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[No. 8.

OLEUM JECORIS ASELLI.

[In L'Art Medical, for July, a delineated action of Cod liver oil has appeared, from Dr. G Sieffert. There is another from the pen of Dr. H. Clarke in his *Materia Medica* which has not been incorporated in it. We think it would serve the interest of homoeopathy better to connect them together in one place than to present the account of the oil as given by Dr. G. Sieffert alone. *C.J.M.*]

OLEUM JECORIS MORRHUAE. CODLIVER OIL.

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I. GENERALITIES.

Cod-liver oil, a popular remedy, is a natural product which may be obtained by expression of the liver, from heat and fermentation. It has three principal varieties, the pure oil, the light amber coloured oil, and the brown oil.

The brown oil causes its bad odour and disagreeable taste, and cannot be easily taken for therapeutic use; the pure oil is rich in medicinal elements and it is light amber coloured. For this reason, preference is given to the pure oil in practice. It unites in the best conditions the essential constitutive parts: phosphorus, iodine, bromine, sulphur and the alkaloids.

Cod-liver oil, said M. Collin, has an odour of sardine and insipid taste of the fish. Slowly soluble in alcohol and readily soluble in ether, it has an acidity varying between 0.1 to 1.80 per cent. Its density moves between 0.923 and 0.930; it marks 39° in the oleometer of Lefevre; the oleo-refractometer gives the deviation of 38° to 45°.

The chemical composition is very complex. It contains:

1. Fat (oleine, palmetine and butyrine);
2. Special organic acids (morrhucic and phospho-glyceric);
3. Volatile alkaloids (butylamine, hexylamine, and dihydro-lutidine);
4. Fixed alkaloids (merlusine, morrhucine, homo-morrhucine, and micro-morrhucine). The organic bases are accompanied by tyrosamine.
5. Principal minerals (chlorine, bromine, iodine, phosphorus, in the state of phosphoric and phospho-glyceric acids) carbonate of calcium, magnesium and soda.

Cod-liver oil, said M. G. Pouchet, unites in the proportion of 1000 to 5 centigrammes of bases and 1 gramme of morrhucic acid; 25 to 30 centigrammes of phosphorus; 4 to 5 centigrammes of iodine; 0.5 to 1 centigramme of bromine; 1 centigramme of iron. It is given by spoons and sippets from 6 to 7 milligrammes of alkaloids and 12 to 15 milli-grammes of morrhucic acid. The re-distribution of alkaloids, according to Gautier and Mourgues, is for 100 grammes of bases, amyline 30c.,

other ammoniacs compose 18; dihydrolutidine 10; aselline 7; morrhaine 35. The fats contained in the oil of the liver of cod are eminently assimilable, for the slight acidity of the oil, so that its mixture with the hepatic ferments and the materials of the bile favour emulsion.

In commerce, it is seen, falsified cod-liver oil embellishes many shops or in its place other animal oils as the oils of the liver of ray fish and dog fish, the oil of spermaceti whale and vegetable oils mixed with iodine and rendered odorated by the oil of whale are also observed.

II. PATHOGENESIS.

The following is a resume of experiments practised on healthy man by E. Hale, Neidhard, Fairbanks, Wood and Farrington.

General symptoms. Recrudescence of forces and general health. Aspect more florid and healthy than before. Lassitude and general prostration. The patient thinks himself fortunate and suffers great nervous irritation (after the use for many months of the medicament taken a spoonful by the mouth). Hot air is disagreeable. Atrophy. Emaciated person gains weight. Creeping sensation all over body with rush of blood to heart, soreness all round body to back. Fluttering (like a watch) rising from sacrum to occiput, affecting abdomen and chest in such a way that she becomes transfixed, unable to move hand or foot, and it arrests movement if in motion at time of seizure. Stitches and bearing down in one or other side; worse from bending side inward. Contraction of muscles: musculo-fibrous rheumatism.

Moral. Melancholic temperament. When he spoke of himself, employed third person. Sensation as if he was going to be insane. Feels miserable all over, with great nervous irritation. Sensation as if out of her mind.

Sleep. Insomnia and raving of animated objects during fever and excitement. Less sleep than usual, with nocturnal sweat. Insomnia after 3 A.M., with general perturbation. Dreams of seeing objects in the room during sleep.

Fever. Chilly each evening, for quarter of an hour with acid vomiting and diarrhœa (cured by *Iris. v.*). Constantly chilly; feels as if constantly taking cold. Chills from occiput down back and round abdomen. Chill: 3 A.M., in evening, with vomiting and purging for six hours; with spasmodic pain in region of navel (returned every evening for four days, relieved by *Iris. v.*) Chilly on going to bed; afterwards heat, worse in hot room. Chill and hectic fever, with pulsative pains in spleen. Sensation of coldness on going to bed, followed by fever and heat in chest. Chilliness at 3 A.M., remaining for an hour and followed by fever, pulse 100 to 120. Chilly in evening, afterwards fever and palpitation of heart.

Flushes of heat. Fever and heat in whole body. Pulse frequent, varying between 100 and 120, constant thirst. Sensation of creeping in body with afflux of blood in head. Tertian fever, repeating four times, each time for two hours, afterwards disappeared; chilliness in back and around abdomen (cured by *Eupatorium perfoliatum*). Flushes of heat in head, with red face, heat in stomach, and fever in extremities of toes, persisting for eight to ten hours. Flushes of heat; face red, stomach hot, heat to tips of toes. Heat in palms; every night. Fever and excitement every night producing wakefulness. Tertian intermittent.

Fever for two hours at night, followed by abdominal transpiration, principally in superior parts of body. Transpiration every night or constant. Fever followed by violent sweat, specially of head, neck and arms. Sweat every night; with smell of the oil; only on lower limbs. Cold perspiration all day.

Head. Obtuse headache in front and vertex. Giddiness: every thing appearing black. Headache in morning, with constant nausea and vomiting. Headache from left to right temporal regions. Giddiness in head. Dull aching pain in forehead. Steady aching sensations from left to right temple. Aching about inner part of right eyebrow, as if in periosteum.

Bursting headache after coughing as if head would split. Pain from occiput to forehead with nausea.

Eyes. Lachrymation on walking in open air, more pronounced in left. Pressure on eyes; lids swollen and so heavy that it is difficult to open them. Blackness before eyes and blindness, with tendency to close eyes, at the same time sensation of coldness. Obtuse pain in right eye. Eyes swelled. Heaviness over eyes with dry and parched bands. Aching, pain in right eye when using it. Lachrymation when walking in open air, worse left. Lids so heavy, can hardly raise them. During chill, blindness. Every thing turns black.

Ears. Fetid suppuration of ears. Deafness, not able to hear in left ear; abscess in right ear.

Nose. Dry coryza, cough and sneezing. Epistaxis in inclined position, with amenorrhœa. Chronic catarrh and ozena. Fluent coryza, hoarseness and redness of chest.

Face. Red and burning. Growth of skin which transformed into soft hair in chin and upper lip (after using Cod-liver oil for two months). Face red. Growth of short, thick hair on chin and upper lip (in a woman).

Mouth. Yellow coating on tongue. Sensation of dryness in mouth; constant thirst. Pain in tongue, after using Cod-liver oil. Putrid smell from decayed tooth ceased when taking the oil. Tongue: loaded; coated yellow. Parched feeling in mouth. Fetid breath cured.

Throat. Soreness in throat. Tickling at base of throat, with cough after dinner. Soreness in throat after hawking up phlegm. Chronic sore throat, with expectoration of yellow mucus. Tickling in throat; weakness in breath. Thyroid gland swollen.

Taste and Appetite. Loss of appetite. Repugnance to milk. Nausea and thirst and loss of appetite. Vomiting bitter and acid. Voracious appetite diminished in rickety children). Vomiting; of bile and mucus with bitter and acid at expiration of chill. Acid vomiting with chill.

Stomach. Nausea and malaise of stomach. Heat in region of stomach. Weight and oppression in pit of stomach. Pressive and tensive pain. Acid vomiting and relaxation with pain in stomach. Thirst: great, constant; before and during chill. Nausea. Vomiting. Weight in stomach.

Abdomen. Malaise and pressure in region of liver, aggravated by pressure and exercise. Pulsative pain in splenic region with repercussion in side. Shooting and tearing pain in splenic region, aggravated by respiration and touch. Soreness and heaviness in region of liver, increased by exercise; sore like a boil on pressure. Heavy pain in right side with numbness of right arm as if dead. Beating pain in spleen. Aching in splenic region on breathing and coughing, with pain at apex of scapula (at end of chill). Jerking, drawing pains in region of spleen. Flatulence relieved. Atrophia mesenterica.

Stool and Anus. Diarrhœa at night and in early morning. Diarrhœa with chill. Constipation with burning of hands and feet, sometimes with cold feet.

Urinary organs. Reddish urine with red sediment. Pain in region of kidneys. Soreness in kidneys, following soreness in liver. Discharge of mucus from urethra with burning every morning during stool. Acceleration of urinary secretion. Incontinence of urine, cured.

Female Sexual organs. Evacuation of yellow matter from uterus, with weakness in back. Acts as emmenagogue. Menses reestablished (cure). Increase of menstrual flow so strong as to render a suspension of the oil necessary. Soreness of both ovaries; dysmenorrhœa. Leucorrhœa: yellow, with weak back.

Respiratory organs. Shortness of breath with dull cardiac palpitations. Asthma continually increasing in intensity, pain arresting respiration, in right side of chest, upon and along scapula, sometimes traversing scapula through and through. Pain in upper part of scapula. Violent stitches in left side, persisting for sometimes. Oppression and heat in

chest. Stitches in right side, with prolonged respiration, remaining during whole journey: Pain in chest and stomach with cough. Pressure in chest with violent access of cough in morning. Sensation of excoriation in right chest extending to back. Slight dry cough. Cough during whole night, with palpitation of heart. Tickling cough in middle of superior part of throat with palpitation of heart. Expectoration of yellow mucus. Glairy viscous, yellowish-green expectoration, with salty taste. Glairy, whitish, thick expectoration with violent cough. Whitish expectoration with pain in side, aggravates when patient bends in side. Spitting of blood.

Cough: all night; hard spells in morning; hacking; tickling in middle of upper chest with palpitation; violent with retching night and day; with stitches on raising arm; worse from draughts of air; worse on lying down at night, prevents sleeping; loose all day; from exposure to cold, damp weather, with emaciation and weakness; better when fever comes on. Expectoration: yellowish-green, saltish, tough; tough white; white; bloody mucus.

