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

That alone is the right medicine which can remove disease:
He alone is the true physician who can restore health.
Charaka Sanhitá.

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EPIDEMIC ANÆMIA.

Serious doubt has been entertained by medical practitioners whether the form of epidemic dropsy which is recently occurring in Calcutta and its vicinity can be called beri-beri. Indeed, some of them are so much disposed to call it by that name that they seem to have settled the question. One glaring fact is that records show that beri-beri has occurred in India for a long time though not particularly observed in or near Calcutta. They assume, as the disease was known to have occurred in the southern presidencies, it is no wonder, that it has travelled up and spread to the uninfected parts of India by railway communication to Bengal. They apprehend that the disease came into this province after the Madras famine of 1877. The wonder is that no cases of like nature have been observed before that time, though famine occurred several times and in several places. Further, Madras was under the chronic pressure of famine in 1729, 1781, 1790, 1799, 1805, 1823, 1833, 1854, 1865, and 1877. Since that time famine has become endemic in India. Entertaining a hopeful view of their assertion, the utmost that can be said is that beri-beri has changed its appearance on account of the local influence and assumed the new appearance.

A parallel instance may be cited, that is with regard to *Bishuchika*. One party entertain the idea that Bishuchika of

ancient India having assumed a changed appearance has manifested itself as cholera. Another are firm in their belief that cholera has travelled from China by the way of commercial transport, where it was called by the French Mordoxienne de Chine, and has been referred to by the late Dr. Hunter in his History of India. However, it is not easy to settle the question. The probability lies on the latter assertion.

In the case of epidemic dropsy, the difficulty is to suppose the creation of a new disease, when it does not appear to have existed anywhere else and no records are known to support the view. The alternative would be to assert the metamorphosis of the disease in its new habitat under the pressure of surrounding influence.

Leaving the discussion undecided, we would call it Epidemic Anæmia instead of epidemic dropsy. The reason for this change is that anæmia is the chief character in all cases of the new disease and not dropsy. There may be slight anæmia with loose stools and œdema of the legs so as to avoid detection; but close observation will manifest the appearance of anæmia. In cases with organic heart diseases, dropsy may not be present but anæmia is a marked character. In functional derangements of the heart, dropsy may supervene after a short period. But in organic failures of the heart, death soon follows without the evidence of œdema of the legs. It may be said that œdema would have appeared had the sufferers been spared a short time more. Even taking that view of the fact, the principal character observable from the very first is anæmia and not dropsy. A case of organic heart disease without dropsy occurred in our family. For this reason, it would be proper to call the disease Epidemic Anæmia, until a suitable term is found deciding the question of so many contending views. In fact, more observation is necessary to have a precise name, as epidemic dropsy is a disease of recent occurrence.

The disease was first observed in Calcutta in 1878. In that year, it attacked a few families. The present writer with many others of the same house suffered from the disease. The

mortality was also high. Among our family of twenty-one persons, eighteen suffered from the disease of whom eight died, within three months. The disease was observed to appear in the month of November and we had to go away from Calcutta for a change in the beginning of February. It so happened that the change averted the death of others. The principal symptoms with us were anæmia, with œdema of the legs in most cases. In three cases there was slight peritoneal dropsy. The fever was a persisting symptom. One died of mitral regurgitation and from extreme anæmia without dropsical swelling. Another from sudden high fever and coma. The third had persistent bloody stools for nearly three weeks with six or seven evacuations in a day without dropsical swelling, but he was cured. A few paid the last debt of existence by fever, dropsy and sudden failure of the heart's action. Fever was a persisting symptom in all cases. This was the miserable, gruesome tale in our family in 1878. The fear of the neighbours was so much that they avoided to pass by the house. Friends could not hazard to peep in the house out of consternation of the disease and many deaths. We were as if paralysed by the havoc of the distressing malady. At last with great recuperation of energy, we broke away from the fetters of the disease and the house to fly to Bankipore and thought ourselves safe.

Since then a few cases have come under our observation in which fever was more or less absent. Reports reached of other severe attacks, now and then, from some part or other of Calcutta. Dr. McLeod's cases reported in the Indian Medical Gazette were mild attacks in comparison to those which have been observed by us. A description of the symptoms of the disease has been given by Dr. Satya Charan Mittra, which he observed in Howrah in 1907, in the Calcutta Medical Journal, January, 1908. Our observation and the record of cases force us to conclude that Epidemic Anæmia leading to dropsy is not beri-beri, as has been supposed by some. It is essentially a tropical disease, and having some symptoms allied to several other diseases of which malaria is a leading

type. Perhaps, the day is not distant when a microbe of the class of trypanosomata will be discovered, to give it a definite character. It is a curious fact that almost all trypanosomata have anæmia as the leading feature. Malarious trypanosoma comes within that range, as also the sleeping sickness of Africa. Beri-beri has not fully come within the survey of the modern microscope. Unless bacteriological difference is observed between them, no definite settlement can be made and a nebulous idea will remain.

Symptoms.

Head. Including the cases of fever, vertigo is generally present, attended with general debility. The intellect does not undergo any change. Memory remains as good as it was before. Headache, is present, but it is not a constant symptom. In some cases occipital headache is more marked than the frontal. In fever, headache may or may not appear.

Eyes. The eyes look dull on account of the increasing anæmia. This is at the commencement of the disease. The progress is generally slow, but sometime rapid attacks are observed, without any other premonitory symptom. Sunken eyes are marked when the disease has made some progress. Puffiness of the eye-lids is a rare occurrence.

Face. The sallow appearance of the face may be the beginning but remains undetected at first. As the disease slowly advances, the bad appearance becomes mostly manifest. The sunken eyes and the haggard face are in proportion to the early manifestation of diarrhœa which is a peculiar characteristic of the disease. Heaviness of the face sometimes occur. Bleeding from the gums and nose is a preliminary in few cases.

Stomach. Digestion is generally slow. During fever there is little thirst. The appetite is dull. A cup of barley or arrowroot water generally satisfies the patient. Vomiting of bile with frothy watery substance is sometimes observed. Milk generally disagrees. In cases without fever and with diarrhœa, rice increases the dropsical swelling, as it generally does

in other dropsical cases. Pain in the stomach on pressure is sometimes present.

Small Intestines. Borborygmus and rumbling are mostly observed. Pain is felt in some portion or other of the small intestines on pressure.

Liver or Spleen is not affected, except in those who suffered previously from malarious fever. Jaundice has never been observed.

Pancreas. In a few, on pressure over the region of the pancreas a dull pain is felt. *Enlarged mesenteric glands* are not observed.

Large Intestines. Sometimes there is pain in the region of the vermicular appendix. In the descending colon more or less pain is felt on presure. Rumbling is specially observed.

Stools. Diarrhœa is mostly present. Yellowish or yellowish green colour with mucus is the character of the evacuation. The number of stools are not more than six or eight in a day. In a few cases, hæmorrhage from the bowels forms the leading symptom. The stools are usually painless. When diarrhœa has been prolonged to ten or twelve days, haemorrhoids are felt in most cases. They cause pain and burning sensation. After recovery, the unpleasant sensation due to piles may last for a long time.

Heart. The cardiac troubles are rarely observed. Endocarditis may be present and at this stage many deaths ensue. Mitral regurgitation or any other form of organic lesion of the heart follows the endocarditis. In those cases where endocarditis appears, œdema of the lower extremities may come on to a slight extent. Palpitation on account of weakness is present as a rule. Dyspnœa on moving about or ascending stairs is generally observed. After every stool, on coming to bed, the patient is obliged to take rest for a short time to avoid the difficulty of breathing. The heart-sounds are generally weak, except in cases suffering from palpitation or bruit the sounds are loud. Functional murmurs are also observed.

Lungs are not involved; in some cases bronchitis may be present.

Kidneys. In most cases there is pain in the kidneys with or without pressure.

Urine. The secretion of urine is generally diminished. In almost all cases albumen has been detected. There may be excess of phosphate or oxalate of lime but their significance is not marked. The excretion of albumen forms a chief feature of the disease. Tube-casts have not been observed.

