body or tissues.

Therefore the cause lies not in the pathology but in the altered forces producing pathology, which is usually, nay, more often than most of us have supposed, at some distance from the local manifestation and so far as the life energy or forces is concerned probably a molecular derangement.

In seeking for a new basis let us consider some facts and principles concerning our life energy.

Within the human body there is no disorder, however small, nor any invisible, morbid change, that does not make itself known by external symptoms before pathology has been created.

THE LIFE FORCE.

I believe the life energy or life force to be extra mundane and is of spirit-like nature, in fact is called spirit, a force we know nothing of as to its character, electricity being its nearest analogue.

But while the latter force is of the earth earthy, a product of physical forces, the former is not the product of mundane existence, but it finds expression through the physical body as the phenomena we call life.

It cannot be weighed nor estimated nor measured nor discovered by mechanical aid and like electricity, it seems to have been harnessed, put under control in the material body and that it probably operates through molecular activity, for if we suddenly derange the molecular arrangement by a powerful current of electricity it is gone and gone forever.

Its operation then depends upon the machinery through which it operates.

The more perfect the machine the better the expression, this, of course, is a self-evident fact.

Now then, the internal construction of this machine is not endowed with brains nor with the power of selection.

Its tissues are subject to the laws of chemistry and not to reason or selection. Each cell will take up from the medium which circulates around it that which is heterogeneous to it. Whether it be a benefit or a detriment the cell does not discriminate but treats all heterogeneous substances alike, they are taken in and assimilated and the symptoms or phenomena following are the true messengers of altered vital activity, the first change being beyond even the cell form but in its molecular arrangement. And this is the first change that may ultimately produce pathology, in fact, always will, if allowed to remain long enough.

We find here the secret of law hidden beyond the power of the microscope or the spectroscope and lies in that marvellous field of molecular activity, and for want of a better term I shall call it the *specific law of reaction*.

Without this first cause pathology could never be created except from local and external causes.

CAUSES OF DISEASE.

Just a few words about causes of disease other than surgical.

The causal agent is *not a force*, as is the vital energy; it is so far as yet proved of mundane origin, and is therefore of the earth earthy. It does not operate as a force but as a chemical. True, it may be so small as to defy chemical detection as measles or small-pox, but we can be sure it is of the earth, and is of the earth and earthy. A product of matter, and therefore its power must be in its molecular activity and its heterogeneous nature to certain cells or system of cells within the body.

If it were a spirit force there is no reason why it should not be operative at all times but there are times and seasons during the year when the cells are not heterogeneous to it; and also a person who escaped this year will next year succumb to its influence. So we observe its obedience to the laws of chemistry everywhere. And therefore it does not supplant the life energy or the spirit-like force of life, but changing the molecular activity by the changed chemical condition and the flow (if we may use that term) of vital energy which is increased or diminished according to the molecular change.

Hence, in local pathology we have increased function or depressed function. Therefore, it goes without saying, that the concomitant symptoms that appeared before and with the local pathology are the important factors to discover the whole condition. And disease may thus be described as aberration from the normal, the first cause being altered molecular activity, the end result altered function, pathology, and morbid anatomy, the morbid agent having lost its identity within a few minutes after entering the body. It thus goes to show that a morbid agent need not be poison or deleterious to the cell itself, but it so disturbs the manifestation of vital energy, that it operates too freely or its operation is diminished thereby. Again we believe the vital energy or life itself is proof against morbid agent of mundane

genesis. But the morbidic agent always alters the molecular structure and thereby alters the life phenomena.

Therefore upon this basis we make another statement that a drug used for therapeutic purposes must not act as a morbidic agent i. e., to further change the molecular energy of the cell or a system of cells opposed and so further displace the already altered molecular structure of the cell and supersede the disease symptoms of a morbidic agent by those of a drug that has acted as a stronger morbidic agent and still further derange the molecular structure and alter the symptom complex into the combined symptoms of two morbidic agents, the stronger being the predominant. Now then an error is clearly discoverable if we allay the symptom by some antipathic application of therapeutics directed to the particular symptoms. It is plain we do not cure the central aberration but the peripheral symptom only, then, and rationally speaking the allayed symptom is not a cure but the suppression of a symptom only. A treatment from the standpoint of the symptom may be rational but from the standpoint of its original cause which was left untouched it may be irrational. And furthermore if the central or deeper injury be not removed the symptom may recur, or as often happens some other organ in close sympathy may be attacked, which would be adding insult to injury.

Again our therapeutic agent must operate in the *same* field and with the *same* molecular forces, that were originally disturbed and must not act as a morbidic agent but must restore to that which is normal or it ceases to be a therapeutic agent at all, and acts as a second morbidic agent. So we ask is there not a therapeutic law based upon the law of specific reaction to guide us in the selection of a therapeutic agent that shall fulfil these conditions perfectly and that by it we may be able to select it over and over again, not according to experience or empiricism but according to law that is always operative.

It seems that science has established law in every realm of its investigations where forces are at work.

But for some reason it seems to largely favor empiricism in therapeutics but many of the brightest physicians are studying the homœopathic law of therapeutics.

Already discovered over one hundred years ago, proved and reproved beyond a doubt and can be put to the test every day by any one.

Yet the old school views it with disfavor clinging to the errors of youth and preferring what they call rational therapeutics which has been endowed with much dignity, largely borrowed from the pathological laboratory and the allied auxiliary sciences connected with therapeutics, depending entirely upon deductions from pathology and physiology as a basis for therapeutic application to the neglect of any law.

So much for the statement of the case.

LIFE AND ITS ENERGY.

Life, though seemingly of a spiritual nature, so far as we know it, depends upon an organic basis for manifestation.

It is a spirit dynamic and its physical form eludes our senses as does electricity.

Yet we know much of its laws of action and reaction as it manifests itself to us through living tissues.

And to the physician who seeks to apply a therapeutic agent for the purpose of restoring a normal, these actions are of paramount importance—therefore—for the purpose of basing a law of therapeutics we must have a knowledge beyond the external and peripheral manifestation of morbid phenomena known as pathology.

We have a more powerful instrument than the microscope by which we may penetrate beyond its limitations and there, by the process of *thought* beyond the phenomena of life as expressed in action and reaction before pathology has been created.

If the organism reacts to the influence of a morbid agent this first reaction is the beginning of altered life phenomena as if the reaction be strong enough pathology will be created.

It is plain that a knowledge must reach as far to the interior as the morbid agent and there beyond the laws of action and reaction or we will not be able to apply a therapeutic remedy to meet the original internal change.

Therefore the art of therapeutics lies in that inner field of the organism and a study of internal or molecular pathology gives a much richer field for thought than the study of peripheral or local pathology. The former has to do with the reaction in its incipient stage; the latter has to do with the morbid product formed by the reaction with also resulting phenomena.

For instance, we take the temperature 104, we feel the pulse 100 full, bounding, we count respiration 28 short and quick, we auscultate the chest, crepitant rales over a smaller or larger area.

Diagnosis Pneumonia (text-book style.)

But this is only a local result of a general reaction, perhaps present 3-4 days or a week or longer, unless precipitated quickly by the suppression of a secretion as sweat. Now let us look at the difference. One patient is thirsty, drinks only small quantities of water, but often. The attack came on about midnight. The patient is pale, restless, wants to get out of bed, is fearful. Sputum is white, tenacious.

The second is full-blooded, lies quiet on the affected side, very much aggravated from the least movement, is very thirsty and drinks large draughts of water but only at long intervals, sputum rust coloured.

A third is not thirsty at all; she is thin, nervous, restless and the face is flushed, the urine scanty, dark, there is sharp, stinging pain through chest, the skin feels hot all over and periosteum of bones are sore, with sharp, stinging pain through the abdomen, sputum is bloody.

Here are three pictures of the disease called pneumonia, with the external pathology located in the lungs. But the internal phenomena are the exact opposite in each case. Even the local pathology is entirely different if properly analyzed.

But it is the internal phenomena or the modality of the patient or, in other words, the patient himself that gives us the richest pathology for the therapeutic purposes.

Why are these three similar in Local Pathology and so dissimilar in every other way.

We can now no longer reach a conclusion by a process of deduction as it is impossible to reach from one domain of science to another by any process of deduction.

We are therefore driven to the only other alternative viz : deduct from experiment in the realm we wish to understand, hence we experiment with those agents that cause reaction in this domain and study their effects by watching symptoms of reaction.

Experiment has demonstrated that three different drugs will exactly produce these symptoms in the healthy individual by operating in the same field. Therefore for the basis of rational therapeutics we must have a knowledge beyond the direct perception of peripheral phenomena as manifested by pathology.

The cell, even, does not reveal to us either in its physiological or pathological state the secret of its forces nor the character of its matter.

The forces of matter.

Forces are properties of bodies which insulate them from other bodies as regards quality and are necessary and constant.

The property which determines the equivalents of its combination with H. or O. the specific gravity, etc. If there is any change it must be in the changeable forces within, as volume, density, etc.

The basic forces of matter are properties of its mass and are repulsion and attraction. This force does not belong to a body alone but in its relation to other bodies.

The elective force of cells.

There probably is none for that would contradict the law of basic forces. Even for constituent parts there can be but the law of repulsion and attraction. If this were not so it would be impossible to poison the body as the law of selection would elude anything poisonous. Repulsion by contact and at a distance depends upon volume, density, form, chemical composition, electro positive or negative, etc.

And since attraction can only take place between two heterogeneous parts, the cell can have no choice but takes from its surroundings everything heterogeneous.

The cell possess only an elective and arbitrary power a disturbance of its life from active causes would be well nigh impossible.

The vital energy of life seems to be operative only through the medium of matter. But even that does not lead us to conclusion that the vital force is the result of matter. Or if it became exhausted that it is re-constructed by molecular force.

For we presume that molecular force is constant in dead matter, as iron. We must, therefore, conclude that vital force and molecular force are not one and the same thing. Molecular force being everywhere

present, vital force is carefully guarded in each species and when once extinct can never be reproduced.

The machine does not receive its force from the materials entering into its mechanical construction.

In the Genesis of all things we are told that man was made before he received life. Life is the vital principle within the human body that forbids the theory of its genesis from evolution, it lies just beyond the material, it eludes detections by any of the five senses or their mechanical aids.

It operates and makes itself manifest in a material body probably through molecular arrangement because by suddenly deranging the molecular construction by a powerful current of electricity the vital force is for ever gone and cannot be isolated nor transmitted to another. It is gone. And thus doth the mystery of life deepen around us.

In the beginning there were no incompatible external causes. Every form of creation was in harmony with the environment and no need of an elective power. But life conditions have changed since then.

The environment became more or less unnatural, while at first the life of man was from five hundred to nine hundred years. Later it was reduced to three score years and ten.

Even the earth hardly produces that which is natural. The food from the ground is not properly matured. Its molecular activities are so disturbed that its product is not properly manufactured and therefore inadequate to sustain life properly.

And on the other hand there are morbid agents which when introduced into the system create disturbance from the slight variation in health to the most powerful reaction of temperature and pulse and the creating of pathological products so quick and fast as to threaten the termination of the life of the individual in a few short hours, the cell having no choice but to take up that which is heterogeneous to it.

The art of medicine lies in the proper regulation of these things helping the organism to a perfect adjustment of its external environment, and when life forces are disturbed within to cause such reactions as will tend to equalize the manifestations of the life forces in their proper proportion in every organ and system throughout the body.

THE CELL LIFE.

All life is manifested through cellular servants and every cell is a definite chemical compound. But the arrangement of the chemical elements in the cell is not inherent in itself, but in that energy we call life.

The cells of one organ differ from those of another. Perhaps certain atoms or groups of atoms are common to both or many kinds of cells. But each species must differ from all other somewhere in molecular structure. This is the result of life force. Certain anatomic groups must be absent in one and present in the other.

Some groups are in combination loosely and are thrown off as secretion. Others are permanent and cannot be separated without destruction of the cell.

At the stage of organic life, when the cell conception is taken up, there is something more than protoplasm, a something which may be thought of but will not submit to test.

The science of chemistry deals with material things, atomic and molecular motions.

But protoplasm will not reveal its nature. It is not only impossible to make it, but to unmake it. In it lies the secret we wish to solve and is the agent that stands as mediator, or by which the life energy makes itself manifest in the material. It is, therefore, the dominant agent in the manifestations of life and is the highest order of the organic or material world.

Through its chemical and physical properties the life energy controls nutrition, produces secretion, regulates growth, creates the powers of reproduction, and furnishes the organism with completeness in function.

It is a marvellous organic compound.

DISEASE.

Disease is not an entity; it is accidental. For man was not so in the beginning. He was immortal in the Garden of Eden.

Outside the Garden and away from the tree of life he has become mortal man.

Through the curse his environment has become uncongenial. The ground from which sprang an abundance, adapted to his needs, now only produces thorns and thistles.

And the days of man are few and full of trouble. Not only has the earth refused to produce the elixir of life but the heavenly bodies conspired against his welfare, for we read of a time yet to come when the sun shall no more smite thee by day nor the moon by night.

Some are affected by dampness and others less hygroscopic suffer from the lack of it.

Some absorb an excess of oxygen and others an excess of nitrogen.

Some are better in summer and others are better in winter.

These are factors which often enter into the reaction of the system to a morbid agent.

The organism as a whole contains that which is constant and unchangeable and that which is changeable.

The constant and unchangeable are the laws of its specific forms.

The changeable are the chemical and physical properties of these.

Hence its pathological elements must be like the physiological because the reproductive powers cannot form anything against its unchangeable laws. And a minus or plus of chemical or physical influence can only compel it to produce in connection with its laws such pathological new formations as are in accordance with these laws.

The law governing the symptoms or motions in connection with cause of disease consists in repulsion or attraction according to the laws of matter coming in contact with it and those of its own matter.

There it is passive and combats nothing.

We are, in our very materialistic life, apt to view all effects as dependent upon active causes. And this leads us to apply therapeutically active moderators to rectify passive disturbing cause.

But closer investigation will prove to us that the organism in its interior is never moved merely actively but always according to the laws of reciprocal action between matter and matter.

And from this it must not be supposed that the compensations and disturbances in the molecular activity consist in a feeling of antagonism. For molecular substances and their forces within the organism as out of it conduct themselves according to the relation into which they are brought actively and passively.

From the inception of life in the ovum to the somatic death of the organism its automatic molecular activity operates according to chemical or molecular laws. It has no conception of what it shall produce.

Nature has no aim nor art and makes no products and has no aim nor art in its formations and transformations. Nature does not purpose anything. It acts according to environment, *not purpose*, always in mathematical precision. And if you know her laws you have discovered a great secret.