Weakness in chest and back, worse left. Soreness all over chest, or in centre, with hacking cough and aching between shoulders, worse right side; in chest and stomach with cough; worse by motion. Burning pains in spots, in some one portion of chest. Burning and heat in left chest; through to back, with cough. Pains in upper chest on coughing. Pneumonia of both upper lobes of lungs. Pain through lower chest to back. Pain right side above and below scapula; breathing arrested by soreness; sharp stitches left side. Sensation of excoriation in left chest; worse upper and lower part of left chest, extending to back. Weakness in breast; tickling in throat. Phthisis.

Heart. Rheumatic pain in region of heart and in muscles of chest. Sudden stitches in heart. Cardiac palpitation with oppression and anxiety. Palpitation of heart; with cough; with short breath. Rush of blood to heart, with a creeping sensation all over body. Pulse accelerated, soft and small.

Neck and Back. Pain in back. Pressure and dull pain in sacral region, ameliorated by pressure. Pain in region of kidneys after exercise. Soreness from back to neck. Sharp, heavy aching pain in lower spine. Spinal irritation, sore to touch. Fluttering from sacrum to occiput. Weakness and dull aching in sacral region, better by pressure. Often placed hand in sacrum to support it; often complained of pain in region of sacro-iliac joint; walking increasingly difficult.

Extremities. Continual aching and sore pain in elbow and knee joints. Movements in joints were limited; especially elbows and knees; flexion and extension caused excruciating suffering.

Superior Extremity. Burning heat in palm of hand, especially at night. Hands dry and burning with heaviness of eyes. Continuous dull pain in elbow and knee. Rheumatic pains in shoulders. Hands dry and parched with pain in spleen. Pain in bones of left arm.

Inferior extremity. Cold feet. Feet painful. Abscess in left calf. Rheumatic pain in left foot. Abscess in left foot. Abscess in left thigh. Abscess appeared on left gluteus maximus near anus, and discharged three times; afterwards another boil on right side of chest. Hipjoint disease; especially when originating in bone (rather than in synovial membrane). Sciatica with atrophy of affected limb. White swelling of knee. Rheumatic pain left foot. Fistulae and abscesses round joints. Soreness of both feet. Feet constantly cold.

Skin. Skin red all over, at night in bed, with irritability, morning. Eruption of small red spots, like psora, appeared and from that time she made rapid progress. Eruptions; papular, vesicular; herpetic. (Scrofulous ulcers discharging large quantity of pus. Cold abscesses. Lupus. Icthyosis.) Hairs grow on left side of chest.

Characteristics. In anatomic point of view: diminution of red cells in blood and tendency to cellular hyperplasia.

In functional point of view: sensation of coldness in back and around abdomen. Pains appear before and behind, low

and high, right to left and left to right in back. They are aggravated by exercise of each side, principally the left, with predominance in back. Cough aggravates in lying position, by laughing or sudden blast of air. (C. D. Fairbanks).

III. THERAPEUTICS.

In this broad line the allopathic and the homœopathic schools generally accord in the action and indications of the medicament. Professor G. Pouchet said in effect: "The facility with which one realises a stable emulsion of cod-liver oil, in presence of water containing many small quantities of caustic alkalies or carbonates which make eminently proper the constitution of reserves, and in fact a veritable medicament of saving the albuminoids; thus it is the energetic repairer of tissues by phosphorus, iodine, sulphur, bromine and iron in a state of organic combination. It is rich in phosphoric composition allowing to expound the stimulation which exeroises on the formation of nucleins, and consequently on the proliferation of the cellules. It intimately increases the phenomena of nutrition and circulation or augmentation of the vital resistance."

Dr. Manquat wrote: "Under its influence one observes a great manifestation of increase of weight in phthisical persons, and rapid absorption of the oil is caused. (J. Reardu. *Lyon Medical*, 10th April, 1878). At the same time the patients are stronger. The number of red globules increases (Thompson). Since the weight of the body increases to an increased weight by the ingestion of the medicament, one must admit with G. Sée, that cod-liver oil favours assimilation and addition of albuminoid aliments; at the same time, it causes saving in the use of albuminoids by economy, for excretion of urea is diminished, which results in oxygenation of fat bodies which are easily carried and easily oxydisable than albuminoids." Therefore, it is advisable to use this medicament at certain period of phthisis, in scrofulosis, rachitis, epidemic hemeralopia, and in all states which speak of physiological misery."

Lauder Brunton estimated that "Cod-liver oil is more a food than a medicament. . . . It is for this reason the infants

called scrofulous, and those presenting a tendency to glandular enlargement, develop better when Cod-liver oil is taken." Elsewhere, he remarked that "if you nourish the body by means of certain fats they long preserve their obesity, while in others, they lose it quickly. The oil of Codliver is rapidly consumed. An adult or an infant becomes well nourished after having absorbed it for sometime, the rapid growth remains even after cessation of administration of the oil. Accordingly to all appearance, this combustibility of the oil makes it in fact a good aliment; it is easily absorbed, assimilated by the cellules and burnt."

To explain the action of the oil, other savants have said that the physiological action is pure, in the allopathic sense of the word. It is in formal opposition to the fundamental law of biology, the predominate intervention of one or the other of the constitutive elements of the substance. We bring it back again to ideal fancy and indirectly to polypharmacy.

It is necessary to say that all the theories only repose on hypotheses? How much more logical is it to write of the pathogenetic action so that we value it more highly? Farrington has spoken a few words in place, in speaking of this substance. He said: "Many physicians support that it acts physiologically. It is an error. *It is a medicament.* It does not act by the oil that it contains as Dr. Hughes pretends. If the oil could act in this way, why other oils do not produce good results? It is the composed drugs, containing iodide, phosphorus and other substances. Dr. Neidhard of our city has experimented it. He gave to the subjects of his experiment, the medicament on the basis of attenuations, up to that from which he obtained a series of symptoms that he considered necessary. I wish to give you a resume of his symptoms. You can employ Cod-liver oil when there are sensation of coldness along the back, hoarseness and pain in the chest. How often you meet with these symptoms at the commencement of tuberculosis! Afterwards coming to acute pricking pains, here and there, they come across the chest;

the patient complains burning pain occurring in the chest, localised or in many places. The fever is especially observed in the evening with burning of the palms of hands. The cough is dry, with expectoration of mucous secretion, as we observe at the first stage of tuberculosis. The symptoms observed in the course of experiment of Dr. Neidhard are intelligible in this respect; the symptoms presented by patients have been cured by this medicament. If you prescribe *Oleum Jecoris Aselli* in attenuation or in substance, you support a scientific basis."

With regard to the oil we have written: "It is a fatty body in which are incorporated mineral substances, and all form a special material of powerful action." In reality, it is a product of natural synthesis; not found in mineral waters or in sea water, each element has not been artificially supplied. And this is so true that professor G. Pouchet explicitly said: "The other multifarious fatty matters are less easily assimilable, and they have vainly attempted to substitute Cod-liver oil. They have proposed to incorporate it sometimes in butter, at other times in liver fats, in medicamented substances, so that, iodine, phosphorus, and bromine are the aims of the transformation to make Cod-liver oil agreeable. . . . After relative exposition of the chemical composition of the oil, it is easy to comprehend that the mixture is not like other oils, animal or vegetable, (not found in the oils of the liver of other fishes), or the preparation as the syrup of the iodide of starch, which are not capable to replace Cod-liver oil and could not render themselves serviceable to therapeutics."

How then, that after many times of pathogenetical experimented facts by the homœopathic authors and not by the works of the allopathic school, it is observed: the oil of Codliver exercises a favourable influence in the constitution of the blood; pale and anæmic patients become after taking this medicament red and plethoric (Hale); it regenerates the defective red cells of the blood; it is indicated in the general diminution of tonicity, or if there is a tendency to cellular hyperplasia, in

the formation of exudates composed of imperfectly developed cellules, capable more often of a potential quality, that is to die (H. C. Wood); it acts energetically in scrofulosis, that is to say, against the tendency to develop the lymphatic glands, against the multiplication of their cellular elements and the formation of caseous depots, slowly degenerating fats with desiccation, or against fatty degeneration, rapid with abundant production of liquids which transudes as pus and forms abscess (H. C. Wood); it is efficacious in cellular hyperplasia, affecting the mucous air passages; the patient on occasions suffer from catarrh, till finally it comes to the rapid multiplication of cellules, that they produce a number of more or less vesicules in air passages, generally at the summit, which is called consumption (H. C. Wood); it shows its curative power in many diseases which we find in feebleness, emaciation, and anæmia (E. Hale); they intervene usefully in osseous maladies, scrofulous inflammations which are chronic to articulations, caries, necrosis and abscess (H. C. Wood); it combats defective nutrition, especially in infants, when it is pale, devoid of force and emaciated (E. Hale); it is the medicament of chronic rheumatism, in cachetic subjects with depressed constitution (E. Hale); it is a remedy of nervous affections as neuralgia, sciatica, lumbago, in emaciated and anæmic persons with insufficient animal heat (E. Hale).

IV. CLINICAL.

After that which has preceded, Cod-liver oil has been found indicated in :

Anæmia in insufficiency of red globules. But it is an anæmia which has not resulted either from loss of blood, or from anæmic chlorosis, which is accompanied by anasarca or evolve without emaciation. It is determined by defective nutrition, by causes which prevent aliments from being converted to blood of good quality (maladies of the liver, the digestive apparatus, the stomach, or the intestines and especially of mesentery), or it is beneficial in maladies which tend to deteriorate the

quality of the blood such as scrofulosis, tuberculosis, etc. The medicament does not act in leuco-septicaemia. (E. Hale).

General depression. Lethiers and after him Abel Claude have called attention to the medicament in this disease. Claude prescribed a dessert spoonful of the trituration in small quantity of beer, before two great meals.

Lymphatism. Especially at the time of formation of young children with flaccid and moist skin. For them the distasteful preparations, strong with manganese or Cod-liver oil in nature (same dose as for depression). Abel Claude added twenty to thirty drops of *Drosera*, mother tincture, every day intercurrently.