Upper Extremity. There may be slight swelling of the upper extremity. In a few cases the dorsal surface of the hand is more or less affected with œdematous swelling.

Lower Extremity. Oedematous swelling of the lower extremity forms a character of the disease. It commences from the dorsum of the feet and extends higher up to a portion of the abdomen. In some cases the external genital organs are severely involved. In a few, peritoneal dropsy of slight extent may be present. As in all anæmia, the œdema increases towards the last portion of the day. Though it is associated with the excretion of albumen, yet the fact does not hold so much importance as in other cases of albuminuria.

Much importance can not be attached to the patellar reflex, for it may be present or entirely absent.

Generalities. In mild cases, absence of fever is a general indication. In grave cases, fever is attended with enormous anasarca. In some cases, the insiduous nature of the disease can not be detected at first. In others, it runs a rapid course. Anæmia associated with diarrhœa is the most marked feature in the majority of cases. Doubt can be entertained whether any case of Epidemic Anæmia has been observed without diarrhœa and albuminous urine. Cases with heart-complication almost without œdema present the feature of loose evacuation and albuminous urine. Persistent œdema of the lower extremity is the general character in most cases.

Fever. In bad cases, fever of continued type with exacerbation is the leading symptom. Sudden coma and death may supervene

in these cases. In milder types, evening fever may be present. According to the nature of the epidemic influence, absence or presence of fever forms the marked symptom. It may be said that no two epidemics are alike. Our observation of cases from 1878 to 1907, extending over a period of thirty years has confirmed the view that Epidemic Anæmia is a peculiar disease which may be associated with fever or not. Anæmia is the chief indication of the disease. It leads to diarrhœa and œdema in most cases, and in others to complications which end in serious troubles of the heart. Even in heart-diseases, diarrhœa usually accompanies.

Skin. Pale appearance of the skin is a necessary consequence of anæmia. Oedema gives it a puffy appearance. Oozing out of serum sometimes takes place from the genitals when they are much swollen up. Red blotches with irregular stripes are generally observed in œdematous legs. They are seen when the œdema has lasted at least a week. These stripes are more observed on the front part of leg than on the back. The feet do not, as a rule, participate in this discolouration.

Prodrome. Like beri-beri the onset of the disease is generally slow but it may be sudden. Free use of rice or other kinds of injurious diet, as fruit, etc., have given rise to sudden aggravation, the disease having avoided detection before. Bath increases the œdema which then attracts the notice of the sufferer. When fever is associated, its sudden aggravation by dietary misuse may hasten the fatal end. Such instances have been observed. In cases with slow progress and without fever, the attention is drawn by diarrhœa and slight œdema. In cases with heart-mischief, dyspnœa and palpitation make the patient extremely weak and deter him from work. As the diarrhœa, fever or œdema increases, the gravity of the situation is then understood.

In 1907, in a family of twenty persons, thirteen were suddenly atacked with diarrhœa, vomiting, scanty micturition and slight œdema of the legs. The head of the family, an educated man, ascribed the cause to milk. The cow which belonged to him was kept in the house with proper care. He was advised by a friend to change the food of the cow from mustard-cake to

linseed-cake in order to increase the quantity of milk, the other things remained the same as before. A few days after the alteration of the cow's food, diarrhœa with œdema of the legs suddenly supervened. He also smelled a bad odour in the cow's milk which did not exist before. When we saw him during his first attack of diarrhœa, he said that he passed only one liquid evacuation of greenish-yellow colour, and vomited once, but that one stool and vomit prostrated him so much, that it was difficult for him to get out of bed. It should be said that he was a strong, hard working man, over fifty. The use of the milk of the cow was at once stopped. The other sufferers could not detect the cause of their disease, and consequently they had anæmia, scanty urine and œdema of the legs. They were all cured by a few doses of homœopathic medicines.

It can not be said that the linseed-cake was alone the cause. Perhaps some microbe coming in contact with the linseed-cake did so much mischief. It is a remarkable thing that the cow had diarrhœa after the use of the linseed-cake. The suggestive fact is that the new disease might have been originated in other cases from infected cow's milk.

Termination. Surely, these were mild cases. In grave form, the fever is generally associated. Effusion in the brain produces coma and death. The organic heart-disease is a serious mischief. The principal causes of death are increasing anæmia, diarrhœa, fever and serious heart-trouble. The proportion of mild cases is numerous in comparison to serious ones. This fact explains the curability of the disease in most instances.

Diagnosis. The differential diagnosis with other kinds of anæmia is manifest. Epidemic anæmia may be acute, or sub-acute. In the acute, the course is rapid. The anæmia almost begins with high fever with or without swelling of the legs. In the sub-acute, there is anæmia but fever may be absent. In a few days either dropsy or organic heart mischief sets in. Chronic course is seldom observed. Albumen with scanty urine is almost always present. Functional murmurs may be present in the two varieties.

In other kinds of anæmias, the high fever, organic heart diseases, and œdema of the legs are not regular characters as in epidemic anæmia. Albumen with scanty urine is generally absent in them. Oedema of the legs is a general feature of epidemic anæmia, whereas in other varieties it may be absent. Epidemic anæmia attacks many persons of the same house and a particular quarter seems to be affected. Other kinds of anæmias are neither epidemic nor local in their manifestation. As a rule a single person is attacked. Mild cases of epidemic anæmia associated with œdema of the legs recover by the administration of diuretics. It is not so with the other varieties. In epidemic anæmia, most cases are affected with diseases of the kidneys. The scanty urine with albumen is a leading feature. With other anæmias it is not so as a rule. Other anæmias lead a chronic course whereas the epidemic variety is almost without it.

Comparison with beri-beri. Now we have to look after beri-beri. Aitken in his Science and Practice of Medicine defines the disease thus: "A constitutional disease, expressed in the first instance by anæmia, and culminating in acute œdema. It is marked by stiffness of the limbs, numbness, and sometimes by paralysis of the lower extremities, oppressed breathing (anxietas in paroxysm), and a swollen and bloated countenance. The urine is secreted in diminished quantity. The œdema is general, not only throughout the connective tissue of the muscles, but throughout the connective tissue of solid and visceral organs in every cavity of the body. Effusion of serum into the serous cavities very generally precedes death."

To differentiate the above description with that of epidemic anæmia is not easy enough. There are confusing and misleading points which create great difficulty in their separation. Both of them commence with anæmia, though acute œdema is not always a character of epidemic anæmia. In epidemic anæmia, stiffness of the limbs, numbness and paralysis of the lower extremities do not exist; oppressed breathing may or may not be present, and bloated countenance is mostly absent.

Organic affection of the heart is generally absent in both. Though deficient secretion of urine is present in both the diseases, yet nothing is mentioned with regard to albumen in beri-beri. Oedema is not a constant symptom in epidemic anæmia, involving the connective tissue of muscles of the body. Endocarditis may be present in a few cases of epidemic anæmia but pericarditis has never been observed. Death in beri-beri is due to serous effusion in the cavities, whereas it is mostly absent in the other, excepting the brain. No case of death has been observed in epidemic anæmia from serous exudation in the pericardium.

Dr. Patrick Manson in his Tropical Diseases defines beri-beri thus: "Beri-beri is a specific form of multiple peripheral neuritis occurring endemically, or as an epidemic, in most tropical and sub-tropical climates and, also, under certain artificial conditions, in more temperate latitudes. The mortality is considerable, death usually depending on heart paresis."

Contrasting this with that of epidemic anæmia, the first and principal difference is that the latter does not belong to any form of multiple peripheral neuritis. The notable agreement among all authorities is the nervous character of beri-beri, whereas epidemic anæmia has no touch of it. The pathological nature of the two diseases is essentially different though some symptoms of resemblance exist.