The phenomenon we call disease, then, is not an entity at work producing by its own energy the changed phenomena, but is the reaction of the organism to a morbid agent.

Now listen—a morbid agent may so alter the molecular arrangement of the cells in a moment of time that it will take the system days or even weeks to regain its normal equilibrium and the normal molecular equation; and often without therapeutic aid it will never readjust itself, always producing at regular intervals the morbid phenomena attending its first appearance.

As an example of this I need only mention Rhus Toxicodendron—the poison ivy.

One case came under my notice that for over thirty years the characteristic skin symptom appeared on the right cheek of a lady who also had a very severe sciatica with later very severe heart trouble. I traced the reaction back to a severe ivy poisoning. Now, no one will say that the poison stayed in the system that long. How could it? Had it not made a molecular change that for ever afterwards was for that individual normal and remained so until the molecular arrangement was reorganised by a few doses of high potency medicine selected according to the homeopathic law of therapeutics? There has been several recurrences in part to the old normal, but a few doses would soon set it right again and it has so remained for a long time.

We can say, therefore, that disease is a process which presents changed forms of the phenomena of life due to the reaction of the system to a morbid agent from without and is inconsistent with physiological conditions and processes, the harmony of the organism being disturbed thereby, the morbid agent itself perishing in the reaction or soon excreted from the system.

Disease is, therefore, the result of a cause. And every cause of disease changes a definite quantity of organic molecular arrangement; hence their changed activity in manifesting function, and a new set of life phenomena are produced that belong neither to the disease as a force nor to normal physiological processes, but to changed living tissue through which the life force operates. It will now either operate too fast or too slow, or produce a morbid exhalation or secretion that will in itself produce yet other morbid phenomena.

We might illustrate this by the fact that one metal will offer more resistance to the electric current than another. Or it will flow faster through one than the other with the attending phenomena of light, heat, etc., due to its molecular arrangement.

There are, therefore, two factors entering into the cause of the phenomenon we call disease.

1. The qualities of the organism or the conditions for the reception of the operative cause, which may be modified every twenty-four hours by climatic or hygienic conditions.

2. The active morbid agent or matter entering the system with the air or food or any other way.

Therefore, the cause and the organism are the combined conditions from which emanate the new phenomena or altered physiology.

Therefore, we cannot study disease from a text book for therapeutic purposes, but only for historical purposes.

We must study the *reaction* of the individual before us and him only must we study.

THE ACTION OF DRUGS.

The aim of all science must be directed to this, viz. : in place of the contingent to set up that which law makes necessary.

In natural science it is not what a man believes but that which has been proved well enough to be formulated into principles and laws governing the same. (We don't have rational science.) Only rational therapeutics.

Principles can only be established by facts proved without error of perception and deductions therefrom without prejudice.

Too often in medicines perception has been blinded by error, and deduction warped by prejudice.

Error creates prejudice, makes us inattentive to facts, and soothes us in neglect of experiment and investigation. The blind, therefore, become leaders of the blind and both fall into the same error.

Our conception must be based upon perception, and for the latter we have the five senses. Therefore the formation of judgment should not be permitted to take place by mere subjective caprice or pleasure nor by the mere statement of another who has formulated his judgment by an unsound method.

Judgment to be of value must proceed from determinate laws and principles inherent in the thing itself and must proceed from a profound knowledge thereof, or an acquaintance with all the facts obtainable which must be commensurate with the importance of the question involved.

The cell is the site or theatre where is enacted the organic drama and life, and the mechanism by which the life energy produces its activities.

When we consider the succession of two different states of the same body, the law of causation tells us that no effect can arise without a cause.

Forces are properties of bodies and properties of bodies distinguish them from other bodies as regards quality. This is as necessary and constant for living matter as for inorganic matter. This property determines the constant equivalents of its combination with H. and O., and is constant and unchangeable in inorganic matter.

There is this difference in living matter that it can vary its combination with H. and O., which allows it to perform a certain amount of work and yet regain its constant equivalent, but for normal it must always regain this equivalent.

Hence the reason of the states in which our organism remains are the conditions under which simply and solely it can be changed by any extraneous cause. And since attraction can only take place between two heterogeneous bodies the cell can have no choice, but takes from its surroundings everything heterogeneous to it.

The blood takes up C. O. gas, forming a most stable compound, that makes the cell almost useless as to function.

The role, therefore, of any drug and its action, as we are wont to say, is simply causal to the cell reaction on the one hand, or, on the other hand, to destroy its function or inhibit its action for a time.

To illustrate: If I give the 30x potency of opium I get a reaction. If I give 10 minims I suspend action.

Again, all substances of the external world are subject also to the law of diosmosis within the organism. The specific Histological Structure and the anatomical position of the membranes which act as separating walls determine the possibility of the diffusion of fluids of various chemical combinations.

THE POWERS OF MEDICINE FOR THERAPEUTIC PURPOSES.

There is no such thing as the knowledge of these powers by intuition.

No one can foretell the action of an external agent upon the system until it is introduced into the system and the reaction of the system thereto noted.

And furthermore, to study the reaction of the system to a drug it must not be introduced into the system in large enough quantities to produce chemical effect as large doses of salts or the poisonous effect of large doses of opium which destroys or overpowers action until such a time as the life forces may again come into normal control. They do not in any way of their own power create reaction. They do not work in harmony with the laws of Nature but hinder it. Such symptoms tell us nothing of value. There is reaction, however, which is secondary and in no way the direct result of the drug and its action, but when the life forces are released from its grasp they, like a pendulum, swing in the opposite direction.

You gain no knowledge of the laws of reciprocal action by such a procedure because the laws of life have been suspended or overcome either by the chemical laws of osmosis or by the poisonous action of the drug suspending the laws of nature.

The physiological action of a drug, then, forces nature by its stimulating or paralyzing action to do that which is unnatural. Therefore, you do not see a law of nature but *nature in subjection*.

The reaction of living tissue to any drug can only be determined by actual experiment upon the tissue in its normal living condition, in doses so small that it will not interfere with the life forces.

What constitutes, then, a drug proving? Nothing more or less than the careful recording of the reaction of the organism to any certain drug during a period of health and not a suspension of its laws.

It is a law of reciprocal action that for therapeutical purposes is so very important.

Chemistry has not found for us the affinities which exist between the external world and those of the organism together with their equivalents.

Hence we can for the present measure only those motions which are manifest and which we are cognizant of.

Is it a fact that the incomprehensible is impossible? For instance, electricity as an entity is incomprehensible.

But as a working factor it is in evidence on every hand and every factor has been determined by experiment.

There are some things that we can know that by the process of reasoning would be incomprehensible but are made possible by determining law and fact by experiment.

If through the process of reasoning we pass judgment upon that which is to the powers of reasoning incomprehensible, we have no ground upon which to base fact. Therefore, some fact or facts are assumed to be correct which were never proved by experiment, and can only be known by experiment and vice versa.

Since Chemistry and reason by deduction cannot give us equations of reaction we are left alone to experiment. And by this method we have found out very much more than we could have known by any process of deduction or reasoning.

Medicine is not the only field in which wisdom withholds herself from the wise and prudent and reveals herself unto babes.

Is it a fact that nature does not deal in chemical values $\frac{1}{1000}$ or $\frac{1}{10000}$ of a grain?

Again, can we by any reasoning process state positively that the 30x properly triturated or diluted does not contain an atom or a molecule of the drug?

When in a small crystal of salt there are billions of groups of atoms, do we know it as a fact by any process of deduction that these cannot be separated by a process of pharmacy?

Can we tell by any process of reasoning the number of square feet a twenty-five cent piece will electroplate when it runs into thousands?

We know nothing by deduction of infinitesimals as affected by the process of pharmacy and chemistry.

It is only by experiment that we can determine, really what we do know about infinitesimals when a blood cell .007 mg. in diameter contains of magnes. phos. 000, 000, 000, 000, 017, or seventeen quintillionth of a cubic millimeter and when in solution the unit becomes infinitely smaller. Such an amount is incomprehensible but it is there and it is not spirit, ether, but matter in a fine state of subdivision.

So while we know almost nothing about the chemistry of reciprocal reaction, yet by experiment one can demonstrate certain fixed laws of reciprocal action that will aid us in selecting a therapeutic remedy.

Some very foolishly assert that the 30x is like putting a grain of some drug in the Atlantic Ocean and taking a teaspoonful as a curative measure; but an illustration of such magnitude is only equalled in size by the ignorance and prejudice displayed by the individual holding such views.

There is absolutely no similarity in the illustration for it has been proven that by putting a grain of the crude drug arsenic in twenty gallons of water you obtain almost no reactions; while if you triturate one grain by the decimal or centesimal scale to the same strength 6x as determined by chemical equation by giving teaspoonful doses of this prepared solution we may obtain a marked reaction.

Not deduction but actual experiment.

Therefore, that which is incomprehensible from the standpoint of deduction may become fact by experiment.

It is also proven not by deduction but by experiment that vegetable charcoal in its crude form is almost inert, but when potentized to the 30x-2c, etc., it is able to produce a most marked reaction, and when indicated will supersede strychnine and digitalis at the bed side reviving patients almost cold in death, for hours.

Not theory but fact can be proven any day in the year.

In proving drug action therefore we determine facts not by deduction but by experiment; and experiment proves the following:--

1st. That if we administer the crude drug in large doses we can soon determine its toxic effect by the symptoms following and this action is constant; but it is antipathic to the life forces bringing them into subjection to its poisonous influence.

2nd. From these provings there is built up a system of therapeutics antipractic in nature, and upon this fact, that a drug has a preliminary and secondary effect is that the primary effect is the exact opposite of the secondary effect, that the primary effect is produced by small doses of the drug and the exact opposite of large doses of the same drug.

The idea deals mainly with pathology.

But it operates in the same antipathic field of experiment. It is the action of the drug in overpowering the life forces that is taken as a guide to therapeutics and is antipathic and against nature. Although given in small doses it is not based on the homeopathic law of nature and cannot be considered as a true curative agent whatever apparent good may be derived therefrom, because it does not act in harmony with nature nor according to its laws as known and demonstrated.

But the good is ever enemy to the best, and so men have been satisfied with what seemed good to the neglect of the best.

3rd. There is another proving of drugs that develops action in an entirely different field. It has to do not with suspension or replacing vital force. It never supplants or acts contrary to the laws inducing or inhibiting the manifestation of the vital energy, but in full accord with them. It never leaves a bad effect nor produces a secondary reaction to itself but is always primary and constant.

This power of a drug is seldom developed in its crude form but is almost always developed by the pharmaceutical process known as potentization.

While in the other two methods size of dose has everything to do with the phenomena following, here the size of the dose has nothing to do with the reaction. You will get but one reaction from one dose whether it be five drops or a teaspoonful.

It has absolutely no antipathic effect; it does not over-power nature. For while it changes the manifestation of the life forces; yet they are always in supremacy, being by this method quietly led in this or that direction.

It is also constant in its operation, causing a molecular disturbance in a certain field of activity as constant as does the toxic effect.

We may ascertain this field by giving the potentized drug to a healthy individual and watch the motions of the life energy following.

The result should be recorded accurately and should exclude all forms of hypotheses and every mere imagined assertion.

Its field of operation should be recorded in the pure expression of nature in response to a careful inquiry.

What then constitutes a law?

When an observer has learned the cause of a phenomenon and is able to combine its conditions and can at will reproduce these phenomena by combining the conditions, always producing the same result under the same conditions, then there is established a law or principle.

So much for the action of drugs. We must next learn how to use them.

THERAPEUTICS. PRINCIPLES—DIAGNOSIS—TREATMENT.

The application of the law of reciprocal action to the cure of disease is not antipathic or dissimilar in the nature, but homœopathic or similar in nature. This is a law and not a theory.

Now then, it is a self-evident fact that the secret lies in this that he who reads with the greatest precision this law of reaction in the individual is the best adapted to institute measures to correct the difficulty, providing he operates according to law.

There are many bright men who have thought they were applying the law of homœopathic therapeutics when they made a diagnosis of hyperæmia, exudation, atony, atrophy, hypertrophy, etc.

I congratulate them on their successes but I am sorry for their failures.

The true meaning of this law has a deeper and wider and more far reaching application than the mere idea of pathology. In fact, in many cases it may be ignored almost entirely if the reactionary picture be a good one.

There is a demand here for exactness, minuteness, delicateness, and thoroughness, lying far beyond and internal to the pathological external symptom or symptoms.

In other words, the final end result of diagnosis only starts with pathology, morbid anatomy, altered function, which are characteristic.

And from these traces the course of altered vitality back to its most central source and by a totality of all the symptoms of altered life phenomena beholds a group of morbid symptoms that may be formed into a mental picture and exactly studied.

Add to this picture the local characteristic symptom and you are ready to introduce therapeutic measure.

Hence rational therapeutics does not proceed from deduction in the laboratory nor the autopsy table (which latter have lead rather to extirpation, ablation or resection rather than restoration.)

But by every established variation of life manifestation in the history of the organism; even of the parents and ancestors. Hence diagnosis is an art rather than a science.

The value of diagnosis depends, therefore, entirely upon the art of the diagnostician. The more complicated the case, the greater the art of properly classifying and estimating symptoms.

WHAT CONSTITUTES A CURE.

The law of specific reciprocal action is always constant, though not always the same.

But if the morbid agent has gained access to the molecular activities, there is always reaction, which is evidenced by symptoms and changes of health, perceptible to the senses; and every symptom becomes a part of this picture.

Now, then, if a morbid agent will produce a well defined set of symptoms or phenomena, it does so because it changes a certain definite quantity of molecular activity in a given field.

Now then, if we apply a therapeutic agent of a dissimilar action although acting in the same field but a different quantity of molecular activity, it is perfectly plain that our measures are not, in accord with law but entirely opposite or antipathetic to nature.

We do not operate according to law, but entirely against it, opposing nature's forces by instituting her own forces against herself.

As there is no power in a therapeutic agent of itself, therefore we never influence with our therapeutic agent the molecular activity the morbid agent has caused because it has to do with a dissimilar molecular activity.

Therefore, if we force nature against itself, it is easy to be seen that our supposed therapeutic agent acts not as a therapeutic agent but as a dissimilar morbid agent and if stronger than the first agent will force nature to overrule and hold in abeyance the activities of the first agent.

The philosophy of this is, that the diseased molecular activity regained its normal, while under subjection to a dissimilar molecular activity. Finally, the dissimilar activity produced by our therapeutic agent begins to right itself and after a shorter or longer period both fields regain a normal activity.