Scrofulosis. Especially in subjects of lean and thin aspect, with shallow and transparent skin, frequent pulse, great excitability of the nervous system, and heavy specific gravity especially of urine, all signs of acceleration in cellular metamorphosis (Mayhofer). But the same author continues, "in scrofulous subjects, with bloated adipose body with tumefied nose and upper lip, with feebleness of cardiac contraction, defective irritability of the nervous system, inferiority of the specific gravity of urine, Cod-liver oil is far from making any beneficial influence on the patient. They are truly victims who have inconsiderably swallowed the medicament by glasses."

Scrofulous tumefaction of the parotid, thyroid and sub-maxillary glands and also those of the neck, axilla and groin.

Pulmonary phthisis. Especially at the initial stage of pre-tuberculosis. Coldness along the back, horseness, pain in the chest and stomach, strong pricking pain, here and there across the chest; burning pain in places, evening fever with burning of palms of hands; weight on the chest with violent access of cough in the morning, emaciation, loss of appetite, expectoration of yellow mucus or sanguinolent sputum, titilating cough with palpitation, affection of glands in connection with the bone or skin (*tinea fovosa*, impetigo) [Lilienthal].

On this subject H. C. Wood remarks with great justice: "The value of Cod-liver oil in the state improperly called pre-tuber-

culosis is of such importance that one cannot but insist on it. It is without doubt that consumption often commences from catarrh and develops itself rapidly because the disease comes during cold. Each time the patient is feeble, pale, little anæmic, the disease progresses with facility as he takes cold on slight occasions. They are not alarmed as if the disease do not exist, or think it is a local manifestation. In the advanced stage of chronic phthisis the medicament is less efficacious, in the curative point of view, but it acts more usefully than all the remedies of the pharmacopœia in the sense that it allays cough, that it increases strength and weight of the patient, whose general state is ameliorated, it retards or arrests the disorganisation of the lungs, and prolongs existence with the concurrence of other curative precautions."

When *emaciation* ensues which is considered as an essential indication, the medicament resembles the emaciation presented by iodine and phosphorus.

Certain forms of *chronic rheumatism* are equally amenable to Cod-liver oil, such as the *musculo-fibrous rheumatism* coming in the course of profound physiological misery as each patient accumulates the defective want of air and light, and is congenitally or hereditarily inclined to the disease by their debilitated and scrofulous constitution. "This form of rheumatism" said Dr. Muller "commences with obtuse pain in the limbs and progressively extends to the vertebral column, at the nape of the neck, and produces a stiffness and rigidity more or less permanent of the muscles of the trunk and limbs. It does not present inflammatory phenomenon but is accompanied by œdematous swelling without redness and sometimes terminates in paralysis."

The *fibrous rheumatism* which comes on by living in damp and cold places, uniquely localises in the articulations. It gradually lessens strength and alters nutrition.

The allopathic authors attribute in this case that the action of cod-liver oil is purely empiric. It suffices to carry it back to pathogenesis to make the homœopathic action of the medicament complete.

The cure is often marvellous in *rachitism*. Trousseau has indicated it in imperfect ossification, hypertrophy of the cranium with open fontanelles, premature or retarded dentition, hypertrophy of of the liver and abdominal dropsy. ●

Against *ramollissement* of the bone its efficacy is no less; thus against *caries* and *strumous osteitis*, principally of the epiphyses of large bones, *fistulae* and *abscesses* around articulations, *cold abscess*, *ulcerated scrofulous glands* and notably against *tabes mesenterica*, all phenomena indicate scrofulosity or rachitism; but as the glands are profoundly and evidently tuberculous the success is doubtful.

The scrofulous and tuberculous affections of the skin such as lupus, ichthiosis, are equally in its sphere of action.

At the same time it is applicable to the inflammatory state of the mucous membrane. *Scrofulous ophthalmia*, *fetid effluxes* from the ear, maintaining sometimes the deafness of abscess, *dry coryza*, the peculiar *cough*, *sneezing*, *hoarseness*, *chronic nasal catarrh*, *ozena* and *chronic laryngitis*.

Note the diseases of female organs: *menstruation* arrested by cold, *premature or copious menstruation*, *dysmenorrhœa*, pain in the two *ovaries* and for the function of the skin *hypertrichosis* and *cold sweat*.

V. MODE OF EMPLOYMENT AND DOSES.

The universal panacea, lately prevalent, is that Cod-liver oil becomes little by little a medicament as given to disuse. It has no particular merit, neither excess of superiority, nor indignity. The great mischief is not to employ it conformably to the law of similitude.

Take an excessive quantity, as is ordinarily done, it becomes repugnant and ends in provoking digestive troubles, and it is good to prefer by medical practitioners emulsions which have some virtue of the original drug.

On the other hand it does not always render service when it is taken. It aggravates certain diseases for which it is taken and where it is particularly and precisely indicated, it is given

in massive dose so as to create more or less morbid symptoms of the pathogenesis.

It acts when it is given with measure. At first the homœopaths prescribed it in triturations prepared with sugar of milk, generally in covered form of twenty centigrammes twice daily or as Neidhard has counselled it in drops of tincture prepared, one fluid drachme of the substance in one fluid ounce of concentrated alcohol. Thus judiciously prescribed cod-liver oil in cases where it is indicated, never produces heroic results.

—*L'Art Medical*, July.

REVIEW.

Aids to Pathology. By Harry Campbell M.D. pp. 184. Illustrations 10. Price cloth 3/6 net; paper 3/ net. Baillière Tindall and Cox. 1908.

Aids to Ophthalmology By N. Bishop Harman, M.A., M.B., F.R.C.S. pp. vii 165 illustration 70. Price cloth 2/6 net; paper 2/ net. Baillière Tindall and Cox. 1908.

Two more additions have been made in the aids series by Messrs. Baillière Tindall and Cox. The one is on Pathology by Dr. Campbell and the other on Ophthalmology by Dr. Harman. Both these books are very useful not only to the students but also to advanced practitioners who from time to time want to refresh their memory. The Pathology contains ten illustrations; of these the illustration on the mosquito cycle is the most interesting and is very impressive. The Ophthalmology contains seventy illustrations, and on account of these the book has become very interesting and attractive. The modest name "Aids to Ophthalmology" really hides its own worth and in 165 pages which include the index and the examination questions, a complete information on ophthalmology is given, and students will hardly require any other text book to read even for his higher examinations in medicine.

Messrs. Baillière Tindall and Cox deserve the sincerest thanks from students anxious to pass their examinations and the running

practitioners as well for having given them such useful, interesting and comprehensive aids.

The Pocket Anatomy By C. H. Fagge, M.B., M.S. (Lond.,)

F. R. C. S. Sixth Edition. Revised and Enlarged pp. 270.

Price 3/6 net. Baillière Tindall and Cox. London, 1908.

The original name of this book was the Pocket Gray but as this edition has been compiled from Quain, Cunningham and Morris, so on the advice of the publishers the present name has been adopted. The book has already passed through six large editions containing in all about thirty thousand copies and this very fact alone will show its usefulness. A student having mastered his Anatomy should always keep a copy of this little book with him to refresh his memory during the time of his examination. The examinations are becoming stiffer every day and there should be certain means to remember all the facts. This naturally leads to the manufacture of such a manual which some fastidious educationists may not like on the lame ground that these will help the students to learn by rote only. We cannot side with such educationists and we are of opinion that means should be invented to help the memory as far as possible without any very great exertion. In Sanskrit literature we find the books on mathematics, astronomy, medicine and other sciences are written in rhyme, for rhyme as every body knows helps the memory to a great extent. So we believe in these days of advanced knowledge abstracts and manuals are necessary however people may think evil of them.

The subject of anatomy is a very vast one and we can not expect diagrams to be inserted in such a small manual. Diagrams themselves are very useful and when they are well made they will remind every thing without so many words. We would like to see very much a companion to this volume containing the anatomical diagrams like those which we have in Gray's Anatomy having references on the face of the diagrams themselves. We hope Messrs. Baillière Tindall & Co., will take up this in hand and with such two volumes the book on anatomy will be complete.

METEOROLOGY AND DISEASE.

Meteorological Observations taken at 8 A.M. at the Indian Association for the Cultivation of Science, Calcutta.
For the Month of July, 1908.

Date.	Barometer. (corrected.)	WIND.		TEMPERATURE.		Humidity.	CLOUD. Proportion.	Rainfall in inches of past 24 hours.
		Direction.	Velocity per hour in miles.	Maximum.	Minimum.			
1	29.588	E S E	3.9	90.0	80.8	73	5	0.01
2	29.608	S	5.1	91.5	80.0	82	4	0.23
3	29.592	S	3.4	90.0	80.2	84	6	0.16
4	29.628	S	3.1	93.0	81.2	82	7	0.07
5	29.582	S	3.3	95.0	82.9	94	9	0.13
6	29.561	S	2.3	88.5	79.5	91	10	1.55
7	29.550	W	2.7	83.5	79.5	85	9	0.10
8	29.142	W	4.1	83.5	77.0	96	10	7.20
9	29.586	S S W	3.9	83.5	77.0	91	9	0.70
10	29.578	S S E	5.0	88.0	80.0	85	9	Nil
11	29.566	S E	4.8	87.8	78.8	87	9	0.34
12	29.674	E S E	2.9	89.5	79.5	94	10	0.24
13	29.575	S	2.5	92.0	82.0	89	8	Nil
14	29.548	S	3.6	93.5	82.0	88	6	0.05
15	29.509	S	4.1	93.0	81.0	87	8	0.40
16	29.503	S	2.2	90.5	80.2	87	8	0.47
17	29.571	W	1.7	90.0	79.0	83	8	1.01
18	29.498	W	2.7	89.0	78.0	93	10	1.85
19	29.622	S	2.8	86.5	78.5	82	8	0.99
20	29.543	S	3.0	92.0	80.0	87	8	0.15
21	29.530	S	1.8	89.0	77.8	98	9	2.07
22	29.518	S	3.1	87.0	78.5	94	8	1.05
23	29.574	S	3.4	88.2	80.0	94	7	0.01
24	29.593	Calm	3.2	90.2	81.0	91	9	Nil
25	29.601	S	3.6	92.0	80.0	89	8	0.26
26	29.588	E S E	3.4	90.0	80.5	87	8	0.02
27	29.501	S	2.7	90.0	80.2	85	6	0.07
28	29.533	S E	4.3	90.5	80.0	89	8	0.07
29	29.645	S E	3.8	88.0	79.8	87	6	0.57
30	29.560	S	3.8	90.0	80.0	82	4	0.03
31	29.486	S E	3.4	92.0	81.0	85	7	Nil
Mean	29.552	74S15°W	3.4	89.9	79.8	88	8	TOTAL 19.80

In the month of July barometer was shewing decrease of atmospheric pressure for the first time since January. In the

month of June, the mean pressure had been 29·543 inches. In July, it was 29·552. South-west wind generally prevailed during the month. The mean velocity of the wind per hour was 3·4; it was less than the previous month. The mean maximum temperature was 89·9 and the mean minimum 79·8, shewing a difference of 10·1 degrees. There was more humidity than the last month. In June it was 81, in July 88, though the rainfall was less than the previous month. The total rainfall in June had been 26·50 inches, in July 19·80. In June 13 days passed without rainfall. In July only four days had no rainfall.