With regard to the symptoms of beri-beri Dr. Aitken writes: "The majority of the phenomena which characterise the well-recorded cases of this disease are undoubtedly referable to *anæmia*, or to chlorosis, and by the Germans it is regarded as a variety of *pernicious progressive anæmia*. An impoverishment of the blood exists, with all the symptoms of serious anæmia. The debility and increasing prostration, the cold extremities, palpitation, dyspnœa on exertion, frequent, small, and quick pulse, the bruit ocasionally heard in the neck, the scanty urine, the torpid bowels, the deadly pallor of the tongue, all indicate a condition of anæmia (Evezard). The disease makes its advances in an insidious manner, as all forms of anæmia do, without any primary or well-marked train of symptoms; and

the indisposition appears to be comparatively slight which exists as a stage precursory to the visible invasion of the fully expressed disease (Wright, Evezard). The approach of the final and characteristic features of the disease appears to be very gradually brought about; a constitutional state or diathesis is gradually established, and a form of anæmia sets in, combined with the cachectic dropsy of Andral—a condition allied to that of chlorosis in the female (Evezard). Pains and formication of the lower extremities supervene, the limbs become stiff, and motor paralysis at last comes on. At the same time the lower limbs become anæsthetic; and the anæsthesia gradually spreads over the whole of the cutaneous region, coinciding with muscular hyperæsthesia. The patient finally has anasarca, and effusions take place in the serous cavities. The body temperature is low (97·8° F.). The affection is essentially chronic; sometimes there is an apparent amelioration of the symptoms."

Further on—

"(1). The *acute, severe,* or *inflammatory form* is generally the culmination of the constitutional and local phenomena in a first paroxysm. Numbness, paralysis, and œdema of the extremities are the leading symptoms, followed by dyspnœa and oppression at the *præcordia.* For a short time previous to any other obvious symptom, the patient, though robust-looking, may not have been able to exert himself in consequence of the partial loss of the use of the lower limbs. This rapidly increases, till he finds that there is inability to walk, accompanied with œdema of the extremities, which very soon passes into general anasarca, affecting the innermost recesses of the textures—if such an expression may be permitted. Febrile symptoms are associated with this acute anasarca. The skin is hot and dry, the urine is scanty and high coloured, the bowels are costive, and the stomach irritable. There are rapid and full pulsations of the large arteries, while the pulse may be variable at the extremities, accompanied generally with dyspnœa and symptoms of effusion within the chest. In other

cases there may be headache, restlessness, and delirium, with a slow and full pulse, indicating serous effusion and pressure on the brain. When the œdema is general, and becomes rapidly developed, the condition of blood is changed from its anæmic character. It becomes dark and ropy, resembling in some degree the appearance of the blood taken from a patient affected with cholera (Wright). (2). In the *second, asthænic* or *chronic* form of beri-beri, the patient is very often more or less worn out by some previous disease; or he may have had a previous acute attack, of which there may be a relapse; and it appears that men in whom the disease has once manifested itself are the more subject to future attacks (Christie), for it is found that one attack predisposes to another (Wright); and then the dropsical symptoms more generally resemble those observable after protracted fevers or other debilitating causes. Abdominal dropsy is most prevalent, accompanied with symptoms of general relaxation—a small and quick pulse, constipated bowels, scanty urine, loss of appetite, universal œdema, much pitting on pressure, and paralysis of the extremities. The heart partakes of the general debility. It is flabby, and the venous circulation becomes retarded. Soon, perhaps, it dilates, when a temporary bellows sound may be heard. After several such attacks and recoveries, the heart becomes thickened, and hence we have the *post-mortem* appearance of either a large and flabby heart, or of one eccentrically hypertrophied (Evezard). (3). In the *third* and *mildest form*, the patients are first attacked with some stiffness or rigidity of the legs and thighs, succeeded by numbness, slight œdema, and sometimes paralysis of the lower limbs. The œdema is in general limited, with slight pitting on pressure. There is no natural heat of the skin; the pulse is seldom above the natural standard; the urine is scanty; and the appetite unimpaired. There may be occasional palpitations of the heart, with costiveness, blanched conjunctivæ, flabbiness and paleness of the tongue, and whiteness underneath the nails. Although such patients generally say that they are well, they acknow-

ledge a slight feeling of numbness and coldness of the extremities—symptoms which would readily disappear under appropriate treatment; but after a close night, with either a fog or a shower of rain, such a patient would apply for medical aid in the morning, with a scared aspect, sighing breathing, violent palpitation of the heart, sometimes with a diffused impulse, pain in the præcordial region, and a variable fluttering pulse. In such cases there are also dyspeptic symptoms, with acid eructations and puffiness of the stomach. The scanty and high coloured urine has an acid reaction when voided, shows a specific gravity of from 1025 to 1040, and contains an excess of urea."

In these cases, acute attack may ensue and the patient may suddenly die in consequence of embolism.

The description given by Dr. Aitken essentially differs from that depicted by Dr. Manson. Dr. Manson divides beri-beri into three varieties 1. Paraplegic. 2. Dropsical. 3. Mixed, paraplegic and dropsical. According to Dr. Aitken, dropsy is present in the three varieties, acute, chronic and the mildest types. Dr. Manson sees no dropsy in the paraplegic cases. The œdema of the legs is entirely absent. For all the differences, we think it proper to insert the observations of Dr. Manson. He writes; "*Paraplegic cases.* On examining one of the paraplegic cases, it will be found that, besides paraplegia of greater or lesser degree, there is a certain amount of anæsthesia or of numbness of the skin; particularly of the skin over the front of the tibiæ, the dorsa of the feet, the sides of the thighs, perhaps also of the finger tips, and of one or two areas on the arms and trunk. The visitor may be struck with the thinness of the patient's calves, the flabby state of the gastrocnemii; and by the fact that if, whilst making the examination, he should handle these and the neighbouring muscles somewhat roughly, particularly if he should squeeze them against the underlying bones, the patient will call out in pain and try to drag the limb away. The thigh muscles, likewise, may be found to be similarly tender, and so may the thenar, the hypo-

thenar and the arm muscles; like the calf muscles, these two may be wasted and flabby. Very probably there is a loss of fat as well, the panniculus adiposus being every where very meagre..... As a rule, all deep reflexes are lost; but the superficial reflexes, unless in extreme conditions of paresis and muscular atrophy, are usually present and more or less active.

..... *The heart and circulation.* On inspection it may be remarked that the impulse is diffuse or is obscured by pericardial effusion; that there is epigastric pulsation; that the carotids throb too violently; that there is that peculiar wobbling, pulsating movement in the jugulars that denotes tricuspid insufficiency..... On auscultation loud bruits, usually systolic in rhythm, may be heard. Marked reduplication of the sounds, particularly of the second sound, is to be noted..... It will be judged, that in addition to peripheral neuritis, there is serious disease in the circulatory system, particularly in its innervation; that there is dilatation of the right side of the heart, and that there is a state of relaxed arterial tension."

"*Dropsical Cases.* Instead of being thin and wasted, as the last patient, his face is puffy and heavy; his lips, possibly, are slightly cyanosed; and his arms, hands, trunk, legs, and feet are distended with œdema. It may be thought from the appearance of the œdema that it is a case of acute nephritis, and an examination with this idea may be made of the scanty, dark-coloured urine. But this is found to be of high specific gravity, and to contain no albumen, or only a mere trace; so that the case cannot be one of acute Bright's disease..... Attention is now directed to the heart, and here a bruit is discovered, besides other evidences of dilatation of the organ and of arterial relaxation, just as in the first case..... Kneejerk is probably absent..... In this patient there are the same signs of peripheral neuritis and of dilatation of the heart as in the other case. In addition there is a somewhat firm œdema, which is not altogether cardiac, but, as its character and the circumstances in which it is found suggest, is probably connected partly with lesion of the nerves regulating urinary

excretion, and partly with the play of transudation and absorption in the nutrition of the connective tissue."