I must maintain that antipathic measures never cure because they operate antagonistic to the laws of reciprocal action, and that its cures are only apparent and deceptive because the first symptom is supplanted by a stronger symptom of the exact opposite in kind which will last as long or longer than the first symptom.

Just remember that medicine is not a force and do not ascribe to it power, it deals only with natural forces.

Take for instance a diarrhea, a symptom of multiplied molecular activity. But you say to cure we must stop it and we will set up the antagonistic forces of nature and with large doses of opium we overpower the other force. Have you cured it? No, we only suppressed it by an antagonistic force of nature brought about by the opium. *Our method*, not nature's method. In fact antagonistic to nature and its laws.

Therefore, let us set it down as an absolute fact demonstrated by every day experience, that natural disease cannot be cured by therapeutic agents that produce a morbid condition dissimilar to and different from that of the disease to be cured.

Again experience teaches also that only transient relief is procured by medicines that produce a dissimilar set of symptoms.

How should it have been cured? We proceed to get the history of the reaction.

Did it come on after getting wet? Or after being over-heated? Or after exposure to cold, dry wind? Or after anger or fright? Or after suppressed perspiration?

Is he anxious, fearful, restless, thirsty, has he general dry heat, full, hard, very quick pulse? The stools are watery; or green and bloody, slimy, frequent.

Aconite will in a few hours bring such a condition to a favorable turn. Why? Because it operates in the same field of molecular activity producing the same symptoms. We might produce for you a hundred such pictures of diarrhea, each requiring a different medicine, yet each one a specific because producing the same identical symptoms, not dissimilar but similar. This is not theoretical, but proven and reproven.

The drug is chosen because in its proving it has set up a reaction of a similar nature in the same field. Therefore, the more perfect the drug symptoms are to the disease, the more complete will be its reaction.

Therefore we must employ the single drug if we wish to know where we are; otherwise we get mixed, destroy or mar our picture and make it impossible to select another remedy.

How does it act according to similars?

Well, how does it act according to dissimilars?

I do not know; I cannot tell how, *but experience proves it does*. That is a law of cure established as a law and is as unerring as any law of science. In fact, it is the only sphere in which a drug or medicine may be said to be curative; otherwise it is antipathetic and not a cure.

It is a field by itself and the laws of life are peculiar to this.

Now, then, disease exists in groups of symptoms; and that a drug acting in the same sphere as denoted by the symptoms only much stronger, will set in motion these molecular activities that when at rest again the abnormal phenomenon will have disappeared and state of health ensues.

The effect of the morbid agent having been annihilated by the stronger action of the drug potency acting in the same sphere and selected according to the Homœopathic Law of Similars.

Experiment proves this to be a fact. But nature itself never cures natural disease by superadding another disease dissimilar to the first although great in intensity. It will replace it but not cure it. If nature cannot do it, then you and I cannot.

The greatest field for the study of life phenomena and activities are recorded in the provings of the old masters, the homœopathic *materia medica*.

It seems that wave lengths of reaction of life energies are measured almost to superhuman fineness; and when entered into, its pictures are more vivid and classical than any pathological demonstration in the postmortem room.

As it is always more interesting to witness the engine at work than to review the remains after the explosion, therefore it is more

necessary to have a perfect picture of the morbid working energies than to anticipate with exact precision the post mortem findings.

It at once enlarges the horizon which seems limited only by one's own inability to comprehend everything at once.

Old views pass away, ignorance and prejudice give way to law and order; all things become new.

Diseases once thought incurable, now vanish away with masterful touch.

One is no longer limited to the narrow limits of local pathology and antipathic methods, but is come into harmony with the laws of nature. They now respond to this touch, refusing to yield only when discord is introduced by an antipathic method.

Is it any wonder that his enthusiasm knows no bound and becomes attracted at once to him who gave meaning and law to this great mystery. I refer to the immortal historical Samuel Hahnemann.

Thousands have risen up to call him blessed. One cannot do otherwise when he is allowed to behold for the first time in wonder and amazement the secret that was ever before his eyes and yet never seen.

The genius of Samuel Hahnemann is only proved by the comparative few who have been able to enter fully into it. To see him at work is to behold a master. He discovered and formulated laws of life so thorough and exact that after a century they stand as clear cut and incontrovertible as if but born yesterday, of the most exact science of modern times.

In disease he studied the delicate life forces in operation, i. e., in their reaction to new morbid agents or the sudden lighting up of old morbid conditions that had remained in the system uncured for years.

Thus his very conception of disease penetrated deeper than his contemporaries and critics, and to-day his writings on disease and cure are without a peer.

THE APPLICATION OF THE PRINCIPLE.

When we study the patient as a whole we find the general reaction is different in each individual.

Therefore, after we have removed our patient from the active influences of the morbid agent, we devote our attention to the general reaction of the patient which we read in the symptoms subjective and objective that indicate a departure from the normal.

The special senses have detected subjectively and objectively a disturbed equilibrium, with a transfer of a part of the vital propensities in multiplex variety, either multiplied or diminished. To manipulate and modify these potentialities if weakened or strengthened beyond normal and to bring into harmony once more the physiological unit. *To do this requires art and skill based upon experience which should be accumulated as classified knowledge.*

In dealing with these problems we enter a sanctuary more central and still more central where neither the microscope, X-ray nor spectroscope has been able to reveal unto us this most central sanctum.

Only by the power of thought are we able to enter in and observe its place of abode.

We enter this sanctum by the process of experiment and by these observe law and order as in every other field.

We do not know why the lung becomes pneumonic on the right side in some people and left side in other; the upper lobe in some, the lower in others; but we do have an unerring law in selecting a therapeutic agent. I will give you three different pictures of the same disease as an illustration of this law.

The patient, a rather large, robust individual with dark hair and complexion, is seized with a sudden pain in the right side. He is very thirsty, takes large draughts of water at long intervals; he lies perfectly quiet and on the painful side; he restrains his cough and the sputum is rust coloured.

The other patient is pale, anæmic, very hot, restless, fearful; the attack came on at midnight, is always aggravated about midnight, drinks small quantities of water often; she tosses in bed; wants to get out; the sputum is white, tenacious; the pulse rapid and weak; the limbs slightly œdematous, and cold.

The third is burning up; skin intensely hot all over; she is very irritable; the respiratory movements short, quick; the pains are sharp, shooting, stinging, not only in the chest but the abdomen also; there is no thirst; the sputum is bloody; the urine scanty and dark; the periosteum of bones are sore everywhere.

While this is pneumonia, there are three different pictures and there is as much difference between them as it is possible and yet be the same disease.

Those who are familiar with the homeopathic law for the selection of a remedy would have very little difficulty in selecting as specifics bryonia, arsenic and apis.

And they will cure your pneumonia every time without fail or doubt when these same general conditions are present.

Experience teaches us that we may have his utmost confidence in this law.

And there is no other treatment that will give such brilliant results and in which so much confidence can be placed.

And as long as prejudice and ignorance to the homeopathic law of cure remains as a part of our inheritance I suppose just so long curative properties will be ascribed to all sorts of treatment.

But they are only curative as far as they comply with this law. The Homeopathic law of cure. Otherwise they only suppress or supplant and never cure.—*The Medical Advance*, June, 1909.

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A PATHOLOGIST'S VIEW OF HOMŒOPATHY.

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Many persons have in the past answered with varying degrees of success the self-propounded question, "What is homœopathy." The subject has been discussed from many different viewpoints, by both the layman and the physician. One of the most able of the answers to the query will be found in the presidential address delivered by Dr. Sutherland at the Niagara meeting of the Institute in 1904. More recently, Dr. Copeland, now of New York, has covered the field in a very comprehensive manner by his numerous addresses on "the scientific reasonableness of homœopathy." The majority of the answers to the question have been along lines distinctly clinical, although not a few have gone into the realms of philosophy, and some almost into mysticism. Clinical results are certainly the crucial tests of all systems of cure and upon these a method of treatment must stand or fall. Along these lines it would be presumptuous for me to speak to this audience except by giving those old and oft repeated facts with which you are all so familiar and where any original ideas could not be introduced with authority by one who is not a clinician.

It not infrequently happens that various persons in approaching the same object by convergent routes see that object

in different ways and are able to portray to others phases that from their position would be otherwise unseen. The question of homœopathy, therefore, has been approached from many sides in the past, but unless a mistake has been made, the viewpoint of the exclusive worker in pathology has never yet been given. It has seemed wise, therefore, to look at the question from such a point and to inquire how much of the subject will appeal to the pathologist as capable of demonstration or as in accordance with demonstrable facts.

As an introduction to the subject may a few personal notes be pardoned explanatory of my early attitude toward the entire matter of a drug therapeutics. As the son of a physician who graduated from a non-homœopathic college but who early became a homœopath by conviction, my early training gave familiarity with the medicines used according to the law of similars. As a graduate of an university where all teaching and traditions never favored homœopathy the reverse side of the picture was exposed. Later, during a course at an homœopathic university where all possible spare time was passed in laboratory work, not a great impression was made by materia medica or its clinical application, in spite of very excellent courses of instruction. As a graduate, therefore, never having tested and never intending to test the clinical application of drug therapy, an honest scepticism was the attitude reached. During the past twelve years of exclusively laboratory work it has been necessary to keep in touch with the results of other investigations along the line of my particular specialty and its allied subjects in various parts of the world. In these years the principles of homœopathy have been more and more brought to the front as discovery after discovery has shed enlightenment on some of its contentions that formerly had been obscure. The result is that the scepticism has entirely disappeared to be replaced by a firm and steadfast belief that the statement made by Samuel Hahnemann scores of years ago are in their essential features not only true but are now becoming capable of actual laboratory demonstration. In other words, I have by laboratory and allied study become con-

vinced that the phrase *similia similibus curantur* stands for a great principle not only in connection with drug therapy but probably applicable to many other remedial agencies as well. I believe that the production of immunity, that goal so ardently striven for by the dominant school in medicine, has been, is now, and will be in the future attained largely, if not entirely, by application of the same principle that underlies the homœopathic faith.

I do not claim that there are no errors in homœopathy, nor that we have in our ranks no fanatics or faddists. No mortal is omniscient in his interpretation of the facts of nature. We must always make mistakes. What I do believe, however, is that all classes of medical thought are insensibly growing together and that the new product of this growth is very closely approximating in its principles the ideas of homœopathy that are so familiar to you all.

In presenting my reasons for these beliefs it seems advisable to examine the various associated peculiarities of homœopathy and to see how far they are now capable of defence upon distinctly scientific grounds. These, it seems, are capable of division into five groups :

The single remedy.

The proving of drugs.

The size of the dose.

The frequency of repetition.

The law of cure.

The Single Remedy.

Taking these *seriatim*, let the single remedy be first considered. When Hahnemann, disgusted with the medicine of his day, introduced his famous law, polypharmacy ran riot throughout the world. Medicines of the most repulsive and nauseating materials were compounded, often including fifteen, twenty or more ingredients in varying proportions. One of his first acts was to insist on the use of but a single remedy at any one time, claiming that only in this manner could we know of

the curative powers of the drug. Since then homœopathy has firmly and steadfastly opposed combinations of drugs. The result is familiar to you all; polypharmacy is practically a thing of the past, its folly is admitted by adherents of all schools of medicine. Modern laboratory research shows that while we may know that effect of three or more drugs given singly, there is no way of definitely knowing from this what will be the result when they are combined in any of the various ways. This result will not be the combined effect of them all, neither may it be that of any one, but is frequently something quite unlooked for. The tenableness of this ground, so strongly held by Hahnemann and his followers, is, this day, certainly amply proven, and the most strenuous defenders now come from the very sect that in early years so actively derided the idea. Let any who question this statement refer to a paper recently read before the Suffolk County Society by one of the professors of the University of Pennsylvania, in which a very strong plea was made for the single remedy as opposed to combinations. Time forbids further reference to it. Here, then, there can be no debatable ground.

The Proving of Drugs.

In the next section there may be opportunity for discussion. This section has to do with the proving of drugs. It is an unnecessary task to recall to this audience the classic studies of Peruvian bark that opened the door to the construction of an entirely new *Materia Medica*. Homœopathy has always advocated as one of its most important beliefs the proving or testing of drugs on the well and the systematic recording of the symptoms thereby induced. True, there are some among us that carry this symptomatology to what many others of our number consider an extreme, and in this way have filled our *materia medica* with much that is of questionable value or authenticity. But on the general principle we are all agreed, that for the successful use of medicines on the sick we must first know their action on the well. This principle has not yet been generally admitted by the whole of the dominant school, although many influential

individual members are coming to recognize its value. Formerly all such tests were made under ridicule, but during the past decade great concessions have been made in this respect; that is, it is now generally admitted that animal experimentation cannot be carried on too extensively in our study of drugs prior to using them for therapeutic purposes.

Much could be said concerning the uselessness of the old empirical methods of drug study. Any materia medica will show it in practically all parts. The vagaries, the fashions, the vogue or certain drugs, here to-day, gone to-morrow, resurrected the next in a never ending circle of change, form spectacles that must be disconcerting to any honest seeker after truth. So unsatisfactory is the condition that one of the most distinguished of the clinicians of that school has recently stated in public that "he knows his materia medica best, who knows what to distrust"; also that with the exception of about half a dozen drugs, the remainder is probably largely useless or worse. Compare this helter-skelter pursuit of the will-o'-the-wisp with its yearly and almost monthly changes with the fixed, uniform guide to drugs that we find in our homœopathic materia medica. True, here also much is still wanting, but we have at least a clearly defined plan that we follow year after year.

This cannot fail to produce, not continual vacillations like the continual, quivering Brownian motion, always moving but never progressing except by accident, but a steadily improving and more complete knowledge of drugs and their action. Looking at this phase of the question from the standpoint of the laboratory worker to whom order, regularity and accuracy must be paramount, but one attitude seems possible: that which endorses to the fullest the aims, but perhaps not always all the published results, of those who strive to ascertain the exact effects of these medicinal substances on the human body. In other words, the exact scientific manner of determining the effect of drug action seems to be by that means that we know as drug proving or drug testing, never omitting, however, animal experimentation and any other form of study. By this means we

avoid the criticism that one of the dominant school physicians recently made of his own methods when he said that the use of drugs at present consists in putting substances of whose action we know little into bodies of whose action we know less.

The Size of the Dose.