The mortality from cholera lessened during the month than before. In the week ending the 4th July, it was 29. In the week ending the 11th July, 28. In the week ending the 18th July, 19. During the week ending the 25th July, 9. The total was 85 deaths.

The mortality from plague was less than before. In the week ending the 4th July, it was 19. In the week ending the 11th July, 29. In the week ending the 18th July, 21. During the week ending the 25th July, 22. The total was 91 deaths.

Smallpox shewed little cause for anxiety. In the week ending the 4th July, the mortality was 4. In the week ending the 11th July, 7. During the week ending the 18th July, 8. In the week ending the 25 July, 5. The total deaths from the disease were 24.

Mortality from fevers was rather less. In the week ending the 4th July, it was 89. In the week ending the 11th July, 88. During the week ending the 18th July, 70. In the week ending the 25th July, 78. The total was 325 deaths.

Bowel complaints had the following mortality: In the week ending the 4th July, it was 37. In the week ending the 11th July, 28. During the week ending the 18th July, 33. In the week ending the 25th July, 25. The total deaths were 123. It was more than the previous month.

During the above mentioned four weeks the respective mortality from all causes was 398,416,353 and 369, making a total of 1,536. It was hundred deaths less than the previous month. The ratio of death per thousand population was 23·5. It was less than any of the previous months.

Correspondence.

SMALLPOX IN INDIA.

SIR,

In a recently-issued Government Report entitled "Statistics of British India for 1906-07 and preceding years, Part V," there is a table on page 80 giving the ratio of successful vaccinations in each 100 estimated births from 1882-83 down to 1906-07. This table shows a steady increase from 21.76 in 1882-83 to 42.6 in 1906-07. These figures by no means represent the actual state of the native Indian population in regard to vaccination, for every year the number of vaccinations recorded includes as many persons over the age of 12 months as under. For instance in 1905-06 there were $9\frac{1}{2}$ millions of vaccinations, but the number of children under one year of age who were vaccinated was just over 4 millions. Of the remaining 5 millions, nearly $3\frac{1}{2}$ millions were from 1 to 6 years old. So also in 1906-07 there were about 9 millions of vaccinations, but of these only 4 millions were vaccinations of children under 1 year. Thus it will be seen that, although 56.2 of the births occurring in 1905-06 were not accounted for in the vaccination statistics of that year, a large number must have been included in the 3 millions between the ages of 1 and 6 years vaccinated in the following year. I cannot find out from Government Reports how many children die before they are old enough for vaccination, but the probability that this number is large should be borne in mind when considering these figures. However, leaving out of account the question whether the Government figures express the real truth as to the vaccinal condition of the natives or not, they do show a steady increase in the proportion vaccinated year by year, and in the 25 years given in the above-mentioned table the number has doubled.

Bearing this fact in mind, and comparing these figures with the smallpox death rate per million of the Indian population, why do not we find a steady proportionate decrease in smallpox? Starting with the year 1883, what do we find? In that year and in 1884 there were evidently terrible outbreaks of smallpox for the ratio per million was 1168.1 and 1695.6 respectively. But in the next year (1885) the ratio dropped to 398 per million, and since vacci-

nation was steadily increasing, we should naturally look for the smallpox deaths to gradually decrease, seeing what a large number of natives were becoming protected. But we find no such result. In 1886, it is true the rate went down to 241 per million, but it rose the next year to 304, and again the next year to 452, mounting in 1889 to 645. Then there was a drop to 549, and during the next 4 years the ratio declined to 196 per million in 1894 (the lowest for the whole period under review). But in 1895 it rose to 206, in 1896 to 642, and in 1897 to 753 (the worst year since 1884). The next two years were not nearly so bad, being 262 and 233 respectively, but in 1900 the ratio rose again to 406, fell slightly to 398 in 1901, rose badly to 511 in 1902, fell again to 413 in 1903, and still more in 1904 to 244, rose again to 314 in 1905 and still more to 484 per million in 1906. It will thus be seen that the ratio of smallpox deaths per million was higher in 1906 than in 1885, in spite of vaccinations having doubled. How can any one believe that vaccination protects from smallpox, or mitigates the severity of the disease in the face of such figures.

I have been told by a lady missionary just returned from India that in the Central Provinces the mothers are compelled to have their children vaccinated on both arms. They have asked her in many villages to bring this matter to the notice of some one in authority as they resent it very much. In any case vaccination is useless and it is a cruel operation as well; but to vaccinate on both arms in a country where a dirty floor is the most common place for the children to lie is doubly cruel. It seems strange the Indian Press refuse with one accord to discuss this matter. The figures are plain enough for any one who cares to investigate them. The absolute failure of vaccination to stop smallpox or to mitigate it is demonstrated again and again and yet nothing is done. Disease and death are spread by this means, and all for no good. Will no one take up the matter? We in England are on the road to the complete abolition of compulsory vaccination, and even now all children born recently can easily be exempted from the operation. Men and women in England have taken a strong stand and have spared nothing in their efforts to rid the country of this terrible curse. Is there no one in India who will do the same. A perusal of the various Government Reports dealing with vaccination, plague inoculation, etc., makes one wonder whether the recent unrest in India may not have as one of its contributory causes the enforcing of these various vaccines and serums on the people.

Continually we are met with phrases showing the hatred of the people for vaccination and plague inoculation.

I earnestly trust you will print my letter in the hope that some one with time and money will take up this matter in the interest of the natives and also of the European employees who are being forced, in some towns, according to recent reports, to have their children vaccinated.

50, Parliament Street, S. W. }

August 28, 1908. }

Yours very truly,

CHARLES GANE.

[We have written many times with regard to the unsuccessful effort to prevent smallpox by vaccination. The whole of the orthodox school (allopathy) supports the Government in this chimerical practice and our single handed effort has produced no good result. The Bengal Vaccination Act was introduced in 1880 and after twenty-seven years of working the same futility prevails. Further, it is compulsory against the wish of many sober thinkers. Government as a pretended guardian of health, unknowingly seeks to undermine it.—C. J.'M.]

EDITOR'S NOTES.

Diphtheria.

The following is from the *Medical Times*, August :

“Epidemics of Diphtheria among wood-pigeons are discussed by Dr. W. L. Sambon, of the London School of Tropical Medicine in the *Lancet*. The disease is not confined to the wild birds; the bacillus is equally distinctive to domesticated pigeons, which in turn infect game birds and domesticated fowls. The latter carry the disease into the cattle yards and stables of farms, victimizing the horses on the one hand and the cows on the other. Then the teamster and the milkman among the farm hands become infected, and distribute the germs with the milk sent to town. Diphtheria may, on occasion, be directly communicable from birds to man; and this through the medium of eggs. Characteristic diphtheritic membranes are to be found in the oviduct of fowls; and Sambon has found fragments of such infectious matter in the egg itself on his own breakfast table. Cooking, no doubt, destroys the germ; but those who partake of raw eggs and milk should see that the “white” of the egg is above suspicion. Diphtheria seems to be most prevalent along the east coast of England—the landing places of vast hordes of wood-pigeons in their annual migrations.”

Epidemics of several diseases including diphtheria are communicable from bird to man. Long before, it was discussed whether cancer is communicated to man by pigeons. At the same time, it should be remembered that some diseases which are fatal to man, happen in ordinary course to birds without proving dangerous. We had occasion to see a case of malignant adenitis, which was mistakenly diagnosed as cancer by many medical men, supposed to have occurred from wild pigeons, which were living in the house in large numbers. But an isolated case can not formulate a rule. Observations are necessary to come to a clear conception of the communicability.

Lord Northbrook and Hot Climate.

The *Medical Times*, August, says :

“Delane, the former editor of the London Times, whose excellent biography by Dasent has been published by the Scribners, seems to have had an exquisite scent for news. He one day met Sir Richard Quain at the Athenæum. In the course of a few minutes”

conversation the latter observed: "Lord Northbrook called on me to-day and asked me how a hot climate would be likely to suit his daughter, whom I have had under my charge. I said it would suit her very well indeed." Delane said nothing at the time, but the next day the first article in the Times astonished everybody, including the official world, by announcing that Lord Northbrook was going to India as Governor-General. A few hours afterward an acquaintance offered his congratulations to Lord Northbrook, who said they were premature, inasmuch as the appointment had only been settled that morning, and how the Times got hold of it the new Viceroy could not imagine. The truth, of course, is that Delane had, with the magnificent prescience to be found only in the journalistic make-up, put two together."

In every branch of knowledge, there are audacious conjectures which sometimes prove true. It occurred more in science than in other regular studies. But politics now takes the lead. It is the business of every body to deal with it. A keen observer of it gains a reputation and advantage by its forecast, if it happens to be true, which is unequalled in other speculations. In monetary speculation there is loss, but in others if there be no success no loss is incurred. Delane was an audacious speculator in politics, and his forecasts many times proved true.

Insect Stings: Remedies.

The following is from the *North American Journal of Homœopathy* for September. We make no remarks on it:

"In minor stings, such as the mosquito, there are two drugs almost specific—aconite and ledum palustre.

Aconite has a pathogenesis with a miliary eruption and characteristic pricking sensations, whence its usefulness in such cases. The celebrated Dr. Heermann, who so brilliantly practiced homœopathy in Paris as successor of Chargé, considered its action very certain. While in America making some improvements in his estate he had occasion to ask his laborers to destroy a hornets' nest, and on their naturally hesitating, he spurred them on by promising immediate relief if stung by the insects. The stinging promptly followed, and, to the great astonishment of the men, a few globules of aconite 30 immediately relieved the pain.