"*Mixed Paraplegic and Dropsical Cases.* There is œdema to some extent, particularly of the shins and feet, about the flanks, sacral region, and, very generally, over the sternum and root of the neck. There is numbness of thighs, there is some ataxia, there is muscular weakness and hyperaesthesia—particularly of leg and thigh muscles, there is absence of knee-jerks, there is cardiac bruit and there are signs of dilatation of the heart and relaxed arterial tension."

The three varieties of beri-beri presented by Dr. Manson have peculiarities of their own. They differ from the types described by Dr. Aitken. Dr. Manson's case of paraplegia has heart-complication without œdema. Paraplegia is the remarkable feature. The dropsical case has more œdema than the former but heart-troubles and paraplegia less. His mixed case may vary in proportion to the three principal characters.

In Epidemic Anæmia, paraplegia is altogether absent. Oedema is a marked indication. Heart-mischiefs are also rare. Relapses from beri-beri often occur. The same fact with regard to epidemic anæmia has not been observed. Beri-beri may run a chronic course. The new disease as a rule does not. For these reasons, it will be inaccurate to call epidemic anæmia or dropsy by the name of beri-beri. Dr. Waring has recorded the following facts with regard to beri-beri in the Indian Annals of Medical Science, Vol III, 1856 : 1. *Ratio of attacks.* Among the native troops of the Madras army from 1829-38 more Mussulmans were attacked than Hindus. In one regiment 12·5 per cent. were Mussulmans and 6·27 per cent. Hindus. In another regiment 21 per cent. were Mussulmans and 8 per cent. were Hindus. 2. *Mortality.* Mortality among European soldiers was above 26 per cent. and that among the sepoys nearly 14 per cent. 3. *Influence of seasons.* It was observed by Malcolmson in 1831, that in the rainy season and especially towards its close, the admissions with beri-beri were far more numerous than at any other period of the year. Most

attacks occurred from June to January. 4. *Epidemic occurrence.* Dr. Waring says: "The principal circumstance which marked the years 1833 and 1834 was a fearful famine which prevailed over the whole of the Southern India, when thousands died of starvation. This famine was caused by the total failure of the monsoon, or rainy season, and if we are inclined to suppose that these circumstances, namely, famine and drought, are sufficient to account for this sudden and mysterious appearance of the disease at Bellary and Cuddapah, we are at once met by the difficulty, that the failure of the monsoon, and the consequent famine was common over the whole of Southern India, and yet in no jail in Madras, hitherto exempt from its ravages, did the disease make its appearance." 5. *Paralysis more or less is the characteristic of beri-beri.* Out of 65 cases observed by Herklots in India, 60 had some kind of paralysis, œdema 40, tottering in walking 12, pain and soreness of the feet or hands 48, and numbness of the feet and hands in 57 cases. Serous effusion of some kind or other was present in 24 cases. Pericardium 4, pericardium and thorax 7, pericardium, thorax and abdominal cavity 6, brain and spinal canal 1, and brain alone 1. Comparing these cases with epidemic anæmia or dropsy, it will be observed that the latter has neither paralysis, nor numbness of feet. On the other hand, œdema of the legs is generally present. Effusion in either pericardium or thorax has never been observed. The sudden death from coma may be from the effusion in the brain.

(To be continued).

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

For the Month of January, 1908.

Date.	Barometer. (corrected.)	Wind.		Temperature.		Humidity.	Cloud.	Rainfall in inches of past 24 hours.
		Direction.	Velocity per hour in miles.	Maximum.	Minimum.		Proportion.	
1	30·106	N E	1·9	75·5	57·5	62	*Nil*	*Nil*
2	30·091	N E	2·0	75·2	56·5	72	"	"
3	30·095	N	2·6	74·0	56·2	59	"	"
4	30·133	N	2·1	72·2	56·0	69	4	"
5	30·169	N	1·0	74·8	55·8	70	5	"
6	30·139	N E	1·4	74·0	56·5	78	6	"
7	30·177	N E	1·5	73·6	57·6	66	*Nil*	"
8	30·179	E N E	2·1	75·0	56·8	61	"	"
9	30·161	E	1·7	75·2	56·0	57	"	"
10	30·145	Calm	1·0	75·2	57·0	73	"	"
11	30·116	E	1·0	77·0	58·0	86	2	"
12	30·067	N	3·2	78·8	62·0	95	10	0·47
13	30·044	E	3·4	67·8	63·0	95	8	0·17
14	30·067	E	3·3	69·8	60·0	91	*Nil*	0·12
15	30·108	N	3·8	71·5	57·0	85	"	*Nil*
16	30·108	N	3·7	70·0	56·5	85	"	"
17	30·108	N N W	4·3	72·0	53·5	87	"	"
18	30·115	N	4·6	69·8	51·0	90	"	"
19	30·076	N	3·7	70·0	52·0	83	"	"
20	30·052	N E	2·9	68·5	51·5	90	"	"
21	30·086	E N E	1·9	69·5	52·0	94	"	"
22	30·128	E	1·9	71·0	54·0	54	1	"
23	30.086	E	2·3	72·5	56·5	82	*Nil*	"
24	29·995	Calm	1·5	72·0	58·0	82	"	"
25	29·997	N	1·0	75·0	59·5	100	"	"
26	29·974	Calm	1·0	76·0	62·0	100	4	"
27	29·975	S	2·9	79·0	65·9	100	6	"
28	29·936	E	2·3	79·0	64·0	79	2	0·06
29	29·973	N E	3·1	79·0	60·5	86	*Nil*	*Nil*
30	29·910	Calm	1·5	74·0	58·0	80	"	"
31	29·861	E	1·9	76·5	59·5	89	3	"
Mean	30·070	E N E	2·3	73·7	57·4	81	2	TOTAL 0·82

Remarks: In the month of January, the mean atmospheric pressure was 30·070 inches. The mean direction of wind was

E. N. E., and its mean velocity was 2·3 miles per hour. The mean maximum temperature was 73·7 degrees and the mean minimum 57·4, shewing a difference of 16·3 degrees. The mean humidity was 81 per cent. The total rainfall came to 0·82 inches.

In comparison with December, there was further lowering of temperature. During December, the mean maximum had been 76·1 and the mean minimum 60·4, shewing a difference of 15·7. The mean humidity in December had been 74. In that respect the humidity in the month of January increased by 7 per cent.

In the week ending the 28th December, mortality from cholera came down to 40 from 119 in the week ending the 7th December. In the week ending the 4th January it was 49. In the week ending the 11th January it was 37. During the week ending the 18th January it was 27 and in the week ending the 25th January it was 23. It will be seen that there was a gradual fall of the mortality from the disease.

In the week ending the 28th December mortality from plague was 14. In the week ending the 4th January it was 14. In the week ending the 11th January it was 15. In the week ending the 18th January it was 13, and in the week ending the 25th January it was 16. On the whole the mortality from plague remained almost the same.

Mortality from small-pox shewed a slight excess during the month than that of December. The highest number of deaths was 16 during the week ending the 25th January. Otherwise the mortality never exceeded more than 8 in any week.

Deaths from fever during the month were on the increase. In the week ending the 28th December, the mortality came down to 147. In the week ending the 4th January it was 154. In the week ending the 11th January it was 162. In the week ending the 18th January it was 160, and in the week ending the 25th January it was 125.

Deaths from bowel complaints ranged from 79 to 100 in the month of January. It had been almost the same in the month of December.

In the four above mentioned weeks of January, the mortality was 681, 729, 628 and 615, making a total of 2,653 deaths. The ratio of deaths during the period was 40·65. In the month of December it had been 46·65.

EDITOR'S NOTES.

Gnaphalium Polycephalum.

The *North American Journal of Homœopathy* for January writes:

"On the intestinal mucosa and the cerebro-spinal system, producing neuralgic pains in the limbs. Its chief symptom is an acute pain in the sciatic nerve, sometimes with sensation of numbness on walking.

INDICATIONS—Sciatica. Chronic polyarticular rheumatism, especially of the great toe. Neuralgia of the upper jaw, intermittent, with occipital headache. Dysmenorrhea. Morning diarrhœa. Tuberosities in the skin of the face.