The next division of the subject has to do with the size of the dose. Granted that this in its correct sense has nothing to do with homœopathy, yet we must confess that in actual practice it has divided our school into two widely separated camps. Years ago it was common to hear the joke about the absurd dilutions of homœopathic drugs, a drop in a bucket, in a barrel, in a lake or in an ocean being favorite illustrations. To-day one seldom hears this criticism used by any intelligent physicians. You ask why? For the very simple reason that these intelligent physicians are now themselves using the drop in a bucket or in a barrel, and are wondering if even this is to be the limit to their dilutions. Those who came to scoff have remained to pray. What ardent homœopath of a decade ago would have ever anticipated hearing Trudeau, Wright, Denys, Pottenger, Baldwin and a host of others advocating and using potencies corresponding to our 6x, 8x or even 10x. Such is the case, however, at the present time. Almost without exception the dosage of half century or less ago has been very greatly reduced in size. To such an extent is this true that where was formerly given grains or grams of a drug, now tenths, hundredths or thousandths of that amount are loudly lauded. Employment of dilutions corresponding to our third or fourth decimal is now by universal consent accepted by all, the world over, for many drugs, while in the various forms of vaccine work now offering such a hopeful future there are daily used amounts corresponding to the 6x, 8x, sometimes even the 10x. The dilution of tuberculin is a practically perfect illustration of the adoption of an homœopathic method. So accurate is this that a recent writer in the *Cleveland Medical Journal* (not homœopathic) openly advocates calling the various strengths 3x, 4x, 5x, etc.

Time again forbids further elaboration of this matter although many authorities could be quoted at length in corroboration. Let me merely add in this connection one word of caution for our benefit. For ten or fifteen years the dominant school honestly believed that the 6x of any material could not contain any demonstrable substance. Now they are just as certain that it may, and are compelled to retract the many arrogant statements then made, much to the amusement of others. Let us not make a similar mistake. We believe in our low dilutions, but many cannot honestly accept the statements of our friends who are called the "high potentists." We cannot conceive, perhaps, that any substance diluted to the 200th or 1000th centesimal can be effective as a therapeutic agent, and if we cannot, well and good. But let us not try to force almost with physical violence our opinions upon those who happen to think otherwise, as it may be that time will prove that we also have been mistaken in our ideas and that we have done something to obstruct progress just as has been undoubtedly the case with our friends of the opposite school.

The Frequency of Repetition.

The frequency of repetition of the dose, our next topic, needs but brief consideration here. The homœopathic principle is to repeat the dose when we think that the action of the preceding one weakens, or when we wish to add accumulative action by giving frequent small doses. It would have been a surprise to us ten years ago to read in non-homœopathic journals articles advocating the use of medicaments in 4x, 6x, or even higher dilutions at intervals of one, two or three weeks. At present, nevertheless, tuberculin is seldom given at more frequent intervals than once in five days, and in some instances once a month may suffice.

The Law of Cure.

The crux of our entire subject will be found in the last section of the division made in the early part of this paper, the law of cure. The other matters are merely subsidiary, but homœopathy depends for its very existence on the truth or fallacy of

the phrase *similia similibus curantur*. When first entering laboratory work my personal opinion concerning this phrase was very hazy with a probable tendency to consider it applicable in a number of cases, but very far from universal in its application. It was accepted as being the best rule at that time known. Gradually and almost imperceptibly its application has been demonstrated to be wider and wider until at present it is not safe for anyone to say where the limit can be set, or in fact whether there is any definite limit.

My own belief is that the principle underlying the efficacious administration of drugs as used by the homœopath is identical with that law that the dominant school now admit to be their guide, the production of immunity. Probably the work that has given to our friends of the other school in therapeutics greater respect for homœopathy than they have heretofore manifested is that which has originated from one of their own members, Sir A. E. Wright, of England. (Not only respect has been the result, but it has strengthened our own feeble ones, and is undoubtedly partly the cause of the present reaccession of enthusiasm for homœopathy that is spreading over the entire world.) So important is this work that I will consider it in some detail, particularly as it is seen through homœopathic glasses.

Let an illustrative case be taken. A man comes to my laboratory suffering from furunculosis. Specimens of pus are taken and are found to contain staphylococcus in pure culture. A specimen of blood is taken from the patient and tested for its resistance to staphylococcus. This resistance may be found to be 5 (the normal being, *1); or in other words, the patient possesses just half the amount of immunity that he should. We therefore say that he is suffering from the disease because his resistance to the causative micro-organism is deficient. My object now is to increase the amount of resistance or the opsonic index, as it is called. I take a culture directly from the patient, incubate it, emulsify, sterilize and standardize it. A small amount of this material, in amount corresponding about to our 5x, 6x, or 7x, is then administered. The result is

that for a few hours the opsonic index falls, but soon rises to its former level and rapidly reaches .7, .9 or perhaps 1. Here it stays for a few days, then begins to fall. If when it is at its height a second treatment be given, it will, after another slight fall reach 1.2, 1.5, 1.8, 2.5 or higher. Coincident with the rising index the clinical symptoms improved or disappear and the patient recovers. The technique is theoretically the same in all the various forms of infection except tuberculosis, where a stock preparation of tuberculin is used for the treatment. Practically, however, we do not now often determine the index, as it is a cumbersome process and can only be made by especially skilled workers. Allow me to say, in passing, that I do personally believe that the opsonic index determined by a careful, skilled laboratory man is comparatively accurate and is capable of giving much information. The clinical symptoms are usually fairly satisfactory indications of the condition of the patient, and as such are carefully watched in every case.

From the theoretical standpoint the beneficent action of vaccines lies in the fact that each treatment makes a very mild but similar disease to that with which the patient is suffering. Convalescence from the mild one confers immunity from the more virulent, just as cow pox is followed by immunity to small pox. The reason for this lies in the well-known biological fact that nature, when injured, repairs that injury in excess whenever possible. When, therefore, this slight form of the disease is introduced she overcomes it by a production of neutralizing or opposing substances called anti-bodies. These anti-bodies very quickly dispose of the disease itself, but in so doing only a very few of them are used, the great majority or the excess produced remaining free in the blood. These free bodies are then carried to various parts of the body, and if at any place they find more of the similar disease, immediately begin to attempt to dispose of this also.

Let it be remembered that this has nothing to do with any school of therapeutics, but is common to all. I use it as a pathologist in common with all laboratory men of all schools. Kindly

now look with me for any data bearing on homœopathy. In the first place the medicament is obtained directly from the patient himself and is then, after preparation, reintroduced into his body. *This is surely suggestive, at least, of our *similia similibus curenature*. Frequently a stock preparation is employed similar to that producing the disease. Occasionally we get a slight aggravation from the vaccine; this does not mean that the wrong remedy has been selected, to my mind, just the reverse but is an indication for giving a smaller dose in future, or in words familiar to some of you, "an aggravation from any one dose is an indication to go higher." The fact that if the doses are too large the opsonic index or degree of resistance will be steadily lowered, is also familiar to us in our work with drugs. It has been stated that certain vaccines seem to have special selective powers for certain parts or organs, which will, if proven true, be still another step toward our ideas. This is merely advanced as a possibility, however, for I have not yet found opportunity to test it, and am indeed inclined to question it. The innocuousness of the treatment and the very minute doses are features for which homœopaths have suffered much ridicule in past years.

Without doubt, the most vital question to solve is the possibility that drugs are capable of influencing the resistance, just as do vaccines, too large ones reducing it, too small ones having no effect. If this can be proven the law of similars will rest upon a base that no one can move. The question is unfortunately a difficult one and suitable opportunities for study are few. With vaccines we immunize against very similar organisms where the resistance of the patient to these organisms can be measured. With drugs we immunize against the manifestations of disease, but as yet possess no universal way of estimating the amount of resistance thus produced. Sometimes this can be done in a satisfactory manner, however.

For instance, our drug, hepar sulphur, possesses a reputation of being able to hasten suppuration when taken in the lower potencies. It seemed to me accordingly, that it did so by reducing the opsonic index and was so tested. The result is that I

have been able to find repeatedly a fall in the staphylococcus index following the use of a single dose of hepar 1x, or after several doses of 2x, 3x and 6x. A number of experiments by Wheeler of England, Burrett of Michigan and myself have well demonstrated that phosphorus, echinacea and hepar are able to influence the index in a manner identical to the effect of vaccines. Detailed description of these will not be here given, but the charts will be thrown upon the screen later. In my laboratory in Boston we have also watched the effect of drugs given to patients suffering from infectious disease and found the opsonic index to be influenced just as it has been by the use of vaccines. These studies are merely introductory but are mentioned to show that as far as they go they agree with our preconceived notions of drug action. If, as seems possible, we can show that suitable persons manifest demonstrable increase of resistance to certain infections after the use of the proper drug in the proper strength, our claim that in those other diseases where we as yet have no means of measuring the degree of immunity the homœopathic remedy is similarly beneficial, will be greatly strengthened and our ground more secure.

Immunization by drugs against large doses of the same drug is comparatively readily induced probably by rendering more resistant the part or parts that are injured when the large dose is used. In order to find what the symptoms that the large dose produce are it must be tested both on animals and on man. Then when a case presenting such symptoms is encountered we can say "blank is a drug capable of producing these symptoms; therefore, if we use it in small amounts we can produce immunity to the particular disturbance by the production of these special, anti-bodies."

In the laboratory we immunize by using a small amount of the poison, or a similar one, against which we desire to protect. Why is not the same rule applicable in the clinical realm? If it is scientific in one it must be in the other. Time forbids the elaboration of other allied lines of thought that come to the attention of the pathologist. They can be merely mentioned.

Probably one of the most satisfactory illustrations of the law of similars is seen in connection with the X-ray. Let anyone first make a list of the disturbances that over-exposure to this may cause, such as eczema in its various forms, and all the varieties of skin lesions, even including cancer itself and other manifestations. Then let him compare his list with that for which the X-ray in short exposures is able to cure, not even excluding cancer. The similarity of the two columns will be striking to even the most hurried glance, and well illustrates our contention that a substance in large amount is able to cause the same of similar condition to that for which it is curative when used in a less concentrated form. Similarly certain exposures to sunlight act as aids to cure, particularly in tuberculosis. But over-exposure will produce aggravation. Such could also be said of foods, some stimulants and a number of other articles, or to express it concretely, small amounts are beneficial, larger ones deleterious.

The question may now be asked, "After all this discussion what is your idea of homœopathy?" It will be answered as follows: Homœopathy is the term given to distinct method of using medicinal agents, a method that is based upon sound theories, and one that is yearly becoming more demonstrable by exact science. It is perfectly consistent with known facts, and is probably merely a way of expressing the means employed in reaching the goal of all medicine, the production of immunity. Or in other words, the production of immunity is the name given to the end attained, homœopathy to the means of attaining it. This means, therefore, that the goal of physicians is the same and the roads to it are very similar. In one, drugs are recognized important (possibly by some, too important), in the other, hygienic measures exclusively, drugs being practically discarded. Where lies the truth? As usual, somewhere between the two. In the past it is possible that some of our associates, in their ardent and continuous study of the drug immunization, have lost sight of what we might call hygienic immunization. If such

has been the case it has been most unfortunate and unwise. It has been, I believe, very limited, however.

It is also not only possible, but certain, that the dominant school in its work with drugs has met with almost uniform failure. So nearly complete has this been that we are now said to be in an age of drug nihilism, merely because the drugs have been incorrectly used. It is not unlike the introduction of tuberculin. This agent was supposed to be the long-looked-for specific for tuberculosis. In the first few years it was widely used in large doses and was found to be often not only useless, but actually unsafe. It was accordingly cast aside as valueless and the nihilistic period came on. Later, after careful study, the dose was reduced to an almost infinitesimal amount, and in this form it is now recognized as a distinctly beneficial agent. In a similar manner, but very slowly, is general medicine progressing. Gradually a more correct appreciation of the sphere of drug action is coming, and the size of the dose and the principle of action are being more accurately determined.

And as this progress in our knowledge becomes greater and greater we see, as never before, that it tends to substantiate the claims advanced many year ago by Hahnemann.

Homœopaths have been reproached by their opponents for being narrow and sectarian, for accepting all things that agree with their dogma and for overlooking all that tends to refute it. Why was Hahnemann sectarian? Why were Talbot, Chase and the other New England homœopaths in 1876 sectarian? Why are we all sectarian? Was it the wish of the earlier pioneers in the profession? Is it our own wish now? Hahnemann attempted to reform the medicine of his day, but that profession refusing to be reformed, expelled him from its midst. But one thing remained to do, to live and act in accordance with what he thought was right, and if companionship was refused him, to live alone.

Talbot, Chase and those others who, having become convinced of the truth of the homœopathic use of drug, were expelled from the Massachusetts Medical Society in 1876, after practical-

ly no opportunity for defence, did not become sectarian by their own desire, but by stern necessity. The Medical School of Boston University, as well as all other homœopathic medical schools, was founded merely because in no other way could homœopathy be taught. Privileges of such instruction that these men believed to be vital were entirely denied in the then existing medical institutions. Hence there was only one thing possible, to establish their own schools of instruction. In this manner these schools were also compelled to teach all the other branches of medicine in order that their graduates be truly well equipped physicians in all departments. Thus, homœopathy was forced to the change from a specialty in therapeutics (where it did then and still does belong) to a sectarian aggregation.

What more natural than that some of those exiled practitioners, fighting earnestly for their beliefs and with their eyes constantly fixed on their motto of similars, should place undue emphasis upon that motto to the exclusion of all other forms of treatment. This is merely what always happens to those who introduce any new idea in medicine. It is but a temporary attitude which time always safely cures. It is true that we have faddists and fanatics still with us. Where can we not find them in any forms of study? These do not, or at least should not, influence one for or against a cause.

We are asked by the "old school" society whether we practise any exclusive system of medicine. At the present time, with our knowledge of sanitation and hygiene, of dietetic measures, of thermo-therapy, electrop-therapy, serum therapy, vaccine therapy, hydro-therapy, of surgery, gynæcology and of preventive medicine, as well as of action of drugs, how can any honest and intelligent physician in general practice claim that he practises any one exclusive method?

Not every case can be treated homœopathically any more than can every one be subjected to surgical procedures or to treatment by vaccines or serum. Just as by surgery, however, or by vaccines or various forms of sera, certain conditions can be brought about that will increase the resistance of the patient,

so by the proper use of drugs can this resistance be raised in those diseases where the other means are inadequate, or where for one reason or another they cannot be used. To repeat, then, homœopathy is a specialty in medicine, not a sect, and should be so considered. It differs less from other forms than do many of the specialties from each other. Its aim is the same as is that of the others, the production of acquired immunity to disease, by a definite law, *similia similibus curentur*. This law first applied to drug action is now recognized to be of even wider application and to include that which we otherwise denominate the production of immunity. When these ideas become accepted by our friends across the line, when they will allow us to hold them ourselves and to treat them as something of which we should not be ashamed, and when they are willing to accord to them the same recognition as is received by other specialties, in which many of their own number may not believe, then, and not till then, let us consider the possibility of amalgamation. It is an indication of gross ignorance to assert that we retain the name merely as an advertisement to the public, no longer believing in the principles of our faith, for while this might be true in some few instances it could not hold good in the thousands of honest, earnest and conscientious practitioners who to-day hold the banner of Hahnemann. Our belief rests on a base formed by long and successful clinical experience.