Ledum, so useful in wounds from pointed instruments, corresponds well to uncomplicated insect-stings. When the sting develops grave complications we have recourse to the following:

Apis is isopathically indicated in the stings of bees and wasps; when there is considerable swelling, possibly dangerous because of its seat on the mucosæ, with extreme sensitivity to contact and pains like hot needles. The urinary tract may become involved.

Anthracinum, where the lesion is anthracoid in type, with burning pains. Swelling and induration of tissue, septicemia bluish or black phlyctenulæ.

Arsenic, with intense burning pain. Threatening gangrene. General condition grave. Adynamia, anxiety, and unquenchable thirst. Fear of death.

Lachesis, where the local lesion is very serious. There is bluish discoloration, gangrene, infiltration of tissue. Extreme sensitivity to touch and intolerance of all contact. Nervous adynamia. Threatening cardiac paralysis.

Tarentula, isopathic to spider-bites, and similar to lachesis in the bluish color of the lesion. There are violent burning pains similar to arsenic and anthracinum, and with the latter it has a common indication in the furunculous lesion. The general condition is one of extreme agitation, and constant moving about."

The seven periods of the History of Medicine.

I

B.C. 570 to A.D. 120. Pythagoras, Hippocrates, Asclepiades, Dioscorides, Themison, Aretæus.

II.

A.D. 120-1500. Galen, Celsus, Arabian Physicians, *Early Mediæval Schools* (Salerno, Padua, Salamanca, Montpellier). Church Decree forbidding Medical Practice to Priests, 1162—Roger Bacon.

III.

A.D. 1500-1640. Paracelsus, Vesalius, Eustachio, Lord Bacon, Van Helmont.

IV.

A.D. 1640-1738. Harvey, Sylvius de la Boe, Boyle, Sydenham, G. E. Stahl, F. Hoffmann, Radcliffe.

V.

A.D. 1738-1800. Von Haller, Baron Stoerck, Dehaen, Mead, Cullen, Brown, Jenner.

VI.

A.D. 1800-1847. Hahnemann, Rasori, Broussais, Bretonneau, Trousseau, Rademacher, Ling, Priessnitz.

VII.

A.D. 1847-1908. J. Y. Simpson, Lister, Hughes-Bennett, Pasteur, Finsen, Koch, Almroth, E. Wright, etc.,—The *Homœopathic World* August 1908.

The above is from Dr. J. Murray Moore's lecture on "Fore-shadowings of Homœopathy from Hippocrates to Hahnemann" He has given the list of medical heroes who flourished in Europe only, but he has not included the names of Varadwaja and other sages of India. It was Varadwaja who inculcated the three principles of medicine of which one is the homœopathic doctrine. And thus it was he who first promulgated it into the world. We therefore alter the classification of the list of heroes thus :

I.

B.C. 3000 to B.C. 1000 Varadwaja, Susruta, Baghbhatta.

II.

B.C. 570 to A.D. 120. Pythagoras, Hippocrates Asclepiades, Dioscorides, Themison, Aretæus.

III.

A.D. 120-1500. Galen, Celsus, Avicenna and other Arabic physicians. Roger Bacon, Chakradatta.

IV.

A.D. 1500-1640. Paracelsus, Vesalius, Eustachio, Lord Bacon, Van Helmont.

V.

A.D. 1640-1738. Harvey, Sylvius de la Boe, Boyle, Sydenham, G.E. Stahl, F. Hoffmann, Radcliffe, Yusuf Bagdadi, Daud, Aulaki, Ismail, Abu Ryhan, Beruni.

VI.

A.D. 1738-1800. Von Haller, Baron Stœrck, Dehaen, Mead, Cullen, Brown, Jenner, Ulyni Khan, Mahomed Kasem, Mahomed Afzal, Gholam Hossein. [C. J. M.]

VII.

A.D. 1800-1847. Habnemann, Rasori, Broussais, Bretonneau, Trousseau, Rademacher, Ling, Priessnitz.

VIII.

A.D. 1847-1906. J. Y. Simpson, Lister, Hughes-Bennett, Pasteur, Finsen, Koch, Almroth, E. Wright, Gangadhar Kabiratna.

Pancreatic Juice and Glycosuria.

The *British Medical Journal* of August 20, has the following :

"Dale, and recently Swale Vincent and Thompson, have shown that the islets of Langerhans are phases in the life-history of the pancreatic acini : in fact, that they are derived by the exhaustion of the gland by secretion or inanition, and that probably from them acini are again reconstructed.

According to others, notably Rennie, the islet is a definite gland arising, it may be, in conjunction with the pancreas in the embryo, but in the adult permanently differentiated and responsible for the internal secretion. It was suggested by Laguesse that this alternation between acinar and islet tissue represented an alternation between the external and internal secretion, that the same cell at one time secreted into the gut, and at another into the blood. This view, however, according to Rennie, has now been abandoned.

It is the object of this paper to revive this view, though in a somewhat modified form. We have examined the pancreas in the dog, cat, guinea-pig, bird, frog, and the cartilaginous fishes, and

through the courtesy of Dr. Rennie have been able to critically examine his specimens of the teleost fish. Although in each case the organ, especially with regard to islet tissue, presents many differences in detail, there is no doubt in our minds that the islet is a phase in the life-history of the acinus.

The isolated islet of Rennie, consists of both tissues, and it is not difficult to imagine the origin of one from the other.

In his paper he states that observers have not yet found islet tissue in elasmobranchs. We have examined the gland in four species, and in each case have found islets. Moreover, in no other type we have studied is the transition from acinus to islets so well marked. We have not time to enter now into a detailed description that we hope to publish shortly.

At present we are rather concerned with the functional significance of such a change. It is best shown in the case of *Mustelus vulgaris*. The acini, as usual, consist of cells divided into two zones, an outer basophil containing the nucleus, and an inner coarsely-granular eosinophil. This division into two zones is found in other secreting cells, but in no case is it so well marked as in the pancreas. The outer zone is regarded as constituting the actual cell machine and the inner the cell product. As in other glands, secretion is accompanied by a discharge of the granules forming the inner zone. In the case of the pancreas, the basophil zone may also become discharged and lose its affinity for stain, and thus become an islet. This change is specific to the pancreas, and, taken in conjunction with the known internal secretion, surely forms its histological basis.

The discharge of each zone, although not necessarily produced at the same time, does occur as the result of the same stimulus—namely, the injection of secretin—that is to say, a stimulus arising normally from the intake of food. The internal secretion therefore takes place as a result of the external secretion.

The pancreatic juice, according to Bunge, is the digestive fluid *par excellence*. He points out that whereas in many animals a gastric digestion is wanting, in all there is found something corresponding to pancreatic juice. Again, dextrose, as far as experiments at present go, is the best tissue food; and although we do not exactly know how, the internal secretion of the pancreas determines its utilization by the organism.

We have, therefore, in the pancreas a most important link whereby continuity between food and tissue metabolism is maintained. Starl-

ing has pointed out the importance of hormones, that they probably arise primarily as metabolites, are soluble in water, and resist boiling. This view is in accordance with such a conception. The discharge of the basophil substance is essentially a katabolism, on the one hand setting free energy to make pancreatic juice, on the other giving rise to metabolites, which pass into the blood and determine the assimilation of the digested food.

Lastly, one would point out the explanation which such view offers of the difficulty of extracting the active principle of the internal secretion from the gland and the uselessness of giving pancreatic extracts in the treatment of diabetes. It is well known that thyroid deficiency can be cured by thyroid extracts.

The secretion of the thyroid is colloidal, and being retained by the organ previous to its passage into the blood can be easily extracted. The active principle of the pancreas is a diffusible metabolite, passing at once into the blood and never retained by the organ.

It has occurred to us that treatment of the after-living organ with secretin previous to making an extract might serve to capture this important hormone. We have unfortunately not yet been able to prove anything along these lines, but are now endeavouring to do so.

Secretin alone has been shown to be doubtfully beneficial in the treatment of diabetes, and pro-secretin has been found to be absent from the duodenum in some cases.

We must apologize for occupying time with a somewhat theoretical contribution, but hope that the conception may serve to throw some light on the connexion of the pancreas with diabetes and its ultimate successful treatment along scientific lines."

The hypothetical phase of the connection between diabetes and the pancreas is worthy of attention. Unless more facts come to the front, it is difficult to accept the theory.

An unusual Case of Chronic Bi-Nitrobenzene Poisoning.

The *Lancet*, September 5, writes :

"A youth, aged 16 years, was admitted into the Huddersfield Infirmary on the evening of May 25th, 1907. In appearance he was pale and bluish, though the blueness did not amount to cyanosis. He was very weak and prostrate. His skin was a dirty yellow and his conjunctivæ were also yellow. He was restless and short of breath, rambling, excited and sleepless. The temperature was normal ; the pulse was 80, feeble, and of low tension.

The tongue was dry and coated, the palate was yellowish, and the gums were blue. There was marked tenderness over the liver, stomach, and spleen. There was bilious vomiting and the bowels were constipated. The urine was dark brown in colour but clear and of specific gravity 1022. No bile was present. He was not in a condition to give an account of himself or to detail any history of his illness; but the condition of the urine, the colour of the lips and palate, the peculiar yellowness of the skin and conjunctivæ, the yellow pigmentation on the hands (so constantly found in workers amongst bi-nitro compounds), together with the tenderness over the liver, spleen, and stomach led us to make the diagnosis of chronic bi-nitrobenzene poisoning. We subsequently learnt that he had been working at some neighbouring chemical works amongst bi-nitro compounds from the previous January to April and that during that time he had on two occasions—once in February and once in March—suffered from slight attacks of acute bi-nitrobenzene poisoning; also that on each occasion he had been off work for two days. On April 29th he had another attack of a somewhat more severe character. He felt ill and weak, was dizzy, and had a staggering gait. He was breathless and his face was pale, and his lips and fingers were blue. He at this time left his employment because of his condition, but in a week's time was well enough to take some light open-air work. He, however, never felt well. He was done up every night. He frequently had cramps in the legs and once or twice vomited dark green stuff. On May 19th he went home feeling very ill. He vomited and was very sick. He was dizzy, "light-headed and raving." He had pains in the head and limbs, and his urine was "like porter." His skin and eyes were much yellower than usual. This condition continued until he was sent into the infirmary on May 25th. After admission he showed no sign of improvement but each day the jaundice got deeper; the rambling and excitement were more marked. He became comatose and died on May 29th. The blood was examined by Dr. R. H. Walton, the senior house surgeon, who found the number of red cells and the amount of hæmoglobin normal.