DILUTIONS—From tincture to the third."

Valeriana: a Drug Physiognomy.

The *North American Journal of Homœopathy* for January has the following:

"CHARACTERISTICS: Excessive nervous irritability. Hysteric temperament. Aggravation; from standing.

PAINS IN GENERAL: Tearing pains and twitching rheumatic pains here and there as from a quick pull, with drawing cramps appearing abruptly in various places. IN PARTICULAR; Headache, hemicrania. Frontal pain, at first in the right temple, tending to extend all over the head, with sharp, piercing pains in the eyes, with nocturnal agitation and bran-like sediment in the urine. Sensation of great cold in the head (vertex, sepia, veratrum). Sciatica, worse on standing or letting the feet rest on the floor (belladonna), on elevating the limbs when seeking a point of support; amelioration from walking, none from lying. Neuralgic pains in the toetips, as if ulcerated with sensation of cold air passing from sole to calf. Tearing, pulsative rheumatoid pain in the right calf on sitting. Sciatica of pregnant women. Pains in the heels when seated.

NERVOUS SYSTEM—Hypersensitivity of all senses. Great nervous irritability in general, with tremblings, cannot keep quiet. Individuals of changeable disposition in whom the intellectual faculties predominate. Mental confusion, responds incoherently (arnica, belladonna). Delirium, hallucination, sees figures, animals, men; thinks he is some one else who moves about the edge of the bed or in the room; thinks there are animals in bed with him trying to hurt him,

causing fear. Feels light, as if floating in the air (asarum, lac can.; as if legs floated, sticta).

EYES—Amblyopia; burning, smarting in the eyes as from smoke; with visual hallucinations such as half of the room appeared to be on fire.

EARS—Otalgia from draught or cold.

DIGESTIVE TRACT—Spasmodic constriction of the pharynx with sensation of a thread in the throat (on the tongue, natrum mur., silica); nausea, with desire to vomit. The attack is accompanied by weakness, pallid lips, cold body, and followed by vomiting of bile, and chills. Vomiting in infants, the milk in large curds (æthusa), after nursing, a mother suffering from anger.

ABDOMEN—Cramps and hysteric flatulence. Watery diarrhœa, with bits of curdled milk, expelled with screams, in infants. Intestinal spasms after meals and at night in bed.

RESPIRATORY TRACT—Suffocating cough when falling asleep. Spasmodic asthma with convulsive movements of the diaphragm.

GENITALIA—Menses delayed and infrequent (pulsatilla).

SKIN—Redness in certain regions, which then become pale (ferrum).

FEVER—Of the continued type, typhoidal. Short chill with thirst. Heat predominates, with thirst, profuse sweat, especially on the face.

RELATIONS—Compare; Asafetida, castoreum, crocus, ignatia, lac can., spigelia, sulphur."

Remedies in Shock and Trauma.

The *North American Journal of Homœopathy* for December, has the following important suggestions:

"In these conditions, having followed out indicated mechanical procedures, the homœopathic remedy takes first rank. Suppose we are called to a patient who, from some accident, lies unconscious, anæsthetic. No injection, for good luck, of caffein, strychnin, camphor oil or ether according to present fashions, is needed. The therapy must meet the exact indications and be individualized. Such cases may be divided into two great classes:

CLASS A. *Where the patient reacts not at all, or slowly and weakly.*

ARNICA. A most important remedy in cephalic injury accompanied by insensibility, loss of consciousness. When consciousness returns, the drug must be continued if the patient lies with the head

low, wants warm covering, if the whole body is cold except head and face which are not, if the pulse is slow and weak and if the patient fears approach of death. Aconite is alternated with arnica if fever be present.

CAMPHOR. Favors reaction; the skin is cold and clammy, the face and lips cold and blue; exhaustion is marked; diarrhœa is observed, also muscle-twitching, the pulse is weak, respiration slow; the patient lies in stupor, anxious.

GLONOIN. Skin cold, but not clammy, pulse slow and weak, reaction is taking place, but slowly.

CICUTA. Great lack of sensitivity; the cold face is deadly pale; hands, feet and legs are cold; the patient cannot swallow, and in spite of the great depression there is convulsion and sometimes delirium.

GELSEMIUM. Slow reaction, but the case remains stupefied, drowsy; he suffers from occipital pains, the irides are always dilated, the muscles of constriction and flexion are paralyzed.

LACHESIS. Apoplectic symptoms, the heart seems to stand still. The patient lies with lower limbs flexed on the body as much as possible; nose, ears, forehead and extremities are cold; he neither sees nor hears; pulse thread-like, nearly imperceptible; respiration labored; the stupor increases, with delirium and muttering, and a paralysis of of the left side may be noted.

LAUROCERASUS. The patient appears dead, pulse weak and slow, skin cold and bluish, respiration rattling, with sighing; there is trembling of the legs and involuntary stool.

CONIUM. Apoplectic symptoms. Tendency to collapse; dilated irides, pulse weak and slow. Delirium, trembling of legs, convulsions, limbs go to sleep, paralysis.

VIPERA. Pulse slow, weak and irregular, skin cold, with cold sweat, difficult deglutition, hemi- or monoplegia, vomiting delirium.

CLASS B. *The patient reacts violently.* Here we have four typical drugs:

ACONITUM. The patient cannot be quieted, all his senses are on edge, great unrest, wire-like pulse; he shivers if uncovered, swoons away when raised from the recumbent position; marked fever.

BELLADONNA. Red face, delirium, fever.

HYPERICUM. Face puffed, pulse rapid, respiration short; twitchings and shiverings through the whole body, he "shakes" with it; retention of urine, great nervous stupefaction, tonic cramp.

HYOSCYAMUS. Marked and rageful delirium in words and actions.

To this repertory may be added some indications particularly useful when the spinal cord is injured; also in two classes.

Class A. *The patient cannot walk.*

Hypericum. With great nervous depression, much vertebral sensitivity to touch, great pain from the least attempt at walking. Retention of urine with shivering and desire to uriuate.

Arnica. Spinal trauma with spinal hemorrhage; cold limbs, slow, weak pulse, nausea; partial paralysis with numbness of the limbs; pain worse from motion; symptoms better when the patient rests quietly.

Rhus. Paralysis due to spinal injury; extreme cold of hands and feet, muscle-twitchings, pain and numbness in the affected limbs.

Conium. Spinal trauma, paralyzed limbs feel asleep when trying to walk, or as if fettered about.

Cicuta. Paralysis with anesthesia, convulsive movements of the limbs, shivering with mental excitement and anxiousness, vesical irritability, constipation.

Class B. *The patient can walk, but the limbs are very weak.*

Sulphuric acid. Anuria. The weakness in back and lower limbs is so great that he cannot stand unsupported; violent pains in the limbs with tearing in the whole body; great pressure at the neck of the bladder, with anuria.

Hepar. Cannot retain urine. Weak limbs with nervous depression, chills running from above downwards; very excited and irritable; vesical weakness".

In the first class of cases with imperfect reaction *Symphytum* should be added. It acts like Arnica, but the pains are distressing on account of the fracture.

Cobra is indicated in traumatic lesion when the respiratory centre is affected on account of the fracture of the base of the skull.

Phosphorus is suitable to severe vomiting in cases of injury of the brain, when the liquid is ejected after a short time and not instantly.

Taking into consideration the nature of the injury, with or without hæmorrhage, many medicines are serviceable according to their characteristic symptoms.

Polygonum Punctatum.

The *New England Medical Gazette* for January has the following note:

"Polygonum, smartwood, or arse-smart (arse is the good old Saxon equivalent of anus, and is found in the classic productions of Dean Swift *et alcia, q. v.*) is well reputed in domestic or country practice as a local application in internal inflammations, and has the rubefacient effect of a mustard plaster. It is also used locally in sprains, bruises, chronic erysipelatous inflammations and pruritus ani (whence its Saxon name.)