This foundation is now being tested by the laboratory investigator and thus far, at least, has not been proven to be anything other than what is claimed. However, all of us are fallible and must expect to make some mistakes in our application of truth. Let us not have undue assurance that in homœopathy we have all the truth, for we certainly have not. Let us also not claim that every feature of our claims is beyond criticism and consider that everything is definite law, for undoubtedly we are making mistakes, as are all others in this world. Let us, however, be assured that in our law we have a good and reliable guide for the use of drugs, a guide that is now being verified in the laboratory by the pathologist, even as it has been verified at

the bedside by the clinician for the past many years,

And in closing let me borrow a quotation from the paper of Dr. Sutherland, already referred to: "The separated sect of homœopathy as such, will have fulfilled its purpose when the truths of homœopathy have received the world over explicit and honorable recognition and acceptance at the hands of traditional medicine; and when Samuel Hahnemann, with all his human fallibilities seen and admitted, shall be assigned by traditional medicine his true place as a scientific thinker and experimenter and a benefactor to the cause of medicine. This day has hardly dawned; yet here and there the watchers on the walls see a lightening in the skies of opposition and misrepresentation that have been for a century so dark, and cry to us who listen; 'The morning cometh!' So far as this faint dawn foretells the true morning, in whose light all men shall fearlessly see the truth and by whose light all men shall fearlessly follow the truth till all division is merged in brotherly co-operation for the healing of mankind, speed that dawn! For in the day it heralds,

"When no man shall work for pleasure, and no man shall work
for gain,

But each for the joy of the working, and each in his separate
star,

Shall lift the truth as he sees it to the God of Truths as they are,"

EDITOR'S NOTES.

Ptomaine Poisoning from Shrimps.

After partaking of some shrimps purchased from a street vendor at Shoreham (Sussex) a little girl of six years was seized with abdominal pains and died within a very short time. At the inquest on Sept. 29th Dr. W. A. Kinloch said that death was due to exhaustion following ptomaine poisoning, and a verdict was returned accordingly. The jury added a rider calling the attention of the urban council to the hawking and selling of food which was unfit for consumption, and the coroner, Mr. F. W. Butler, said that he would bring the matter before the notice of the police.—The *Lancet*, October 9, 1909.

Napoleon Bonaparte and his Doctor.

Napoleon Bonaparte, in his last illness said:—"Doctor, I will take no more physic. We are, as I have already told you, a machine made to live. We are organised for that purpose, and such is our nature. Do not counteract the living principle. Let it alone. Leave it the liberty of defending itself, it will do better than your drugs. Our body is a watch that is intended to go for a given time. The watchmaker cannot open it, and must, on handling it, grope his way blindfolded and at random. For once that he assists and relieves by dint of tormenting with his crooked instruments, he injures it ten times and at last destroys it."—The *Medical Advance*, October, 1909.

The White Slave Trade.

How many physicians have any conception of the magnitude of the white slave traffic in the United States of America—the land of boasted freedom? Edwin W. Sims, U. S. District Attorney, Chicago, is responsible for the statement that some 65,000 daughters of American homes and 15,000 alien girls are the prey each year of procurers in this traffic, according to authoritative estimates. Even marriage is used as one of the diabolical methods of capturing girlhood and young womanhood and "breaking them in" to a life of shame. They are hunted, trapped in a thousand ways; trapped, wing-broken, sold—for less than hogs!—and held in slavery worse than death. No girl or woman, no daughter or wife, can be said

to be absolutely beyond the reach of the procurer. The rural girl, deliberately lured to the city, or attracted to it by the enticement of employment or excitement is the most frequent victim. Consequently the country doctor can add to his usefulness to his community by warning parents of growing girls of the net spread for their feet and by urging as a means of protection a greater frankness between parents and children, in other words, see that every child has a right education in sex matters at home or in school and does not have to pick up misinformation on the street.—*The North American Journal of Homœopathy*, October, 1909.

The Manufacture of Quinine.

The report of the Government cinchona plantation and factory in Bengal for the year ending in March last shows that 938,800 pounds of bark were put through the factory. When the extensions of the factory were completed two or three years ago it was estimated that it would be possible to manufacture 30,000 pounds of quinine yearly. Last year 36,919 pounds of quinine and 7,281 pounds of cinchona febrifuge were manufactured. The output of quinine has practically trebled since 1904. A quite satisfactory start was made with the manufacture of quinine in tablet form, and the factory could turn out any quantity of quinine tablets, but to do so more machinery would be required. The work of building up a reserve of quinine was continued during the year, over 18,000 pounds of quinine sulphate and nearly 4,000 pounds of cinchona febrifuge being added to the stock. At the lowest estimate this was worth about one and a half lakhs of rupees, so that though the actual receipts fell short of the expenditure by some Rs. 31,000 the factory had quite a substantial balance to the good in the shape of the quinine reserve. An increase from 4,000 to 5,000 pounds took place in the amount of quinine utilised for pice packets, and a further large increase under this head is expected during the coming year.—*The Lancet*, October 16, 1909.

The Depopulation of France.

It has been argued by some writers that the significance of the falling birth-rate in this country is not so great because there is also a diminution in the death-rate, but there will necessarily come a time when the latter circumstance will cease to mask the former.

It would almost appear as if that time had come in the case of France and her vital statistics. In Dr. Variot's journal (*La Clinique Infantile*, November, 1909) the French figures for the first six months of 1909 are compared with those of the corresponding period of 1908. The marriages decreased from 162,495 to 156,294 and the divorces increased from 5,605 to 6,148. The births decreased from 411,402, to 398,710 and the deaths increased from 401,894 to 426,913. It thus appears that the births have diminished by 12,692, and the deaths have increased by 25,019, the net effect upon the population of France has been a decrease of 28,203, being the excess of the deaths over the births. No wonder Dr. Variot makes this comment—"Cette statistique est desolante." One may hide the facts from oneself and from the public when the fall in the birth-rate has not been going on long and whilst hygienic improvements are adding to the years of the aged, but there comes a time when this process must necessarily cease. The old may have their years stretched out beyond the fourscore, but they must die sooner or later; no such necessary limit affects the births, and it is conceivable that there may come a year when there are no births. Immortality is the only effective answer to a cessation of reproduction, and, alas, the King of Terrors still reigns.—The *British Medical Journal*, November 20, 1909.

The French and the Germans.

Dr. J. M. Mathews writes:—The French laugh much and mean little; the German laughs little and means much. The French are more polished and refined; the German has depth and solidarity which means more. The French say "au revoir, come again;" the German says "stay on with us." The French drink wine, the German beer; one sointillates, the other thinks. The French are small in stature, the German large. The French, even the women, have ugly complexions; the German clear skin and blue eyes. One is quick and vivacious, the other slow and steady. If the two countries are to be judged in a military way by the appearance of their respective armies, such at least as I have seen, then my sympathy goes out to the French in case of war, if appearances go for anything.

The French soldier is small, listless; strange to say, seems badly nourished and poorly drilled. The German soldier is large, square built, erect, walks with a steady step and looks well nourished. Do these two splendid Powers love each other? In the circle that goes

to make up the Place de la Concorde there are numerous monuments erected in memory of lost provinces. Among them is one dedicated to Alsace-Lorraine. This one is always seen enveloped in mourning habiliment. If you will ask a Frenchman why this is he will say, "We mourn her loss and keep her memory green until she is ours again." It is only by force of arms that this hope can be turned into a fruition. Should it ever come to this who would be the victor? Will not the result of the Franco-Prussian war suffice as an answer? No, they do not love one another.—*Buffalo Medical Journal*, October, 1909.

"The Day of small things."

Dr. May Thorne delivered the inaugural address at the fifth annual public meeting of the Association of Women Pharmacists at the premises of the Pharmaceutical Society on Oct. 8th, taking for her text "The Power of Little Things." She first illustrated it from the realm of Medicine, showing what havoc has been, and is being, wrought in the human race by the tubercle bacillus, one of the least of all little things, and how a constant attention to methods of healthy living which some people are tempted to consider of small importance, is our chief safeguard against the unseen but deadly attack. Her next example was the plague, which was at one time thought to be due to the presence of infected rats, whereas now the rats are believed to be free from the disease themselves but to be the carriers of fleas, which, although no human eye can see them without powerful aid, are able to harbour and spread broadcast the seeds of a terrible infection. Other well-recognised examples were mentioned to show how small insects such as flies and mosquitoes play an important part in the dissemination of disease, and that where the beast of prey, for all their ill-repute, kill their units, fleas and flies kill their thousand, whilst micro-organisms destroy millions of human lives. Other examples of the power of little things were drawn from chemistry, which teaches that by the addition of a molecule the whole character of a substance may be changed, and then Dr. Thorne brought her subject home to her audience by reminding them of what grave ~~issues~~ ^{issues} might arise from the smallest seeming slip in dispensing or writing a prescription. To those who were starting their career in pharmacy Dr. Thorne urged that it is the little things which are often the powerful factors for future good, and lastly, she recalled

the word of the Lord which came unto Zechariah the prophet, "For who hath despised the day of small things?"—*The Lancet*, October 16, 1909.

The Virtues of the Ultra-Violet Rays.

There can be little doubt that the ultra-violet rays are the friend of man in many ways. A series of carefully conducted researches has already shown that it is the ultraviolet rays in sunlight which are responsible for the production of ozone in the air, and the presence of ozone is an unmistakable sign that there is a complete absence of organic impurity. In great industrial centres where a pure air is needed most the murkiness of the atmosphere acts as an effectual barrier against the rays, and therefore their beneficent work is largely hindered. The plea for the ultra-violet rays is therefore merely the plea for sunshine itself. Later investigations have shown that the ultra-violet rays have an interesting action upon water, resolving part of it into hydrogen gas and peroxide of hydrogen. It has for long been maintained by some observers that the freshness of air, particularly after a welcome or long-delayed shower of rain, is due to peroxide of hydrogen, which readily oxidises organic matters or impurities with which it may come into contact. The presence of peroxide of hydrogen in the immediate proximity of waterfalls has also been suspected. Further, the ultra-violet rays are inimical to disease organisms. Whether this destructive action is due directly to the rays or to the oxidising products which they effect is a matter which has not received a definite answer. Amongst the best artificial sources of ultra-violet rays is the quartz mercury lamp. This, when immersed in clear water infected with ordinary microbes and the coli bacillus, destroys those organisms within the radius of a foot in a minute. It is also a curious fact that the ultra-violet rays check fermentations. Lastly, it is probable that ultra-violet rays are largely concerned in the great assimilative processes of plant life. It has been found, for example, that the assimilation of carbon by the leaves of wheat takes place about five times more rapidly when the sky is clear—that is, when ultra-violet rays obtain—than when it is cloudy. Altogether, the evidence of experiment is in favour of the conclusion that the ultra-violet rays fulfil a rôle of benefit to the human race, and the further study of their nature and action will be watched with interest.—*The Lancet*, October 16, 1909.

The Criterion of Colour.

The impressions which the public have in regard to the colour of food are interesting, but their instinct in this matter may easily be deceived by modern tricks. For some not quite clear reason there are many people who look upon the brown egg as necessarily a new-laid one, and hence a fair demand for brown eggs has arisen, which is easily met not by the honest brown egg, but by the white egg which has been steeped in a dye which renders it visually indistinguishable from the real article. Again, when milk happens to be of a buff tinge it is commonly held to be richer than white milk. Of course, nothing can be easier than to satisfy this preference for a milk of a creamy shade. White-looking butter is disliked as looking too much like dripping. The remedy is simple: it is artificially coloured. Vegetables must be bright green to make them look fresh, the consumers of them being quite willing to ignore the fact that copper does not make them fresh or wholesome. On the other hand, curiously enough, bread must be white, and not the slight brownish colour natural to the flour from which it is made. It is, of course, perfectly natural to take colour as a criterion of the dietetic value or flavour of food, and the attractive or unattractive appearance of food may make all the difference as to whether that food is, or is not, assimilated properly. The deceit which is practised by artificially colouring food may thus serve a useful purpose, so long as the colouring matter is harmless, but as a rule the proceeding is an immoral one. It does not follow that because food is unattractive its value as a food is *nil*, while every form of sophistication is open to commercial abuse. A correspondent last week submitted to us a brown-shelled egg which on opening displayed a gorgeous red colouring scattered chiefly through the white. On analysis the colouring proved to be an aniline dye. The dye had deposited a nice brown colour on the shell, but an excess had permeated its pores and meeting with the slightly acid contents, was changed to a port-wine colour inside. Until the egg was opened, therefore, it appeared perfectly attractive, but on opening it the zest to eat it quickly disappeared. There is practically no control over the colouring of foods in this country, and it is obvious that in some instances protection is desirable. If colour is used to give a false appearance of quality there can be no doubt about that being fraud, but whether it is a mischievous fraud depends on particular circumstances.—The *Lancet*, October 23, 1909.

Synthetic Monstrosities.

Ellingwood's Therapeutist quotes Professor Lloyd as follows: "From the very beginning of the synthetic craze until the present, eclectic authorities have protested against the theoretical therapeutic invasion attempted by modern synthetic chemistry. It started in Germany by the discovery of a method of making salicylic acid from carbolic acid, and the world was soon flooded with artificial salicylic acid, made by a patented process that could be employed only in Germany. Quickly following, came successively other products, new in structure, and absolutely untried in medicine or in pharmacy. These, as a rule, were introduced by laboratory experimenters who practised on frogs, dogs, rabbits and such.

"University professors united their efforts to displace well-known and tried remedies by these too often untried monstrosities. To even give the names of these substances, enthusiastically forced upon the world, and artfully advocated, even in the editorial pages of State medical journals, would fill volumes.

"It would seem that the time must come in the dominant school, when their leaders would rebel against this host of synthetic monstrosities hurled into their ranks. 'The American Pharmaceutical Record' makes the following strong statement: 'Everywhere there are signs of a revolt against the cult of the synthetic.'

"The neglect of the older remedies has become notorious. It would seem as if the modern physician was ashamed to be found using any of the old drugs, when a new and more expensive novelty might be employed instead."—The *New England Medical Gazette*, December, 1909.