Necropsy.—The post-mortem examination revealed several unusual features. The yellowness of the hands produced by contact with the bi-nitro compounds had not worn off, although the lad had been away from the work over four weeks. His gums were greenish-yellow and his palate had a yellow discolouration. On

the lower costal cartilages on both sides were minute ecchymoses. The heart weighed 10 ounces and pale and flabby. The colour of the blood was darker than usual. The liver weighed one and three-quarter pounds. It was rather soft in consistence and there was grey mottling on the upper surface of the right lobe. It was generally paler, especially the right lobe. On the under surface were several small paler areas, apparently fatty. On section, the whole of the interior had a peculiar yellowish-green mottling and appeared to be fatty. The liver substance was very friable, easily breaking down. The gall-bladder contained about six ounces of dark thick bile. The spleen weighed five and three-quarter ounces; it was more mottled in appearance than usual. The kidneys each weighed seven ounces; they were mottled, pale, and fatty. The mesenteric glands were enlarged and dark. On the mucous membranes of the intestines and the bladder were numerous minute ecchymoses. None of the organs were bile-stained. Samples of the urine were sent to the Clinical Research Association who reported that they could find no trace of nitrobenzene nor could they find leucin or tyrosin or bile. The brown discolouration they attributed to the presence of a marked excess of indican. At the inquest evidence was given to show that the lad had worked amongst various bi- and tri-nitro compounds (bi-nitrobenzene, bi-nitrotoluol, and tri-nitrotoluol). Specimens of the liver and kidney and samples of the blood and urine were forwarded to Dr. W. Malden, Pathological Laboratory, Cambridge, who kindly sent the following report:—

Report on Specimens from the Patient.

Liver.—Deep yellow mottling round the bile-ducts; some large patches resembling acute yellow atrophy. Specimens too much macerated to cut sections from. Liver contains no excess of iron.

Blood.—Dark purple-brown colour. Spectroscopically gives band of met-hæmoglobin. Microscopically, differential leucocyte count per cent.: eosinophils, 1; polymorphonuclears, 50; large mononuclears, 5.5; lymphocytes, 43; mast, 0; nucleated red cells, 4 seen; myelocyte, 1. Great variations in size of red corpuscles. Some poikilocytes. A fair number of basophil reds and some polychromatophils.

Urine.—Rich brown, clear. Reaction faintly acid. Specific gravity, 1020 at 60° F.; albumin, distinct trace; sugar, none; bile, slight trace; free urobilin, considerable quantity chemically and spectroscopically; free di-nitrobenzol, none. Microscopically,

much epithelial debris, flat, squamous, cylindrical, and goblet cells. Casts, a few epithelial casts. Blood and pus cells, a few.

Opinion.—In my opinion this case is undoubtedly one of chronic poisoning by some body of the nitrobenzene series. The clinical history is clearly in favour of this diagnosis. History of three months' work in chemical manufacture of di-nitrobenzol and other allied compounds. Twice off work during that time from symptoms of poisoning. State on admission to hospital: cyanosis, vomiting, jaundice, dark urine, dyspnoea.

Post-mortem appearances.—Liver resembling acute yellow atrophy, heart pale and fatty. Intestines ecchymosed. Kidneys enlarged and fatty degeneration. The specimens I have examined confirm the diagnosis. The blood and urine are most characteristic. The only points which are not, in favour of bi-nitrobenzol poisoning are these: 1. There was no anæmia (red corpuscles counted normal). 2. There was no increase of iron in the liver. These, however, cannot outweigh the balance of probability in favour of bi-nitrobenzol poisoning as shown by all the other appearances."

WALTER MALDEN, M.D.

The following is the remark of the *Lancet*:

Remarks.—So far as I know, no case exactly resembling this has been described before, but there can, I think, be no doubt about the diagnosis. The only other thing that it could be is ordinary acute yellow atrophy. Probably the hepatic degeneration closely resembled that which takes place in this disease but that it was acute yellow atrophy and nothing more is rendered unlikely by the following facts. In acute yellow atrophy the gall-bladder is empty. In this case it contained six ounces of bile. In acute yellow atrophy many of the organs are bile-stained. There was no bilestaining at all. In acute yellow atrophy there is almost invariably leucin or tyrosin or both in the urine. In this case these were both absent. Besides, as Dr. Malden points out, the clinical history of work amongst bi-nitro-compounds, the fact that he had suffered on three previous occasions from acute bi-nitrobenzol poisoning all point to the probability of the case being one of chronic bi-nitrobenzene poisoning."

[Accepting the review of the *Lancet* that this case does not exactly correspond to acute yellow atrophy of the liver, so far it can be said that the signs and symptoms come close to acute yellow atrophy. At any rate bi-nitrobenzene in dilution is worth a trial in acute yellow atrophy. C. J. M.]

The Bite of a Savage Dog and its Owner's Liability.

The *Lancet*, August 1, has the following :

“ Medical men who from time to time are witnesses of the cruel injuries inflicted by the bites of dogs upon innocent strangers will be interested in observing that the Court of Appeal has laid down definitely the law with regard to dogs kept by persons aware that they have savage dispositions. The case in which the appeal was made was that of a barmaid bitten by a dog owned by the keeper of the public-house where she was employed, and questions were raised as to the liability of the dog's owner in view of the fact that the potman, either by his negligence or by his wilful misconduct, had contributed to what had taken place. Apparently he had had orders to chain up the dog, which had been disobeyed, and his conduct might have been regarded as such that his master could not be held liable for it. The country court judge, as a matter of fact, had taken this view and had non-suited the plaintiff, and the Divisional Court had upheld his judgment. The Court of Appeal laid down the law with regard to a dog known by its master to be savage to the effect that such a brute comes into the same category as the wild beast, the animal naturally dangerous, and is kept at its owner's risk—that is to say, it is not necessary in the case of a dog known by its master to be savage for a person bitten to show that the dog was kept negligently. Nor can the master defend himself by proving that he took every possible precaution to prevent the dog from biting any one. There is nothing illegal in keeping such an animal, but he who keeps it is liable for any injury that it inflicts. Inconsiderate dog-owners should take warning by this decision.”

In this country several cases have happened in which owners of ferocious dogs were fined and warned. Perhaps, in no case the owner escaped except by ample apology and promise of precaution to the satisfaction of the complainant. No case has been dismissed in which it could not be proved that the complainant irritated the dog and the injury resulted from the irritation. Simple order of chaining the dog, without the execution of that order, does not relieve the owner of the animal from liability.

CLINICAL RECORD.

Foreign.

CASES FROM PRACTICE.

By Dr. SIMPSON.

I. Elsie W., *æt.* 15. Pallid, of spare habit, inclined to stoop. Studious, mild disposition. Headache constant. Digestion slow, tongue coated, breath fœtid. Epigastric pain, but empty feeling in forenoon, hands damp and cold; backache pains. *Calc. phosph.* 30 (*omni mane*), 10 doses, was prescribed on November 15, 1907, for this group of symptoms, and on March 20, 1908, she was seen again, suffering from easy fatigue, gastro-enteric crisis, light sleep (with frequent waking), and *dark-red, copious* catamenia, appearing every fortnight; for these symptoms she got *Sulphur* 30 each morning one week. Each monthly period became more natural in quantity and her health is *now excellent*.

II. Mrs. W., mother of former patient, *æt.* 45. Rheumatoid arthritis of long standing. The hands and knees are stiff and painful; worse in bed. The left mamma is swollen, and is the seat of pains which radiate to left side and back. Stools costive, slow, difficult. Urine deposits a red, sandy sediment. Abdomen distended. *Lycopod.* (6) gave speedy relief after six doses (one every evening).

III. Miss Lilly W., *æt.* 38. Strumous, pallid. Had necrosed tibia at the age of 12, which was placed in Thomas's splint for eighteen months, during which time several long spicules of dead bone were extracted from choanæ, from which fetid pus oozed daily. Pure air, milk diet, perfect rest, and *Silica* 30 were prescribed with perfect success, and general health maintained for twenty-five years, when she complained of a painful swelling on inner side of knee, aching after little exertion, with tenderness on pressure, and the bursa patella was swollen; also *Sticta pulmonaria* (6) and red-bone marrow, soon caused subsidence of swelling. *Silica* 6 and *Sulphur* 12 completed the cure.

Mrs. McK., aged 56, of spare and feeble habit, disposed to diarrhœa, and menorrhagia, and leucorrhœa, suffering now great prostration of the vital power from great loss of fluids, apepsia, distress in epigastrium (for forty minutes after each meal), and

tenderness in that region, must keep recumbent ; often, during day, nausea from odour of cooking food, or tobacco smoke, diarrhœa, or else ineffectual urging to stool ; pain relieved by hot poultices. Urine dark-red in colour, sleep with frequent waking, tormented with flatulence in bed. Prescribed *Sulphur* dil. 30 each morning, eight doses. After sixteen days improved, frequent desire to stool continues. Prescribed *Nux v.* 30, one dose each night (twelve nights). Report much better, omit all medicines ; six months after report is "improvement maintained."

Taka diastase greatly aided digestion of hydro-carbons.—The *Homœopathic World*, August 1, 1908.

Cleanings from Contemporary Literature.**ARTERIAL BLOOD-PRESSURE.**

BY BYRES MOIR, M.D. EDIN.,

Physician to the London Homœopathic Hospital.

According to Halliburton, the Rev. Stephen Hales, vicar of Teddington, was the first to demonstrate blood-pressure in the year 1727. He inserted, using a goose-quill as a cannula, a glass tube at right angles to the femoral artery of a horse, and noted the height to which the blood rose in it. The blood rose to the height of about 8 ft., and having reached its highest point, it oscillated with the heart beats and also with the respirations.

The method had its disadvantages, and you see before you on the table to-night some of the instruments that have been invented since then for the purpose of measuring blood-pressure, and I am afraid we have not yet found the perfect instrument. This can be easily understood if I refer, without bothering you to-night with the physiology of the subject, to the factors on which the blood-pressure depends.

We have: (1) the energy of the heart; (2) the peripheral resistance; (3) the elasticity of the arterial walls; (4) the volume and quality of the circulating blood.