Its pathogeny presents several excellent clinical pictures, and before proceeding further we may note its predominant aggravation from cold and damp.

For example, acute cold in the head: burning in the eyeballs; dry sensation in the lids; inflammation of the edges of the lids. Inflammation and smarting, raw feeling in the Schneiderian membrane; tickling in the nose; frequent sneezing; red, inflamed nostrils, with swollen sensation; feeling of congestion through nose and eyes. Continuing down the respiratory tract, we find the throat dry, hot, burning, with sensation of excoriation; the glands feel swollen; there is aggravation from cold or moist air; contracted feeling in the throat after swallowing, followed by thirst. In the larynx there is a stifling sensation; laryngeal constriction; crowding and pressure about the larynx, with bronchial irritation; roughness as from mucous adherent to the larynx, producing a spasmodic hacking and hoarseness. The hacking cough is worse from changes of temperature, and there is a dry cough at night excited by tickling, prickling-tingling behind the sternum; dry sensation in the larynx when coughing. All these symptoms are worse in cold, damp weather, which starts most coryzas, laryngitis and bronchitis.

Then there is a clinical picture of acute nephritis and cystitis from cold foreshadowed in the pathogeny. A febrile state of alternate chills and heat; aching in the loins with pain about the left hip joint; tearing and drawing in the loins on exposure to cold, followed by lameness and soreness (muscular?), or pain in back, lower extremities, acute or drawing, as if constricting the hips. Here again we observe the aggravation from cold.

Gastritis and enteritis are also represented: Great thirst for cold water which excites nausea; nausea—as if proceeding from the small intestines, with coldness in the abdomen; burning in the stomach;

cold sensation in the stomach; pressure of clothes causes distress and there is pain on pressure followed by throbbing and distress; uneasiness in stomach and abdomen; burning heat in stomach and bowels; tympanitis, flatulent colic; cutting, lancinating griping pain in the abdomen with great rumbling, rolling upwards, causing nausea, vomiting, and a violent expulsion of liquid fæces; pain in the hypogastrium, rectum and anus. Diarrhœa is predominant, but may alternate with constipation. Straining at stool; the stool may be mucous and jelly-like, or fecal yellow-green or dark, hard lumpy. Urging with much fetid flatus; tenesmus. The rectum is studded with itching eminences—itching, burning piles. Pruritus ani.

In the limbs we note: Distension of the blood-vessels in hands and feet, and this brings us to the stimulative purpose—clinical—which we had in view. In a recent issue of the Annales de Medicina Homœopathica of Brazil, Dr. Diaz de Cruz says: "The chief object of the present writing is to emphasize a piece of information got in a conversation with Dr. Murtinho, not deducible from the pathogenesis of the plant nor found in Clarke's Dictionary of Materia Medica. Dr. Murtinho said that an old sailor had his entire body, exclusive of the trunk, covered with varices of many years' duration. The ancient mariner, who was an enthusiastic partisan of homœopathy, inquired if there was any remedy that could modify the condition; the doctor, with the honest sincerity of man of science, replied that there was little hope in a condition so chronic and extensive; his patient, however, insisted, and the physician though never having read of the virtues of Polygonum in varices, prescribed the remedy, under whose prolonged use the trouble vanished.

Hence to Pulsatilla, Hamamelis and Fluoric acid, the chief drugs in varicosis, should be added Polygonum.

Following out the same line of "varicosis" reasoning, Dr. Murtinho used Polygonum 5 in a case of piles with such success that he frequently prescribed it, abundant hæmorrhage being an indication. The writer also used it in the case of a multipara subject to frequent metrorrhages not yielding to the usual remedies, remembering that the gynecologists often attribute this condition to uterine varices. Polygonum 1 was given, a drop every two hours. The relief was prompt and complete."

CLINICAL RECORD.

Indian.

A CASE OF ERYSIPELAS.

By Dr. Prasanna Lal Kumar, L.M.S.

About the middle of November last, I was called to see a Hindu baby three months old. It was a well developed male child. He had been suffering from fever for two days and his temperature was 102° F. in the morning when I saw him. He had a swelling in the right axilla and the swollen part was red and hard. Bell. 3x was prescribed and it was continued for two days. I again saw the child on the third day. The swelling had shifted from the axilla to the deltoid muscle of the right arm. It was still hard but a little less red. The temperature now ranged between 102° in the morning and 103° in the evening. The urine was very scanty. Apis 6x was prescribed. Two days after when I saw the child again the temperature was 104° in the evening. The swelling now spread over the whole of the right scapular region from the deltoid muscle downwards, the part was hard and of a pinkish red colour. He could not move his right hand and was crying piteously. I was informed that he had been throwing up the mother's milk soon after nursing, and at night he had frequent attacks of dyspnoea.

The erratic nature of the inflammation and the colour suggested to my mind Puls., which was prescribed. It reduced the swelling within 24 hours and the child became quieter. The temperature gradually came down and in four or five days the child became all right.

Foreign.

AN INTERESTING CASE OF ECHINACEA.

My young son Ulrich, one year old, had been vaccinated in September, 1903. Immediately after vaccination he was given *Thuja* 8. D. Nevertheless after three weeks his whole arm was inflamed. The child had severe fever all night (39·5), owing to which I gave him *Aconite* and *Arnica*, after which the fever went back somewhat. In the morning the whole arm was bluish red and it could be seen that pus had already formed; to accelerate this formation I gave him *Hepar sulph.* 4. D. every two hours. Next morning after a restless night pus was discharged. During the day the child was

more free from pain, but next day the fever was higher again. There was much discharge where it had broken open and it looked as if another place was also to break open. The whole arm was red and hard as stone. Now I gave him *Echinacea* tincture, two drops every two hours. At the same time I put on it compresses of *Echinacea* (twelve drops in half a cup of water). By afternoon already the child became more quiet and in the evening a diminution of the inflammation was noticeable. In two days the wound ceased to discharge pus and nothing remained of the inflammation but a hard spot on the arm, and also this disappeared in about a week, during which he had received *Echinacea* twice a day; at the same time the glandular swellings on the neck and the throat which had formed after vaccination, disappeared, so that the child was quite well again in two weeks.—*Homœopathic Recorder*, December 15, 1907.

CLINICAL CASES.

By J. Roberson Day, M.D. (Lond.).

Enuresis.

Jenny L., age 13, has had nocturnal enuresis for eighteen months with very strong-smelling ammoniacal urine. Been attending St. Peter's Hospital for twelve months, where she obtained no benefit.

She was a tall, fair, nervous girl with no definite physical signs except a post-nasal catarrh. *Puls.* 3x was prescribed. This was attended with some success, for she had no enuresis for five nights. The enuresis was chiefly in the first part of the night. *Sepia* 6 was then given, with no benefit, and subsequently Bell. 1x. On one occasion the mother told me she slept so heavily, it was quite impossible to wake her—"takes five minutes to wake her." In this heavy sleep the enuresis occurred.

This was a valuable hint for treatment, and I prescribed *Op.* 12.

The next report was enuresis occurred only twice in a week, and on the last visit her mother told me she had only had enuresis five times in a month, and she does not sleep nearly so heavily, and that this medicine had done her more good than anything.

Tubercular Disease of Pelvis and Discharging Sinuses.

Catherine H., age 6, came to me June 15, 1905. She had been under treatment at the Hospital for Sick Children (where she was twice operated on) since August, 1904.

When first seen she had a large scar in the left groin, which was the mark of the operation, and part of it remained open and discharging. There was also induration in the left ischio-rectal fossa, where an abscess was discharging, The spine was straight, and these sinuses led down a long way, as shown by the probe, towards the ilium, which was probably the seat of the trouble. The child was quite unable to walk, and as further operative interference had been proposed, the mother decided to try homœopathy.

I prescribed *Silica* 12 and *Tub.* 30. weekly.

The sinuses continued to discharge, but the general health of the patient greatly improved. On July 27th I gave *Calc. fluor.* 30.