Nitric acid Test for Albumin.

Weinberger in the Journal of the American Medical Association, writes and quotes the following concerning the advantages of the nitric acid test for albumin in urine.

"In this research the test was applied as follows: 5 c.c. of concentrated nitric acid were poured into a test tube, the tube was then inclined and, with the aid of a pipette, urine was directed slowly down the side to prevent mixture of the liquids. In this way two sharply defined strata are obtained. Along the line of contact a ring appears if the urine contains albumin or globulin or certain other substances.

“In a urine rich in urates a complication may occur, due to the formation of a ring produced by the precipitation of uric acid. The uric acid ring does not lie, like the protein ring, between the two liquids, but somewhat higher. For this reason, two simultaneous rings may exist in urines that are rich in urates and do not contain very much protein. The disturbance caused by uric acid is easily prevented by diluting the urine with from one to two volumes of water before performing the test. The uric acid now remains in solution and the delicacy of Heller's test is so great that after such dilution, only in the presence of insignificant traces of protein does this test give negative results. In a urine very rich in urea a ring-like separation of urea nitrate may also appear.

This ring consists of shining crystals, and it does not appear in urine previously diluted. . . . If a faint, not wholly, typical reaction is obtained with Heller's test after some time with undiluted urine, while the diluted urine gives a pronounced reaction, the presence is shown of the substance which used to be called mucin or nucleoalbumin.’”

He further emphasizes the limitations of the use of excess of formaldehyde as a preservative.

“The value of formaldehyde as a preservative is well known, but as a urine preservative it has its limitations, particularly if not used in proper quantity. The chief danger is in using too much. . . . Perhaps the most objectionable feature of this preservative is its reducing action on Fehling's solution. This occurs when several drops of the formaldehyde solution have been added to a small specimen of urine (4 ounces). The copper test for sugar cannot, therefore, be used, but other tests must be utilized. Formaldehyde reacts in a peculiar manner with phenylhydraz in producing an abundant noncrystalline deposit, which, of course, is readily distinguishable from phenylglucosazone by the fact that it is noncrystalline.”—*The New England Medical Gazette*, November, 1909.

Sunlight in a Test-Tube.

In 1774 a theologian, described as of an eccentric, restless, fiery nature, turned the rays of the sun by means of a magnifying glass upon some red precipitate imprisoned over mercury in a tube. His curiosity was rewarded after a while by the appearance of bubbles of gas, and Joseph Priestley had discovered oxygen. The importance of the discovery to medicine amongst other sciences was, of course, very great. About 120 years later physicists calculated that the heat received by the earth under a high sun and clear sky was equivalent to about 7,000 horse-power per acre, but until recently nobody has got a step farther than did Priestly towards utilising this energy for practical purposes. It has been suggested, however, that some day our centres of industrial activity may be transferred to the burning deserts of the Sahara and the value of land determined by its suitability for the reception of traps to catch sunbeams. The practical utilisation of the sun's influence is certainly of far greater concern to the human race than, for instance, aviation. The conquest of the air, like that of the sea, must depend upon our supply of energy. Fuel, in the shape of coal and petroleum, is the chief source of energy at the present time, but it is utilised in a clumsy and extravagant way. The tides and water-falls will no doubt in time be made to do their share, but even the energy of these is insignificant compared with the enormous energy received from the sun. Is the notion of utilising the energy too chimerical for serious condition? In face of the measures of success already gained in regard to securing and controlling natural forces it would surely be over-timid to answer this question in the affirmative. Further, although the investigation of the subject does not hold out the promise of the "sporting time" which experimental aviation appears to give, yet there is a band of busy workers giving keen attention to it. Any day the startling announcement may come that human ingenuity has succeeded in boiling the kettle with but a few minutes' exposure to the accumulated energy of the sun's rays. A bottle of water may set the house on fire just as a pipe may be lighted by means of a glass lens. A comparatively simple experiment, but of great significance, has recently been performed which may mark the beginning of a series of wonderful practical achievements in this direction. It has been shown that by focussing the sun's rays on some crystalline silicon contained in a vacuum in a glass vessel the crystals fused in a few seconds, show-

ing that a temperature of 1450°C. had been obtained. In a similar experiment copper and cast-iron were fused almost instantaneously. The success of the experiments appeared to depend upon the fact that the substances were contained in vessels emptied of air, for on admitting air the temperature did not exceed 675°C. From the test-tube to the steam boiler, the dynamo, and the electric cell is but a step, and Priestley's classic experiment of 1,774 may receive a fame not yet reached by any other laboratory success.—The *Lancet*, October 16, 1909.

The Brain of the late Professor Mendeleeff.

PROFESSOR W. von Bechterew and Professor R. Weinberg have made a very complete study of the brain of Professor Mendeleeff, so widely celebrated as a chemist, and issued their account, with excellent illustrations, as the first of a series of anatomical monographs which are to appear under the editorship of Professor W. Roux of Halle. Professor Mendeleeff, or Mendelejew, as his name appears in the German monograph, was a heavy, corpulent man, with long fair hair, blue eyes, ruddy skin, and a short, broad head, the width being 87 per cent. of the length. The outstanding feature of his mental life was his powers of visualisation; his concepts became vividly alive, mobile, and plastic; his vocabulary, although not overflowing, was ample and very apt. His brain was rather above the average in weight (1571 grammes) and the convolutions were comparatively simple in their arrangement. So little do we know of any correlation between special mental gifts and the surface form of the brain that not even those who have made a special study of the brains of celebrities could have guessed that this particular brain belonged to one of the foremost investigators of his time. Professor Mendeleeff's brain shows three interesting features: (1) the left parietal region is extensive and highly convoluted; (2) the posterior parts of the frontal lobes in the neighbourhood of the second frontal convolution are more massive than usual; and (3) the temporal lobes are small and simple. The two features first named are *probably* correlated with Professor Mendeleeff's special gifts of visualisation and creative imagination; the third may be associated with his lack of musical appreciation. The authors do well to remind their readers that our knowledge of the genius-brain is still in its "baby shoes" (*kinderschuhem*). They do not share the despondent view of Professor Stieda, who is convinced that there is

absolutely no correlation between the surface form of the brain and the mental life of the individual, and that all attempts to solve the functions of the brain in this direction are futile. Progress of knowledge has always justified those who sought an explanation of form in function, and those who watch most closely the growth of our knowledge of the brain are most sanguine that the explanation of its form will be first found by the physiologist. Whatever the ultimate interpretation of the facts may be there can be no doubt that Professor Bechterew and Professor Weinberg have done a real service in placing on record an account of the brain of the greatest of Russian chemists.—The *Lancet*, October 9, 1909.

Cosmic Influences and Health. .

WHEN regard is had to the number and intensity of great cosmic influences which are at work some wonder may well be expressed that the physical conditions of the world are as steady as they appear to be. It is only recently that the existence of fresh manifestations of forces affecting the earth has been realised, and it would be rash to say that of these manifestations there is no end. A fortnight ago we were told by our telegraph authorities that the whole earth was visited by a great magnetic storm. There was sudden rapid oscillatory movements of the magnetic needle, so erratic in character that the tracing could no longer be registered on the recording sheet, and in many instances the telegraph service failed. The duration of the storm was comparatively short, but whilst it lasted it exhibited an energy which has very seldom been rivalled. The year 1909 has so far been characterised in many parts of the world, including this country, by a very disturbed state of weather which has been ungenial to everyone's health and comfort, and there are well-recognised authorities who trace this unpleasant fact to sun spots, the most recent of which has been calculated to be hundreds of thousands of miles in area. Magnetic storms have been ascribed to the same solar phenomenon, to a savage outburst of incandescent gases, and the world has been threatened to a deluge of electrons, each carrying its electric charge to effect disturbances in the media they travel through, bringing about amongst other things the beautiful phenomena of the aurora and the magnetic storm. All this is interesting, and the interest intensifies when we consider that it is possible that these cosmic forces may have a profound influence on the health.

No one can deny the peculiarly distressing effects which an impending thunderstorm has on some people and the relief they experience when the storm has spent itself. Many people assert that they experience a thunderstorm headache and can predict with confidence when the atmospheric stress is about to be relieved. It is also a fact, and not a rustic piece of credulity, that beer or milk "turns" under these conditions, but no satisfactory explanation appears to be forthcoming of these events. They are, however, not more obscure than the colic, sickness, and diarrhoea which sometimes accompany electrical states. When we follow this vein of thought we become reluctant to deny the accuracy of many so-called superstitions. Is it quite incredible, for example, that some persons cannot sleep unless their body lies in the direction of the magnetic meridian or across it, as the case may be? The conviction of this idiosyncrasy here and there has been so strong that revolving beds have been made which could be turned to the position conducing best to sleep. No one doubts that by some subtle power the moon influences the tides, and there is the probability of the existence of other cosmic influences of which so far we know little, yet which may interfere with our well-being. Certainly our well-being is disturbed by weather, and in that way, at any rate, we may trace certain disturbances of health to sun spots, since there seems to be little doubt that the meteorology of the earth is affected by them.—*The Lancet*, October 9, 1909.

Subjective Colours and Drugs.

Most cases of subjective colour vision due to drugs escaped notice until recent years. The phenomena may now be classified as follows: *Violet vision* produced by Indian Hemp (*Cannabis indica*) and by toadstools; *blue* by alcohol; *red* by atropine, doboine, and scopolamine (three alkaloids much used by oculists), and by excessive use of tobacco and quinine; *yellow* by picric and salicylic acid, digitalis and phenacetin, the external application of chromic acid and iodoform, the inhalation of carbon monoxide, snake-bites, and abuse of tobacco. Mescal, the Mexican beverage obtained from *Anhalonium lewinii*, produces *polychrome spectra*. No substance which causes the sensation of green has yet been discovered.—*Scientific American*.

If the *Scientific American* would consult Allen's *Encyclopædia of Pure Materia Medica*, it would find that there are substances producing green, and it would further be able to considerably extend the above list.—*The British Homœopathic Review*, November, 1909.

The Centenary of Oliver Wendell Holmes.

The centenary of Oliver Wendell Holmes was celebrated by the Medical Society of the County of New York on October 9th, 1909. Dr. Jacobi, who was in the chair, said Holmes was a rare combination of science and poetry. He was destined to be a follower of Apollo, the only Greek God who combined medicine and art and music and poetry. Dr. Maurice H. Richardson gave some personal reminiscences of the "Autocrat." They related to the last years of Holmes's teaching, when he was at the height of his fame and Dr. Richardson was his youngest assistant. He made even the dry bones intensely interesting. His lectures were full of wit, bright and sparkling. Many of his sayings had been handed down from student to student to this day. Dr. Richardson recalled Holmes's description of the greatest possible rewards of the physician and surgeon: "He is always one of the most respected of men: his highest political reward is to be on the school committee; he 'lives well but dies poor.'" He said that his highest possible ambition was to have some loathsome disease named after him—Bright's disease, Ménière's disease, etc. The surgeon's highest reward would be to have some bloody operation named after him. Holmes had to lecture on a subject repulsive to some, difficult for all, and at an hour—one o'clock—when the class was jaded and hungry. The wooden seats were hard, the backs were straight, and the air was bad. In alluding to the air, he said: "So when the class was sitting in an atmosphere once breathed already, after I had seen head after head gently declining and one pair of eyes after another emptying themselves of intelligence, I have said inaudibly, with the considerate self-restraint of Musidora's rural lover, 'Sleep on, dear youth, this does not mean that you are indolent or that I am dull. It is the partial coma of commencing 'asphyxia.'" To make head against these odds he gave his imagination full play in comparisons often charming and quaint. None but Holmes could have compared the microscopic coiled tube of a sweat gland to a fairy's intestine. Medical readers would appreciate the aptness of comparing the mesentery to the shirt ruffles of a preceding generation, which from a short line of attachment expanded into yards of complicated folds. In seeking some illustration of his way of teaching anatomy, he mentioned the book of Spigelius, "in which lovely ladies display their viscera with a coquettish grace, implying that it is rather a pleasure than other-

“wise to show the lacelike omentum, and hold up their appendices ‘epiploicae, as if they were saying ‘these are our jewels.’” Great pains were taken in getting the subject ready for the anatomical room to make the dissection as beautiful in itself as it could be made, and to make the setting appropriate. The dissections were really works of art. Holmes’s plan was to arouse his audience to keen receptiveness, and then to plunge at once into his subject. One simply could not help listening, absorbing and storing away the driest of facts. By the association of ideas, especially by the aid of humour, he suggested, through easily remembered anecdotes, jokes, puns, or mnemonics, the really dry facts of anatomy. One method he used was to bring out the applications of anatomy, and to-day the applications of anatomy offer a more attractive field than they did then. He believed in iteration and reiteration. He said: “My advice to every teacher less experienced than myself would be, ‘therefore, ‘Do not fret over details you have to omit; you probably ‘teach altogether too many as it is. The only way of teaching a “‘whole class is by enormous repetition, representation, and illustration in all possible forms.’” A curious thing was his unwillingness to allow any one to lecture for him. He said: “If I allow any one to take my place, he may give a better lecture than I could.” Dr. Edward O. Otis, of Boston, spoke of Holmes’s medical work, and traced the influence of his professional knowledge on his literary productions. He believed that Holmes felt—at least for the greater part of his life—that, while literature was his avocation, medicine and the teaching of his branch of medicine was his vocation. He might well have been an original investigator if he had been less of a literary man, but he was in some respects an incomparable medical interpreter and critic. Dr. William Hanna Thomson spoke of Holmes as author, poet, and man, and the proceedings were brought to a close by the reading of a poem by Mr. Richard Watson Gilder, who described Holmes as

The poet who first to science sought,
and to the Merry Muses after,
Who learned what in no school is taught—
The secret of men’s tears and laughter.

The British Medical Journal, November 13, 1909.

CLINICAL RECORD.

Foreign.

MERCURIUS CORROSIVUS IN CYSTITIS.

By B. C. WOODBURY, M.D., Portsmouth, N. H.

Case I. May 25, 1908. Patient, Mr. P. Age 59; of good habits; has had chronic hydrocele for several years. Family history good, and has always been well except for typhoid as a young man, and an occasional attack of catarrhal conjunctivitis, from which he has usually quickly recovered, but there remains a certain degree of weakness of the eyes, with granular lids.

Is very low-spirited of late and has lost a good deal in weight the past month, during which time he has noticed that he has had to pass water frequently by day and at night. Now presents following symptoms: Malaise which has increased very perceptibly during past week when, after working in an exposed place in his garden, thinks he took cold, and in fact there is now a very persistent cough with but scanty expectoration. These symptoms seem to him slight as compared with his persistent backache, smarting and pain on micturition with sensation as if bladder did not completely empty itself.