It is easy to see that for each individual there must be a normal condition of the circulation, depending upon these four factors, and when there is a departure from this normal state we wish to find out which factor or factors are at fault. Increased pressure may arise from any of the factors, and it is interesting to see how different observers dwell upon different points. Clifford Allbutt has brought a new subject into the question, viz., the viscosity of the blood, which deserves especial consideration from the point of view of peripheral resistance. When we consider the capillary circulation, we can see the importance of this.

The workers in the field of blood-pressure have been many; of books the best are Janeway's "Clinical Study of Blood-pressure," Russell's "Arterial Hypertonus, Sclerosis and Blood-pressure," and Oliver's "Studies on Blood-pressure."

The sphygmograph was the first attempt to measure the blood-pressure, and the best form of it we owe to our late colleague, Dudgeon. Janeway, in his work, referring to the sphygmograph, says: "These instruments are of purely historic interest, for the sphygmograph is an instrument whose results are notoriously subjective and dependent upon the observer who applies it." To this I will refer later.

Among the instruments upon the table we have Mummery's and Martin's modifications of the Riva Rocci, Erlanger's, Oliver's, Janeway's, Hill and Barnard's and others.

These will be demonstrated at the end of the meeting, and now I will refer to the two with which I have been working—Martin's modification of the Riva Rocci and Erlanger.

The principle is the same in both—a rubber bag encircling the arm and inflated by means of a bulb with air, by which the brachial artery is compressed. In the Martin the pressure is taken above that necessary to stop the radial, and the point at which the mercury stands when the first pulse comes through is read off as the systolic pressure. In the Erlanger, instead of the pulse being felt, a revolving drum is used by which a graphic tracing is obtained. I have found the same result whether applied to skin or outside the coat.

But the influence of the vessel wall cannot be left out. Von Basch, of the Vienna school, one of the first to make practical use of a sphygmomanometer, considered that the pressure required to close the normal radial amounts to 1 mm., and even for sclerotic vessels, as not above 5 mm.; and Janeway says: "That a sclerotic vessel may offer considerable resistance to compression is a common belief, which I do not think is justified, and that errors from this source with the wide armlet, and using the first fully formed pulse as a guide, have little significance." They seem to have come to this conclusion from the observation of dead arteries, and I fully agree with Russell that the thickness of the arterial wall is a most important factor, and that its compressibility varies according to the amount of arteriosclerosis present, and this must be overcome before we can determine the blood-pressure inside the vessel.

In blood-pressure we have not such a definite standard as in temperature—it is continually altering; first of all we see it raised during the systole of the heart, falling during the diastole—hence come the terms systolic and diastolic pressure, meaning the highest and lowest pressure of the pulse wave. Then we have the respiratory variations; it is altered by posture, muscular work, atmospheric pressure, temperature, cold winds; and mental emotions have also a marked effect.

NORMAL RANGE OF BLOOD-PRESSURE.

In young adults the lowest limit of systolic pressure that can be considered normal is 90 mm., while the upper limit can be put at 160. In the great majority of young males the pressure is found to be from 100 to 130. In females generally the pressure is found to be about 10 mm. lower than in males. Professor Leonard Hill gives 120 to 125 mm.; Professor William Russell gives 105 to 115 (not above 120); Dr. Oliver puts it at 115 to 125.

Colonel Deane has drawn up a table for me the first part being taken from Janeway's book and the latter half from his own observations at Aldershot.

We have not as yet a uniform method of measuring the pressure, so that no complete comparison of these results can be made. Thus Janeway says: "The usual readings from Hill and Barnard's sphygmomanometer are neither diastolic nor systolic pressure, and cannot be compared with

anything so far as absolute values are concerned." Then, again, in the measurement of systolic pressures, the narrow armlet affords higher readings, amounting to as much as from 10 mm. to 25 mm.

Colonel Deane has taken his with a 12 cm. armlet, in a sitting posture, the band at the level of the heart. The pressure is raised above the point

	No. of Observation.	Age.	Range of Normal Blood-pressure (Systolic).	Method Employed.
Oliver ...	Not given ...	Adult ...	90 to 145 mm. ...	Not stated
Janeway ...	Not given ...	Adult ...	90 to 180 mm. ...	12 cm. armlet
Thayer ...	89 ...	20 to 30	Average 136.9 mm.	5 cm. armlet
Jellinek ...	533 soldiers...	Not given	80 to 185 mm. Majority 100 to 163 mm.	1.5 cm. ring Gartner's tonometer 5 cm. armlet
Henson ...	25 labourers ...	17 to 30	105 to 158 mm. (Average 137 mm.)	
Lieut.-Colonel H. E. Deane	164 soldiers ...	20 to 30	94 to 190 mm. (Average 128.3 mm.)	12 cm. armlet All the men were under gymnastic training at time of observation
	111 soldiers ...	20 to 30	90 to 146 mm. (Average 122.39 mm.)	
	83 soldiers ...	20 to 30	86 to 145 mm. (Average 114.54 mm.)	
	308		Average 124.7 mm.	
"	16 Army gymnastic instructors	25 to 38	107 to 158 mm. Average 129 mm.	

where the brachial pulsation is stopped, and the first full beat coming through is taken as the point of measurement of the systolic pressure. The men were going through the regular work of the gymnasium at the time, and the average of 308 was 124.7. One man gave 190. The question of error in observation of pathological conditions comes in.

Since the table was printed Colonel Deane has examined at my request some persons in ordinary civil life; and, taking twenty-one men engaged in bank work, aged from 16 to 59, found a range of blood-pressure from 126 to 200, ten being 130, the average being 141.7. This, as you see, is much above what he found among the soldiers.

It is generally said that the pressure rises with age, and after 50 the average is considerably above that of early maturity, varying from 130 mm. 145 mm., but it is still an open question whether there is any decided rise in healthy old age.

Colonel Deane has been examining some of the veterans at The Royal Hospital, Chelsea, and I have here the tracings with the blood pressure marked on them, and they vary from 130 to 200, some of them giving the true pipe-stem artery. Very old age is impossible with hard arteries and high blood-pressure.

During the day the blood-pressure is affected by various mental and physical states, which vary with the individual.

Here is a thirteen days chart in which a record of both blood-pressure and pulse-rate have been kept three or four times a day during the ordinary life of a healthy man, and it is surprising how little variation is

found, 115 to 140 being the limit, the pulse during the same time varying from 60 to 90, but no correspondence between the two can be seen. During a cold wind the highest point of blood-pressure was noticed, the pulse reaching maximum at 10 p.m. usually. Muscular work increases blood-pressure for a short time, but as a rule in subjects of good condition and training the arterial pressure is often found to be below the average normal pressure, whereas there is nothing so likely to send it up as a sedentary occupation with many hours' confinement to the house.

I have again made use of Colonel Deane in solving the question of the effect of exercise, but before referring to experiments on himself, I note that he has obtained for me a report on the master-at-arms at Aldershot, a perfect specimen of physical development and champion swordsman in the Army, 38 years of age, and his blood-pressure average was 110.

On December 1, 1907, Colonel Deane's blood-pressure was 120 before doing any exercise; immediately after some gymnastic exercises lasting for three-quarters of an hour it was 130 dropping rapidly to 98, and rapidly rising again to 110 when the observation ceased. This work was done before lunch; after lunch blood-pressure was 126. After travelling a long bridge ladder with bent arms—a very hard exercise, though short in time—it rose to 162, falling in about ten minutes to 130.

At 120 mm. is seen the abrupt increase in amplitude, which indicates systolic (or maximum) pressure. At 90 mm. the pulsation is still maximal, but at 80 it is much diminished; 90 mm. is therefore the diastolic (minimum) pressure. In the lower tracing after exercise the systolic pressure is raised to 135, and the diastole to 100.

Some experiments were made on myself to show the effect of amyl nitrite. With the Martin blood-pressure was 126. Three minutes from commencement of inhalation it was 104; it rose suddenly again in next two minutes to 130, fell as rapidly to 104, and an hour later was 116. This sudden fall and second rise has not been noticed before, and I think the rise corresponds to the general flushing that takes place, for the pulse is increased in frequency even before the flushing begins, and much lowered in tension. This was well shown in a sphygmographic tracing.

The Erlanger instrument shows the effect of amyl nitrite, with a range of pressure from 120 to 90. It also shows a rise to 130 mm., while one taken five minutes after the maximum pressure was at 105 mm.

Alcohol and tobacco are two interesting subjects in connection with blood-pressure that I shall not dwell upon to-night, but reserve for a future occasion.

PATHOLOGICAL LIMITS.

Pressures from 40 mm. to 400 mm. represent the extremes of tension recorded by reliable observers—the latter being in a case of cerebral hæmorrhage; but when we find a pressure regularly above 160 or below 90 it is time to inquire into the conditions which may be causing it.

Besides the physiological variations which have been mentioned, we find increased blood-pressure in gout and renal diseases. The causes of these we may consider together, viz., a high proportion of animal food, excess of alcoholic drink, inadequate exercise in the open air, want of perspiration and muscular tone and constipation, especially in a cold and damp climate like our own. As a result we have impurities in the blood causing resistance in the arteriocapillary networks and high pressure in the arteries. If this continues we have a change taking place in the muscular walls of the arteries exposed to the pressure, which become hypertrophied, and after a time the intima also becomes affected. We thus get arteriosclerosis developed, a term very loosely applied at present, as it is often used as if it was a separate disease, and can only properly be applied to the arterial changes. Arteriosclerosis is a general thickening of the vessels, and should be kept quite distinct from atheroma, which is a degeneration appearing in patches only.

In the study of blood-pressure many new names have been manufactured. Thus Dr. George Johnson, who was the first to describe the change in the tunica media, spoke of it as muscular hypertrophy. Savill, in 1897, called it hypermyotrophy. Clifford Allbutt, in 1894, described three kinds of arteriosclerosis, and for those with pre-eminently high pressure, the increase being permanent and morbid and not "senile" in character, gave the name of hyperpiosis. Russell, in his book just out, uses for a title "*Arterial Hypertonus, Sclerosis, and Blood-pressure;*" by hypertonus meaning increased tonicity of the vessel, by means of which the wall of the vessel becomes somewhat thicker, that its diameter is reduced and its lumen correspondingly diminished.

In uterine fibroids the circulatory changes are most marked, and it is curious how much they resemble the gouty conditions, in spite of the great loss of blood that so frequently takes place. There is at first increased blood-pressure, with marked hypertrophy of the heart, but there is more danger in these cases, in the later stages, from degeneration of the muscular walls.