She continued steadily under treatment, and in January, 1906, was so much better, as her mother said, "not like the same child." There were still three sinuses discharging in the gluteal region.

About two months previously she began to walk again, not having walked since July, 1904.

The sinuses continued to discharge, though in less quantity, and the one in the groin has healed up completely. *Calc. fluor.* 30 and *Tub.* 30 weekly were continued.

October 18, 1906.—She was exceedingly well, only having occasional discharge from the sinuses.

When last seen, October 21st, 1907, she was walking about to all intents and purposes a healthy child; occasionally there is slight watery discharge from the sinus, which opens and closes from time to time. She is still taking *Silica* and *Tub.* 30, but is practically cured.

Cervical Caries.

Annie L., age 10, a bright girl with florid complexion and dark hair, came to me on July 4, 1904. She had been attending a dispensary for ten months previously, where she got progressively worse.

Her illness began with severe pains in the neck. I found there was a distinct enlargement to the left of the cervical spine, and the movements of the head in rotation to left and right were both restricted and painful. I prescribed *Silica* 30 *ter die* and *Tub.* 30 weekly, and ordered a poroplastic splint to give rest and support the neck.

She at once improved and lost all pain. This treatment was steadily continued, the *Tub.* being varied in dilution to 200 occasionally, and *Calc. phos.* 30 and *Calc. fluor.* 12 given as intercurrent remedies.

In April of 1906 I ordered the splint to be left off gradually—for three hours at a time daily.

On July 13th my note was: "She has now worn the splint for two years, and the spine appears perfectly healed. There is no pain and no deformity." The splint was now finally left off.

She has continued under observation ever since, taking occasional doses of *Tub.* 30. I saw her again to-day—November 8, 1907—looking the picture of health. She has no pain, and can move the head freely. She says if anything startles her it makes the neck throb. There is no deformity and only a slight thickening can be felt over the cervical spines. She is now returning to school.

TUBERCULAR DISEASE OF BONES OF HAND AND FEET.

Winifred B., age 17 months, was the second child in the family. The first child had died at six weeks old from wasting—the father was delicate. She was brought to me July 20, 1905. She was a very delicate, bottle-fed child, and for five months had been attending the Tottenham Hospital every day, where "they kept on operating but gave no medicine." The second finger of the left hand had been removed, and there were two sinuses leading down to the fourth metacarpal bone, which was diseased. There was also a tubercular nodule on the outer aspect of the right foot. *Silica* 12 *ter die* and *Tub.* 30 weekly were given.

By September 21st she was very much better; the nodule on the right foot had disappeared and only the sinus on the left hand remained, which appeared much better, and generally she was greatly improved. On November 9th she was attacked with griping, offensive diarrhœa, which so often occurs in these tubercular children, and *Calc. ars.* 6, three hours, was now given, *Tub.* 30 being continued in weekly doses. This was changed to the *Fluoride of Calc.* 30 on November 17th, and by December 15th she was very much better and more lively. The following March, 1906, *Silica* 30 was again prescribed, and shortly after her mother reported she was "in the best of health." She was trying to walk, and the foot continued quite well, although the sinus in the hand continued to discharge.

On October 12th the discharge ceased. For six weeks she had no medicine, and in January, 1907, she came again with a slight return of discharge. A further course of *Silica* 30 and *Tub.* 30 was given, and there has been no return of this discharge. The sinuses are perfectly healed, and the constitution of the child has immensely improved—in fact, she appears quite well, although a

delicate child, bearing the scar of the amputated finger, the results of the Tottenham Hospital treatment.

Headache Cured by *Opium*.

Harold H., aged 6½, came to me November 9, 1906, for headaches which begin in the morning; he was very heavy and dull, and, to use his mother's expression, would sleep for days." The bowels were confined, his skin was dark and perspiring, he was thin, and had a morning cough. The sleep was disturbed by dreams. I gave *Opium* 12 *ter die*.

December 18th.—He was very much better in every way, and had only had one headache since attending. His mother told me he had derived more benefit from this treatment than any other, and "he had been under lots of doctors."

By February 1st he was quite well, of a better colour, sleeping naturally without dreams, and his bowels acted naturally. Every one noticed the change in him.

Urticaria.

Ros. P., aged 2¾. An anæmic, flabby child, with an enormous rickety head measuring 21½ inches in circumference; was constantly troubled with an urticarial rash, which prevented sleep from the extreme irritation.

On one occasion his mother brought him to me in great distress; the rash was so bad that his nights had been very disturbed; there had been no sleep for him or his parents. Itching spots appeared, which quickly became vesicles, varying in size from that of a pin's head to a split pea or even a Barcelona nut.

I prescribed *Rhus tox. 3*, two hours. The effect was magical. To use the mother's words "this medicine worked marvels with the irritation; no new spots have appeared since taking it. He is sleeping well, waking only once in the night or not at all."

Constipation, &c.

Joseph, L., aged 67. Was recommended to me by a patient who had suffered in a smaller way and been cured. He came on March 9, 1907. Had been ill six to seven years on and off. He had a loathing for food, was very constipated, and always had to take aperients. His heart troubled him with palpitations and flushes. The nights were worse than the days, waking up every hour. Headaches were constant. His disposition has completely changed; from being always optimistic he had become pessimistic; so great was his depression that when staying at Bournemouth, whither he

had been sent by his medical adviser, he even consulted the railway time-tables to ascertain the cost of conveying a corpse to London. He had always lived a temperate life, was married, and had one daughter aged 44.

He consulted Dr. F.; had taken *Hydrochloric acid*, *Bismuth*, and purgatives. Had been put on a milk diet—five pints a day.

Physical examination: The abdomen was much distended with flatus, which rolled about him. There was no pain or tenderness or abnormal signs. The saliva was acid in reaction. The heart sounds were clear, but its action was disturbed by the flatulence.

I prescribed *Lycopod.* 12 *ter die* and enemata, if necessary, instead of purgatives.

I examined the urine and found it loaded with amorphous urates, but no sugar or albumen.

March 20*th.*—I changed prescription to *Nux. v.* 30, and *hydrastis* ϕ. ɱv. every morning.

April 8*th.*—He was sleeping better and reaction of saliva nearly neutral.

I now gave *Nux v.* 12 and *Graph.* 12.

April 22*nd.*—He was sleeping well. In May he had no discomfort after food, and was sleeping very well, and his "nerves" were much better.

June 4*th.*—Expressed himself feeling well, and able to attend to business without fatigue.

July 15*th*—Saw him for the last time perfectly well.

These successes in practice are always most welcome and gratifying; they keep alive our *faith* in our methods of prescribing as first enunciated by the immortal Hahnemann, and which with every succeeding year grows deeper with similar and repeated experiences.

These experiences I hold in common with you all, and I fancy I can hear you capping each case as I have related it with one of your own more brilliant one.—The *Homeopathic World*, January 1, 1908.

ARTEMISIA ABROTANUM FOR PARALYSIS.

By A. M. Cushing, M. D. Springfield, Mass.

When I made a proving of *Artemisia abrotanum* some 35 years ago it produced threatening symptoms of paralysis, even caused me to drop the reins when driving (and I usually drove horses that called for considerable attention); but for various reasons neglected the remedy. A case. A lady of about 65 (in whose family more than

one had died from "shock," but I never could learn particulars) had been troubled with neuralgic pains in left foot. Some six months ago the right ankle became limp, tipped over if she stepped on it and the toe dropped, and she had to use both hands to move the limb, with pain in upper portion of the sciatic nerve. I tried to keep the toes and foot in place by plasters and braces, prescribed remedies with no help. Then strychnia and electricity were tried with no benefit. Two months ago I prescribed *Artemisia abrotanum* 30x. Now the ankle is weak but she walks around the house with a cane and is not troubled with pain..—*Homœopathic Recorder*, December 15, 1907.

A FEW CASES OF ARTERIO-SCLEROSIS.

By Dr. Granow Frnkfurt, A. M.