Remedies prescribed at this time were Cantharis and Berberis, and relief of the backache followed. Later Phosphorus was given, which apparently quickly dispelled his cough, but the uneasiness and frequency of passing water still remained.

Uranalysis June 1st, by Dr W. H. Watters, showed a marked cystitis, and as shown by the finding of a few hyaline casts, excessive caudate epithelium and calcium oxalate crystals, there was some question about there not being a possible co-existing pyelitis. In support of this there was the pain in the back, but absence of the characteristic temperature and chills of pyelitis and the urine was always acid in reaction. I therefore considered it a case of cystitis with an accompanying hyperæmia of the kidney pelvis.

On the other hand many modern authorities state that it is seldom that an acute infection of the genito-urinary tract is confined entirely to one locality.

Another analysis, June 19th. I quote from the report as follows: "There is a distinct improvement as manifested by the decrease in

the amount of pus and of albumin. At the present time, if there had been no previous examination, I should hesitate somewhat in my diagnosis of cystitis. A pyelitis or some prostatic involvement, probably the former is rather more suggested.

These conflicting reports were somewhat clearer after the case became more fully developed.

May 30th, five days after my first visit, there occurred, about 10 P. M., a severe chill. Temperature, which had before this been practically normal, rose to 103.8. Pulse 106, with marked tenderness and severe pain in right testicle and cord (side on which hydrocele was located). The following day I evacuated the contents of the hydrocele, which gave temporary relief, but disclosed a characteristic swelling of the epididymitis. From this time until June 18th the pain, swelling and tenderness increased to its height and disappeared under Pulsatilla, principally with some other remedies.

On June 19th the symptoms of an epididymitis began on the other side and went through a very similar course. Here Hamamelis 3x internally and extract applied as hot as could be borne externally gave more relief than did the Pulsatilla. By June 28th he was much improved, and urine was clearer in appearance. As improvement progressed but slowly, I gave in the meantime Conium 3x and Rhododendron 3x at different times, thinking I might benefit somewhat the hydrocele, which had partially refilled. The Rhododendron in due time reduced entirely the swelling and induration left after the epididymitis, but had no appreciable effect upon the contents of the sac.

Microscopic analysis from time to time still showed pus and bladder cells. During the height of the inflammatory process I examined the prostate per rectum, but could detect no enlargement or sensitiveness. Improvement was slow in the urine and there was still the sudden urging to urinate, with continual mental worryment. Petrosolium 3x dilution, three times a day, relieved somewhat, but had but little if any effect upon the urine.

I next note that on October 22nd I was called about noontime and found patient shaking with an intense chill. Temperature 102+. Pulse rapid: Intense backache, headache and vomiting. Here Eupatorium perf. relieved the urgent symptoms, but there soon developed a very acrid coryza, with the urine, as I greatly feared, again loaded with pus.

I now again went over all the symptoms and noted that the most prominent were these: Sudden urging to urinate, with more or less tenesmus of bladder after passing water, excessive weakness, with the fluent acrid coryza and intense thirst more or less constant. I prescribed *Mercurius corr.* 3x trit. Two tablets three times a day.

October 31st. Urine much improved in amount of pus, less tenesmus.

November 23rd. Patient called for more of same medicine, saying urging was entirely gone, and examination showed urine free from pus or sediment, urea nearly normal, and at my last knowledge there had been no return of the difficulty. About a month later I treated him for an attack of his catarrhal conjunctivitis, and since then he has remained well.

Case II. Patient, wife of Admiral D——. Age 60 years. No history of a previous attack, but during early part of present summer was annoyed by frequency of passing water, which ceased after a day or two. Patient is short and rather stout, of rheumatic tendency. On the evening of October 27th, 1908, began to have a sense of uneasiness in passing water which gradually increased until the pain and restlessness became almost unbearable. I was called at 1 A. M. There was very frequent bloody micturition with pain and scalding; very restless and nervous, with intense shaking of body with hot perspiration. The nervous symptoms were soon relieved after prescribing *Belladonna* and *Cantharis*, but the pain and tenesmus continued more or less unabated. I later found that solution more than any other remedy gave at least temporary relief. Urinalysis by Dr. Watters day following showed blood, very slight trace of albumin, but no pus, and none was found until October 31st, four days after the hæmaturia, which had in the meantime cleared up.

November 1st. Urine showed a faint suspicion of cystitis, and by November 4th the pus was very marked. I here note that the urging to urinate was very severe before and after micturition, with sticky perspiration on the hands, weakness of limbs, and more or less moisture in mouth, a moderately coated tongue with brassy taste.

I now gave *Mercurius corr.* 3x, of which one grain was taken once in three to four hours, with an occasional dose of *Cannabis* solution, principally for temporary relief, until November 20th,

when the tenesmus was entirely gone and urine microscopically showed no pus.

In both the above cases a milk diet was insisted upon. The patients remained in bed or in a recumbent position. Spring water was given to dilute the urine. In both cases I confess several remedies were given from time to time, but nothing except homœopathic treatment was given except in the first case. Here capsules of Arheal (active principle of sandal wood) was given, but I fear my dosage was too attenuated to obtain desired results, as I abandoned it after a week's trial to no purpose.

In justice to myself I should add that in the first case I prescribed Mercurius corr. on my second visit, which was taken for only a day or two, when other symptoms suggested other remedies, and I did not give it a fair trial. I offer as a well-deserved criticism that one should first be sure of the correct remedy and stick to it, but just as much deserving of criticism would be the continuation of improperly selected remedies when in the judgment of the prescriber no benefit was apparent.

As an added thought I will say that I have recently prescribed for a case which presented the following symptoms: Patient, a naval officer. A year and a half ago had an attack of cystitis following exposure aboard ship. For acute symptoms he was given the routine Urotropin, which cleared up the urine, but there has since persisted frequent urination during the day and night, with dull pain above pubis when bladder became filled with urine. Tongue large and flabby and he feels sleepy and very full after eating.

November 10th, 1908, received an initial dose of Lycopodium 200 dry on the tongue, and thereafter Chimaphila 3x, of which he took a dose once in two to three hours during the day. Ten days later reported much improvement of all symptoms and more tablets were given him to take occasionally when symptoms were troublesome at night. At last report he considers himself practically rid of the difficulty. Uranalysis in this case was negative.—*New England Medical Gazette*, May, 1909.

Gleanings from Contemporary Literature.

PAST AND PRESENT: A NOTE OF WARNING.

BY THE SENIOR EDITOR.

Rather less than two years ago, our up-to-date, and for the most part courteous, contemporary, *The Hospital*, published a short Editorial of more than usual merit. We make no apology, therefore, for presenting it to our readers. To be sure, it appeared in a New Year's number—a season prolific in the manufacture of good resolutions and pious aspirations. Still, it need not necessarily be any the worse for that. It was entitled "Bacteriology and the Medical Treatment of Disease." We are told that "the study of the causes of the various diseases to which man is liable has been a conspicuous feature of medical progress during the last generation. It has come to be generally recognized that to regard some prominent symptom or physical condition as a disease, and to name and treat this without further enquiry, is a position which is no longer capable of defence. Hence has arisen the desire to get behind the superficial phenomena of every pathological disturbance to the essential causes upon which such phenomena depend. Attempts in this direction, it is felt, are not only in harmony with the claims of modern scientific method, but also afford the best prospects both of curative and of preventive treatment. To such an end an enormous and enduring impetus was lent by the discovery of the large part which micro-organisms play in the causation of disease. Surgical treatment has been revolutionized as a consequence of such knowledge, and the developments of preventive medicine, which are so striking a feature of modern practice, are largely due to the same influence. On the other hand, the methods of the physician have not been found to be so readily adapted to the modifications suggested by the facts and doctrines of bacteriology, and in some respects, indeed, the new teaching has appeared to encourage a sceptical or pessimistic attitude towards many traditional forms of medical treatment. The experience of a former day has been repeated, and just as the study of pathological anatomy compelled, it was once said, an utter disbelief in the virtues and powers of drugs, so more recently the suggestion has arisen that the social value of medical practice must be found in its ability to prevent disease rather than in the amiable delusion of its power to cure the patient.

"Another mental tendency induced as a result of the appreciation of the pervading influence of micro-organisms as causes of disease is one which led to the view that such agents were in many instances *sufficient in themselves* to institute the diseased processes often found to be associated with their presence. Thus, for example, the tubercle bacillus was regarded as the causes of tuberculosis, not merely in the sense that without it no tuberculous disease was possible, but in the wider meaning that,

given the presence of the micro-organism in the body, the disease was bound to follow. Hence the view that phthisis pulmonalis, for example, was a disease in which heredity played a large part was brushed aside as both absurd and out of date, and the bacillus was presented as the one and only responsible agent in the scheme of causation. Experience has somewhat severely corrected this teaching, and has shown that the presence of various pathogenic bacilli in the tissues is by no means the same thing as the various diseases which are attributed to them. In other words, it has to be admitted that in the production of the disease there must not only be the external agent but *also a certain quality or tendency of the tissues*, and that this, like other bodily qualities, may be transmitted by inheritance. From conclusions of this order there naturally arose a desire to investigate the nature of the factor contributed by the body in the development or non-development of the various specific diseases. Why, it was asked, does one individual suffer from an attack of one of these diseases, whilst another individual, placed in identical circumstances, escapes? Added to this came speculations regarding the recovery of some patients and the death of others; and also enquiries in reference to the common experience, that one attack of some of the diseases now in question bestows on the individual sufferer immunity from a second or later attack.

"Here, then, are two broad positions to which opinion has been led as a consequence of the application of bacteriology to medical practice. In the one, any treatment short of the surgical removal of the diseased area, when this is possible, is regarded almost with despair. In the other, is seen *some factor, contributed by the body*, and playing a large share in determining both the incidence and the issue of the disease. It has now become evident that the recognition of this latter doctrine must have an important influence on questions of treatment. For it is known that the tissue agency in regard to an invasion by micro-organisms is not a passive, but an active one. Regarded at first as a vague and indefinite quality which played towards invading germs the part which a soil is popularly regarded as holding to the seed scattered over it, it has now come to be recognized as an ordered process or series of processes, which may be made the subject of precise observation and study. Further, these bodily phenomena, it is seen, are not only expressions of activity having some degree of ability to prevent, or, failing that, to limit, an attack of disease, but they are capable of being intensified on the one hand or depressed on the other; and these modifications may, without doubt, be promoted by what may fairly be called medical treatment. In this way, the transfer of attention from the invading agents or micro-organisms to the method of their reception in the tissues has conspicuously modified the doleful view in reference to treatment which the early studies of the bacteriologists undoubtedly suggested. This study of what may be called the *natural resistance of the body* to the causative

agents of disease is likely to produce far-reaching results on treatment. It is already, even in such a disease as cancer, causing a reconsideration of surgical method and technique. Similarly the surgeon is being urged to pause in his attempts to eradicate parts affected with tubercle, on the ground that in many such cases a natural cure will occur. Finally, the methods associated with the name of Sir A. E. Wright, whether they are or are not final in form, are based on a recognition of the possibility of assisting, directly or indirectly, those capacities of the tissues upon which a successful resistance to disease so largely depends."

We are glad to see that *The Hospital* is following the teachings of homeopathy, even though "afar of," and probably without knowing it. What is Hahnemann's much reviled phrase "chronic miasms" but "a certain quality or tendency of the tissues," which "like other bodily qualities, may be transmitted by inheritance?" What are these chronic miasms but "some factor, contributed by the body, and playing a large share in determining both the incidence and the issue of the disease?" "The natural resistance of the body to the causative agents of disease," is merely another way of representing the idea underlying Hahnemann's statements in reference to "vital force." What, then, should be our attitude towards the sick? Is our duty, as physicians, to be simply and solely, *to restore health to the sick*, according to the first paragraph of *The Organon of the Healing Art*, or are we to endeavour *to cure disease*, according to the allopathic standpoint, and, I regret to say, the standpoint also of a good many who sail under the homeopathic flag? Do not think it is a case of tweedle-dum and tweedle-dee. The difference in standpoint between *to restore health to the sick* and *to cure disease* is wide and far reaching; is fundamental, in fact. If our object is *to restore health to the sick*, we must regard the sick person in question as an *individual*, in other words, we are bound to *individualize*, i.e., we will treat the patient, not the disease. On the other hand, if the object is *to cure diseases*, we look upon our patient as one of a class suffering from a 'more or less well-defined disease for which there is a "fixed remedy"; in other words, we must *generalize*, i.e., we will treat the disease, not the patient.

It is important to be precise in the various terms we use. It is too often tacitly assumed that pathology and morbid anatomy are one and the same. This is by no means the case. A similar difference exists between them as that between physiology and anatomy—the one has to do with *function* and the other with *structure*. Pathology is any departure from healthy function, while morbid anatomy is departure from normal structure. In diseased states, therefore, pathology must always precede morbid anatomy. Specimens of morbid anatomy we can see and handle, can examine them with the microscope. But who can elucidate the outs and the ins of the disordered function (pathology), which began, continued, and ended in the production of these same specimens? We have hypotheses galore, each one as good as another—and sometimes

better! Physiology is not the *science of life* itself, but is merely a *record of the phenomena which depend upon and result from normal life*. But what is *normal life*? That question must be settled, before we can know what *abnormal life* (pathology) is. The professed knowledge of the immediate essence of disease, as of life, is but an empty hypothesis, foisted upon a long-suffering world, and of which the said world would be glad to be quit once for all, along with all other cant and humbug.

It has been said that Hahnemann rejected the *pathology* of his day. I have never been able to find a single sentence to indicate that he rejected the *knowledge of pathology*. Indeed, by implication, he demands from his followers a full knowledge of *all the collateral branches of medical science*, and pathology is, after all, merely a collateral branch. But there is one thing he did not do, and that was to make pathology the *basis of therapeutics*, and if we are wise we will do the same, and we certainly will do so if our object is to *restore Health to the sick*. If our object is to *cure diseases*, then by all means make the elusive hypotheses of pathology the basis of our therapeutics. Verily, we shall have our reward, even in this life. But suppose, for the sake of argument, we grant all that has been tacitly assumed to be true of pathology, let us grant that owing to the *recent progress of modern methods* pathology has now at last been elevated to the rank of an exact science, that it is no longer a tissue of hypotheses. What then? Even this can in no way modify our basis of therapeutics, if we are to restore health to the sick, for even then we must rigidly individualize if we are to treat the *patient*, and not a disease. Let us go one step further. Even if we could truthfully say that we *know the exact prima causa morbi* in the interior of the organism, how and why it arose, its proximate and remote causes; in fact, grant that our knowledge of it is truly omniscient, we will still be *compelled* to individualize if we desire to restore health to the sick. The physical and mental *differences* existing among mankind are infinitely varied, and therefore, under every possible circumstance we are bound to individualize if we are to carry out the duties of the true physician, for each so-called "disease" affects all different individuals differently. Gain all the knowledge possible of pathology and morbid anatomy, but never try to crush the science of therapeutics, *i.e.*, homœopathy, into the pathological livery of the old school. The attempt to do so has been like a sunken rock, and many have made ship-wreck thereon.