Dr. Pardon has taken notes of some four cases in the hospital before and after operation, the pressure before operation varying from 140 to 160, and after operation 128 to 136.

Neurasthenia I shall not dwell upon to-night, but expect some information from Dr. Burford as the result of his sphygmographic tracings.

In heart disease when valvular trouble is compensated, with blood-pressure instruments—as with the sphygmograph—no special changes are found, but in aortic insufficiency we have as a distinctive feature a low diastolic and a relatively high systolic reading. The range of pulse pressure (*i.e.*, the difference between the maximum and minimum pressure of each pulsation) is always much above the normal. Oliver gives, for example, a case with a difference between the systolic and diastolic pressure of 90 mm., instead of the usual 25 mm. to 40 mm.

LOW BLOOD-PRESSURE OR HYPOTONUS.

I gave the lower limit of range of pressure at 90 mm., and Janeway considers that 70 mm. is very marked hypotonus. Low tension is found with chloroform, wasting diseases, fever, hæmorrhages, collapse in medical work and shock in surgical; and no more interesting subject can be taken up at the present time than the effect of saline injections.

I now come to the question of the comparison of sphygmographic tracings with the results obtained by these instruments in measuring blood-pressure. This has a personal interest for me, for, in 1895 I read before this Society a paper entitled, "Pulse Tension: its importance as an Early Indication of certain Chronic Diseases, and its Recognition by means of the Sphygmograph." This was followed two years later by an article in the *London Homœopathic Hospital Reports for 1897* on "Changes in circulation leading to breakdown in Middle Life." This was before the days of instruments such as you see before you, and I relied upon Dudgeon's sphygmograph to show the changes taking place in the circulation. Soon after Dudgeon brought out his sphygmograph, I remember his showing me a series of pulse tracings taken during the illness of John Bright with acute brouchitis. The temperature chart and these tracings seemed to give a complete history of this case, and it was easy to follow the progress from them.

In a case of acute nephritis in a boy aged 16, who was in the hospital under Dr. Blackley, the late Dr. Lambert took the three tracings which I show you here. The first one, taken on the ninth-day of the attack, shows well the contraction or hypertonus of the radial, the urine then containing abundance of albumin and tube casts. The next tracing was taken on the twelfth day, when, after hot air baths, there was only a trace of albumin present and the œdema had nearly disappeared; the next one, ten weeks later, when the boy was in a normal condition. These three tracings illustrate the progress of the case, and would have been complete if I could have given you the blood-pressure taken at the same time as the tracings, but at that time no instrument existed. In my first paper on "Pulse Tension" I gave tracings with short history of six cases, who were all living at the time. In these the sphygmograph gave evidence of high tension, and it is interesting now to refer to the history of them:—

Case 1.—A man, aged 63, died a few years afterwards of apoplexy.

Case 2.—A man, aged 50, is still alive, but has glycosuria and albuminuria.

Case 3.—A man, aged 48, died of heart failure two years ago.

Case 4.—A lady aged 48, who was suffering from gouty eczema and glycosuria, died three years ago of diabetes.

Case 5.—A lady, aged 47, similar to the last, but seen at an earlier period, has got quite well.

Case 6.—A lady, aged 48, at the menopause showed hypertrophy of heart, had hæmorrhages into the choroid and several attacks of un-

consciousness, called a few weeks ago to report herself and said she felt quite well.

The tracings of all these cases correspond, and the one shown may be taken as a specimen of them. My contention in the paper was that we had in these tracings an indication both of the danger and progress of the case; that unless the tensions could be reduced there could be only a fatal termination, and this happened in three out of the six, treatment in the others having been successful, more or less.

With evidence like this, in spite of what so many say about the use of the sphygmograph, my opinion is that it is of the greatest value in practice. It is quite true that it gives no idea of the amount of pressure, and in many cases may mislead one, as I will show you in a tracing presently; but besides showing any irregularity of the pulse, the sphygmograph gives some indications whether the pressure is maintained or not—thus in aortic regurgitations. In the tracing you have a complete diagram of the water hammer pulse, where pressure may be very high for an instant, but is not sustained, and hence there is all the greater danger when the arteries have lost this elasticity; and till we can get an instrument which gives the systolic and diastolic pressure with accuracy, the sphygmograph should not be laid aside.

To return to the question of actual measurements of blood-pressure, you may rightly ask that, while interesting, what bearing has it on actual practice, and how can it be made of practical use? As soon as Leonard Hill brought out his instrument, Dr. Maurice Craig, working among mental cases with it, showed the melancholia was associated with high pressure and acute mania with low pressure, and was able to adapt treatment to the two conditions.

Dr. Oliver, in his "Studies in Blood-pressure," says: "In pulmonary hæmorrhage the study of blood-pressure has taught the inadvisability of prescribing remedies which contract the splanchnic arterioles—such as adrenalin, ergot, digitalis, veratrine, &c., remedies like subcutaneous morphia, calcium chloride and the nitrites being given instead."

Marfan says (*British Medical Journal*, March 21, 1908): "In pulmonary tuberculosis blood-pressure is generally lowered; when one finds it normal or above normal one may foresee a favourable termination. To this rule there are few exceptions, and we may say that the estimation of the arterial pressure is one of the surest means of recognizing the curable forms of pulmonary phthisis. A lowering pressure is in most cases an unfavourable sign, but by no means always, as a low arterial pressure does not exclude the possibility of amelioration or even of a cure in the clinical sense of the word."

There is nothing in practice like being sure—it makes the management of patients a much easier thing, and the estimation of the systolic pressure in the following cases was a great help to me.

Case 1.—In June last I was consulted by a lady, aged 58, a friend, who came with her, having informed me privately that she was taking alcohol

in excess, and that it would be a great help to the family if I could frighten her. When I found her blood-pressure at 180 mm. it was easy to do this, and the moral effect of the instrument, with the fear of apoplexy before her, has resulted in a complete reformation, with a fall of blood-pressure to 150 when I saw her last.

Case 2.—Mrs. T., aged 55, is at present under treatment. The periods ceased four years ago, but since then she has had heavy mental strains. On February 17 last she complained of headache, being tired and nervous and some difficulty with speech; there was no albumin in the urine and she did not appear to be ill, and I was surprised to find her with a blood-pressure of 230 mm. A few days later she had a sudden attack of numbness and tingling in the lips on right side, followed by the same feeling in right hand and arm; her blood-pressure was then 238.

Fig. 3.—This is a slide showing the Erlanger tracing and also a sphygmographic tracing. The Erlanger shows blood-pressure from 220 to 100, but is not satisfactory, as there is no marked distinction where the maximum beats begin and end, and, though the sphygmographic tracing shows some tension, there is no evidence in it of such high pressure. I saw her a week ago, when Martiu gave her pressure as 212, and these symptoms had passed away, and I am hopeful that she may get quite over the trouble.

Professor Russell refers to the temporary cases of cerebral symptoms as being due to hypertonus of the cerebral vessels, corresponding to what we see in the systemic vessels, and I certainly think this is the explanation of this case.

Case.—Mr. R., aged 48, an American, sent to me by Dr. Grantham Hill, confessed to a hustling life, having made and lost several fortunes. In September, 1907, he woke up with giddiness and weakness in the left side; speech was affected and his face drawn up on the right side. He has improved gradually, but has not got back full power, some hemiplegia remaining.

When I examined him on March 11, I found the evidence of hypertrophied heart and general arteriosclerosis, the blood-pressure being 238 mm. A week later his pressure was 210 mm., with considerable improvement.

The Erlanger tracing was taken on the second occasion, and is a better one than obtained in the last case, where I think the small amplitude is due to hypertonus being more marked, with less hypertrophy of the heart. In this case I think there has been an actual hæmorrhage. The sphygmographic tracing resembles the last.

Case 4.—S., a soldier, Colonel Deane brought round to me; he was suffering from Bright's disease, bronchitis and asthma. His blood-pressure taken with the Martin was 194; the pulse tracing was interesting, and it looks typical of a low tension dicrotic, and evidently arises from a dilated

heart and shows that reliance cannot be placed upon the sphygmograph alone.

Janeway, at p. 195, says, "that in cases of nephritis, at any rate, loss of compensation is not invariably attended by a fall of pressure."

Case 5.—L.J., aged 74, was sent to me by Dr. Sandberg in July, 1907. He complained about constant uneasiness about the præcordia, with sharp shooting pains like a stab; the heart was much hypertrophied with heaving sounds and a systolic murmur at apex. He had a full bounding pulse, 32 per minute, and Martin's gave a blood-pressure of 290. This is the highest pressure that I have measured, and as it was evidently a case of heart block, which has been receiving so much attention of late, and is considered to be due to changes in the auriculoventricular band of fibres, Dr. Sandberg kindly arranged for him to return a week later, so that Colonel Deane and I could examine him together. This we did, and took tracing with an Erlanger, and Colonel Deane, with Mackenzie's polygraph, was able to demonstrate that the auricles were contracting twice to one beat of the ventricle. We gave him a long sitting, and, I am afraid, in an enthusiasm of investigation, forgot the interest of the patient, for a few days after he had a bad collapse, which he rightly, I think, put down to our examination. With such a high pressure, and the danger (which in some cases may be a real one) of suddenly shutting off the amount of blood which is contained in the forearm, apart from the time we took, the Erlanger may be a very painful process. Dr. Sandberg tells me that his patient died in November, four months after we saw him.

Champion club swinger; taken before and after swinging clubs for twelve hours. The tracing does not show any marked deviation of the blood-pressure from the normal.

We have not yet got a perfect instrument for the determination of blood-pressure. Erlanger's instrument gives the most definite results with regard to both systolic and diastolic pressure, but by the tracings shown it is easy to see that the points of limitation of where the systolic pressure begins and ends are not always accurately defined, and it is too elaborate to be used in general practice.

In Martin's modification of the Riva Rocci we have an instrument easily applied, and by which the pressure necessary to obliterate the blood-wave in the brachial artery can be accurately ascertained—though even here we cannot tell how much pressure is required for the arterial wall; but using it in any individual case we can observe any variation that takes place, and thus get useful information. In the short time that I have used it it has thrown light on many a doubtful case, and is a great help in telling of the progress made in lowering blood-pressure when it has reached a dangerous point.—The *Journal of the British Homœopathic Society*, July, 1908.

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