Our good friend *The Hospital* tells us (what Hahnemann insisted on so strenuously) that "it has to be admitted that in the production of disease there must not only be the external agent, but also a certain quality or tendency of the tissues, and that this, like other bodily qualities, may be transmitted by inheritance." The "external agents" referred to here are pathogenic bacilli, but these, unless there is some traitor within, are powerless to harm. The great strength of homœopathy lies in its power to deal with this traitor, this *dis-order* within, before it can join forces with the

enemy without. This can only be done by a minute and careful study of the *subjective symptoms* detailed by the patient, finding the most like medicine and administering it. Far too little is made of the *subjective sensations* of the patient even in our own school, and very much more so in the old school. In many cases they are looked upon as curiosities, or the vapourings of hysteria, or the imaginings of an ill-balanced mind : and even where they are admittedly genuine, they are apt to be looked at and thrown aside as useless. One is glad, however, to see that old school writers are waking up to their importance, though what real use they are likely to make of them is somewhat of a problem, unless they are content to learn at the feet of Hahnemann. Dr. James Mackenzie, in his *Symptoms and their Interpretation*, says in chapter xx., dealing with "Affections of the Circulatory System" "The value of many of these methods" (*i.e.*, the methods usually adopted in investigation of the heart's actions) "is unquestioned, but unfortunately the tendency has been to place undue reliance on the results obtained by mere physical examination, and to neglect the more important features to be derived from the reflex phenomena, chiefly expressed in the sensations felt by the patient." In speaking thus, however, Dr. Mackenzie is dealing with diagnosis and prognosis—chiefly the latter—rather than the use of these subjective symptoms as an aid to the discovery of the curative remedy.

Here, in passing, I would recommend all our men to read and re-read three important books, viz., *Rest and Pain*, by the late John Hilton ; *Pain* by Dr. Rudolph Schmidt ; and *Symptoms and their Interpretation* by James Mackenzie. The first is an old book, as time goes from a publisher's point of view : its teachings will never be old. In its own domain it is truly a classic. I do not say that these books will help us in a diagnosis of the *remedy* in the present conditions of our science. At the same time we should have all these books in our mind's eye at the examination of every patient. They will often enable us to link up apparently isolated symptoms. Apart from that, every educated homœopathic physician should thoroughly master their contents just because he or she is an educated physician, for the standard of education in our ranks ought to be very much higher than in the ranks of allopathy.

Following upon the subjective sensations ("symptoms") at a longer or shorter interval, we have the objective symptoms or physical signs, which may or may not enable us to give the disease a name and a local habitation, and may also to a certain limited extent aid us in selecting a remedy. But for this latter purpose the subjective sensations must ever and always take the first rank, inasmuch as our provings for the greater part consist of subjective sensations. Very rarely, indeed, have the provings been pushed to the extent of producing well-marked physical signs. We do not treat these subjective sensations or symptoms ; we merely use them as we would use sign-posts in an unknown part of the country, in order to guide us to the point we wish to reach, and that is, *to restore health to the sick*. We do

not treat symptoms ; that we leave to the old school. It is their proud prerogative to select an outstanding symptom, *e.g.*, temperature, and bend all their energies to its suppression. This they call rational and scientific treatment. Why, it is difficult to see ; probably on the *lucus a non lucendo* principle.* Galen's method of *contraria* could only be applied to single separate symptoms, of the complex of manifestations of functional disturbances, and this inevitably led to polypharmacy, a number of drugs being put into the prescription, each after having reached the stomach being expected to set out forthwith to conquer its own prominent symptom (and to do nothing else) of the total symptom-syndrome. The success of this method has not, hitherto, been all that could be desired.

It is far otherwise with homœopathy. If we in any given case of "disease," on the appearance of the *subjective* symptoms or sensations, make intelligent use of the principles laid down by Hahnemann, in all probability the *objective* symptoms, or physical signs, may not develop, but the whole disease be nipped in the bud, that is, at its very inception. What else, indeed, are the subjective sensations for ? Their totality, their *tout ensemble*, is a living picture projected outwards by the state of disorder or disease within, for our inspection and study in order that we may find the medicine to match, which medicine will obliterate the whole as well as the cause or causes from which this whole sprang. If we wait till we are quite sure of the name given to the diseased condition we will be *days too late*, and our patient will run a far greater risk of losing his life, besides having in all likelihood to pass through a tedious convalescence. Once more let me insist that it is patients we are to treat, not diseases, and to do this we *must* individualize ; and that the physician's high and *only* mission is to restore the sick to health.

It must not be understood that there is a sharp line of demarcation between the times of appearance of the subjective and objective symptoms, though in a general way the subjective are first in the order of time. Alterations in the pulse, distribution of perspiration, are objective symptoms, and may appear almost as early in the disorder as the subjective symptoms proper. In such cases they (the objective symptoms) may be of great value as true guides to the indicated remedy, though to the scientific pathologist they may be mere curiosities. Two examples will show what I mean, one dealing with the pulse, the other with perspiration. In some diseased states it is found that the *pulse* is much more rapid in the morning than in the evening. This is apparently a small and trifling symptom, and some will say an unimportant one, and so far as I know its pathological substratum is as yet unknown. There are, however, two of our medicines—two standing in the very front rank of our polychrests—that have the power of causing and curing the condition in which this very curious symptom shows itself, *viz.*, *sulphur* and *arsenicum*.

In regard to *perspiration* we will take the case of Boenninghausen's serious illness in 1833. His trouble was what would be called appendicitis

nowadays; at the time it was diagnosed typhlitis. After the medical men in attendance had prescribed for him twice, without the slightest improvement, he refused to be guided any longer by their counsels, and then, although suffering great pain and very weak, he studied his own case. He finally selected *Thuja*, because of an odd symptom, "sweat of the uncovered parts, while the covered remained dry and hot." In a short time he felt relieved, and was soon afterwards up and about as usual. Later, he experienced some difficulty with the proper action of the bowels, for which he had to take two other remedies. Shortly after his recovery Bœnninghausen sent a minute account of his attack to Hahnemann; but as the latter was confined to bed at the time he did not write for several weeks. Bœnninghausen was greatly astonished later to find that Hahnemann had anticipated the troubles which had arisen in this case, and the very medicines he had taken were those Hahnemann had foreseen he would require. This is one of those instances on record of Hahnemann's wonderful knowledge of disease, and his equally wonderful prescience, by which he was able to foretell the course of a malady and the remedies necessary for the case.

We confess that we always look upon any method of treatment that does not demand strict individualization as a *sine qua non*, or where strict individualization would be unnecessary or useless for the method of treatment in question, with grave suspicion; all such we believe are on the "down grade." The longing for *fixed remedies* has always for its counterpart certain *specific diseases*; and in this method of treatment it is *diseases* that are treated, not patients. It leaves no room for individualization, nor is there any encouragement to individualize, as it would be useless and a waste of time. It was this idea of "fixed remedies," with its counterpart of "specific diseases," that was the dominant note of the Homœopathic Congress held at Liverpool on Thursday, September 13, 1877. Many of those who took a leading part in this Congress are no longer with us, but with all due deference to their memory, we think there is a more excellent way. How often, too, do we find that the "fixed remedy" is one dictated largely by the fancy of the physician, or by the fashion of the day. This was not Hahnemann's way, though all failures from it are laid at the door of homœopathy. But no one can be considered competent to judge of Hahnemann's method, unless he has taken the trouble to imitate the technical details accurately. If without doing so he presumes to criticize it adversely, then he is guilty of infamous conduct in a *scientific respect*. No man possessing the true scientific spirit would dream of acting in such a way.

In more recent years other stars have arisen in the therapeutic firmament, viz., treatment by *serums* and *bacterial vaccines*. A *serum*, as we understand it, is the blood serum of an animal which has had its resistance presumably fortified by repeated injections of minimal doses of the infecting organisms. It contains, among other things, certain manufac-

tured products, called antitoxins. Their action is probably purely a neutralizing one—so much antitoxin will neutralize so much toxin. We believe that it is a generally admitted fact that sera have failed as a therapeutic measure, except in the case of diphtheria. ‘Investigations on the *coli* and *pneumococci* infections have shown that these micro-organisms vary in each host; and this probably explains the failures in the attempt to cure with anti-pneumococcal sera. We have never yet required to resort to any form of serum; we have always found the homœopathic remedy amply sufficient.

A *bacterial vaccine* is a sterilized, standardized emulsion of the dead infecting micro-organism. An attempt is made to control its action, either by laboratory or clinical methods. The consensus of opinion seems to be leaning towards the impracticability of Wright’s opsonic method, and to favour the clinical method of control. At first there is a slight lowering of the “opsonic index” (negative phase), and the aim is to give such a dose and at such a time that this negative phase is just evident and no more. This negative phase in vaccine-therapy would seem to correspond to the homœopathic aggravation as described by Hahnemann; and just as in vaccine-therapy, so in homœopathy, the aim is to so diminish the dose that the negative phase in the one case, or the homœopathic aggravation in the other, is only just evident. In vaccine-therapy some reaction seems to take place between the tissues and the dead micro-organisms whereby anti-bacterial substances including the estimable and obliging “opsonins” of Wright, are liberated into the blood-stream. In the minuteness of the dose and the magnitude of the reaction there are further resemblances to homœopathic therapy. There is also a feeble attempt and individualization in the fact that in the majority of infections it is necessary for success to prepare a vaccine from the cultures of the patient’s own particular micro-organism; for even micro-organisms with the same name and which exhibit the same microscopical and cultural appearances, vary in each host, *e.g.*, *Bacillus coli*, and *pneumococcus*. Hence it is not regarded as wise to have stock or standard vaccines, except, perhaps, in the doubtful exception of tuberculin. But even with these precautions the instances are painfully numerous where from no explainable cause and under apparently ideal conditions vaccine-therapy has signally failed. Further, it is impossible to predict when it will be successful and when it will fail. Many medical men seem to act on the notion that they have only to obtain so many millions pickled bacteria, inject them into their patients, and forthwith the disease departs. While we would advise patient investigation into every promising method of treatment, yet we feel compelled to issue this word of warning, for every method not depending on strict individualization is bound to be more or less a failure. By-path meadows should always be looked upon with suspicion. The curious and fatal danger about such is that the path runs parallel with and close

to the proper way for a considerable distance. The by-path is easier to walk on, too, than the right way. But soon there is a gradual and almost insensible divergence from that right way, unnoticed till the right way is irretrievably lost; and worse than this, all wish and desire to find it again are also lost.

It must not be forgotten that the "opsonic method" is only yet in the experimental stage. The method by which new theories are arrived at must conform with those held obligatory by science. This homeopathy has done, but the same is by no means true of Wright's method. It has not yet emerged from the quagmire of empiricism. We do not know what the opsonins are, how they act, and what meaning phagocytosis has. To put aside our well-tried and trustworthy methods and convert ourselves into "immunizers," with emulsions of dead bacteria and a hypodermic syringe as our stock-in-trade, would be a totally retrograde step. For members of the old school to do so there might be some excuse, for they know no better; but there can be no excuse for members of our own school doing so. There is no doubt, however, that the opsonic method ends to confirm the truth of homeopathy in its scientific aspect; as such we welcome it. In many cases its results have been exceedingly good, especially in cases of skin infections that have resisted (fortunately for the patients) the efforts of dermatologists for years. But that is hardly to be wondered at, for the great policy of the "specialist in skins" seems to be one of suppression, *i. e.*, he tries to cure the affection from without inwards, while Nature says they shall be cured only from within outwards. The results of opsonic treatment are surprising only to men not conversant with their nature. The results, like those glowingly reported, have nothing to do with the "opsonic" treatment, but are only an effective, active immunization of the patient against his own bacteria. In diseases, however, where there is a rapid lethal tendency vaccine-therapy is found wanting. Even in the case of tuberculous infections the opsonic method, on the whole, has been somewhat disappointing. In many chronic conditions that have no lethal tendency the results have been distinctly good, and just in proportion to, and to the extent that the method conforms to *similia*: thus far and no further. It is to be observed that those who know most about the practical working of the method are far more reticent concerning it than those who possess merely an "arm-chair" knowledge of it, coupled with a vivid imagination. Dr. Platt, in a recent number of the *Hahnemannian Monthly*, does not state the case quite fairly as it seems to me, though much may be due to the customary style of phraseology (and spelling) of the great country of which he is a distinguished citizen. He says: "If Hahnemann were alive to-day, do you suppose that he would be thumbing over his books of a hundred years ago? The great principle of cure he discovered then, he would be working, with all his wonderful mind, to perfect and develop. He would be living in the laboratories, a laboratory worker,

a research student, revelling in the advantages supplied by the new physiologic chemistry." Would he? One thing is certain: he *would* still be "thumbing over his books of a hundred years ago." The good doctor forgets that Truth does not grow old: it is immortal, though we may add to our knowledge of it. In the science of therapeutics (homœopathy) that which was true a hundred years ago is just as true to-day and will be equally so a hundred years hence. Any method that is constantly changing must be unscientific and false. This is what Hahnemann would be doing were he with us to-day; he was a research student all his life, but he was not blown about by every wind of doctrine. He took care to *prove* each step, and would accept nothing on trust, where the healing of the sick was concerned. New ways are not always better ways, and it is quite possible that if Dr. Platt himself were ill and suffering, he might not derive so much comfort from the "advantages supplied by the new physiologic chemistry and by the microscope" as he seems to think.

Investigate these collateral sciences by all means; but test and prove before accepting. Those proved to be good, accept and retain. Avoid the Athenian pitfall, and spend time in better ways than merely "to tell or to hear of some new thing." In conclusion, we can give no better advice than—"Prove all things: hold fast that which is good." Hold it fast with a decisive and firm grip; and as decisively and firmly reject everything which does not help us, as true physicians, to fulfil our "highest and only calling," viz., "*To restore health to the sick.*"—The *British Homœopathic Review*, October 1909.

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