From a lengthy and very interesting ariticle on this subject we excerpt the following as most suitable for our columns:

We will now consider what can be done with this disease after it has developed. I am sorry to have to confess that there is really no remedy against it. Nevertheless the remedies at the disposal of the homœopath are far better and less harmful than those used by allopaths. While the latter have nothing else but *Iodide of Potassium*, *Digitalis*, *Morphine* and *Opium*, there are quite a number of homœopathic remedies which often develop a surprising action. I will illustrate this with some cases from my practice:

I. In October, 1905, I was called at night to an army officer of high rank, who had retired from service. As soon as I came near his room, I heard his groaning and calls for help. I found an old gentleman, sitting rather than reclining in an invalid chair, and panting for air. He continually begged me to take away the pressure from his heart as else he would have to suffocate; that it was terrible. His skin and his whole body were cold and covered with clammy perspiration. I prescribed hot baths with mustard for his hands and feet, and made warm compresses for his heart and his head. Internally I gave him *Camphora* 3. and *Atropinum* 5., in alternation every five minutes. Soon an improvement set in. In the course of two hours he was warm again and gratefully pressed my hand. The action of the heart had again become normal. Later on he received with benefit *Cactus* 1. I may here add that the officer had received five large bottles of *Iodide of Potassium* from an allopathic colleague; but they had not proven of any use.

II. The second case is that of a lady of advanced age; I treated her for five years. She often had attacks of stenocardia, which I always combatted effectively with *Coffea*, and this because my patient even while in great distress was mentally very active and heard voices out of former times, showing great vivacity and living much in her memory. The after effects of these attacks were effectively treated with *Nux vom.*

III. The third case is that of a cabinet-maker, who was also my patient for a length of time. He never was a drinker, nor could he live in luxury, because he had to care for a large family. He has always been obliged to work hard and continuously without being able to take any vacations. His attacks always commenced with burning on the chest, which I successfully combatted with *Ars. album* 5. But often I had to combine with this *Apis* 3., especially when brain symptoms showed themselves. Once I succeeded in totally aborting the attack with *Tabacum* 3.

I will now yet briefly mention the application of water. In arterio-sclerosis we may use with advantage partial ablutions, rain-water of varying temperatures, wrapping the body with a wet sheet, compresses around the calves, rubbing with a wet towel and douches on the back. But we can give no general rule for such applications, but this must be determined by each individual cases. Baths in carbonated water, followed with a massage of the whole body, also prove useful. A patient who suffers from arterio-sclerosis should never drink more than three pints of water.

In conclusion, we would say that a patient should lead a very moderate life, avoid the excessive use of alcohol and be moderate in eating.—*Homœopathic Recorder*, December 15, 1907.

Gleanings from Contemporary Literature.

THE DIAGNOSIS OF SMALL-POX.

By A. E. THOMAS, M.D., D.P.H.,
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The existing lull in the incidence of small-pox affords an appropriate occasion for considering anew its clinical complex and diagnosis, and for recording, and possibly fixing, the lessons learnt during the recent epidemics. The opinions which follow are based on a large number of cases. When new they are tentatively advanced to promote discussion—they are not necessarily meant to stand as permanent ineradicable landmarks. It is proposed to take first the various signs and symptoms in order, emphasizing those points upon which further information is sought.

Incubation Period.—This is generally given as from ten to twelve days, and oftenest twelve; but may be as short as six days, and as long as twenty.

Invasion Period.—The signs and symptoms of the invasion period are, to my mind, always well marked, even in mild cases, and in those rare examples of the disease when the closest scrutiny fails to detect the presence of the distinctive rash. They are in part or whole always present. Text books, it is true, describe the invasion period as one which may be attended with little or no discomfort, and may even pass unobserved. I have never met with this type of the disease.

The earliest sign is generally a chill, a rigor, or, in children, a convulsion. Following this there may be:—

1. Fever rising rapidly—possibly to 103° F., or higher, on the first day, with the usual febrile concomitants.

2. Headache—generally intense, frequently frontal and very early; it may even precede the chill.

3. Pain in the back and loins—usually severe and persistent, and present in nearly 75 per cent of the cases. This is of special diagnostic importance, not because it is characteristic of small-pox, but because it is so infrequent in other actute infectious diseases. In small-pox, then, it is very common, it is severe and persists. In hæmorrhagic small-pox it may be extremely intense.

4. Vomiting, with or without epigastric pain or tenderness—this may be extremely severe and intractable in hæmorrhagic cases.

5. Vertigo—which may be early, and is chiefly felt when sitting up or getting up from the dorsal position.

6. General aches and pains, chiefly in the knees and legs.

7. Muscular weakness and soreness.

8. Uterine irregularities—premature menstruation, and in pregnant women premature delivery and abortion.

9. Prodromal rashes.

The initial signs and symptoms are no criterion of the severity of the impending attack; they may be most severe, and yet the subsequent course of the disease prove mild and trivial.

Given, then, the presence of an epidemic of small-pox, the history of exposure to the infection ten or twelve days—preferably twelve days—

earlier, a contact which develops severe persistent headache and backache, combined or separately, and early high temperature, should be at once isolated or removed to a shelter for further observation. The shelter accommodation may be provided by a local authority under Section 15 of the Infectious Disease Prevention Act, 1890. During the invasion stage, and before the appearance of the prodromal rashes, the diagnosis has to be made from :—

1. Other infectious diseases having an acute onset, e.g., measles, scarlatina, typhus, influenza, and depends primarily upon (a) Presence of an epidemic ; (b) History of exposure with the appropriate incubation period. (a) and (b) in all cases.

In the case of the diseases indicated below, the following points should be considered ;—

Scarlatina, with rash absent or missed.—Condition of tongue, cervical lymph glands, tonsils, nose discharge, injection of soft palate (exanthem), circum-oral pallor, history of vomiting and sore throat. Backache absent or slight.

Measles.—Coryza, photophobia, lachrymation, Koplik's spots. Backache absent or slight.

Small-pox.—Headache and backache intense and unremitting. Vomiting may be present.

Typhus.—Backache not very pronounced. Headache intense, and very often associated with painful and tender eyeballs. Facial characteristic : face rather dark red, conjunctivæ, injected eyes look heavy, expression dull and apathetic. Great and early muscular weakness. Vomiting uncommon.

Enteric Fever.—Although this has not an acute onset, many cases are, when small-pox is rife, notified as small-pox. Attention should be paid to (a) Gradual rise of temperature at onset—step ascent on chart ; (b) Early epistaxis or deafness not uncommon ; (c) Widal reaction—this may be absent ; (d) Tympanitis ; (e) Condition of tongue, spleen, stools.

Chicken-Pox.—Complete absence of prodromal illness save in adults, when this stage may be moderately severe. Rise of temperature, if present, and the appearance of the rash almost simultaneous.

Influenza.—Here the diagnosis may be impossible until the time interval for the appearance of the rash has passed. The muscular soreness and prostration are both generally much more exalted in influenza than in small-pox. The history of exposure and the presence of an epidemic are of special importance here. The bacillus may sometime be isolated from the sputum.

Meningitis.—The history, with the presence of a possible cause, e.g., suppuration of the middle ear, or tuberculous focus in a lung, is important. The subsequent course, with the attending palsies, generally soon clear up the issue. Backache is uncommon.

Cerebro-spinal Meningitis.—Retraction of the head. Rigidity of the neck muscles. Kernig's sign. Possible presence of the bacilus in the nasal discharge or in the fluid obtained by lumbar puncture.

Cerebral tumour. Acute nephritis. Acute rheumatism. Acute gastritis. Lumbago. Anæmia. Eye-strain.

In this last series, all of which have during epidemic prevalence been mistaken for small-pox, the diagnosis may usually be easily made by attending to the usual text-book descriptions. Thus, in eye-strain, which may be attended with intense headache, the temperature is not raised,

there is no backache or vomiting, and the headache, usually supratrochlear or occipital, is induced by work or reading, and remits in twenty-four if the cause is removed, to return again when work or reading is resumed. There is the history, too, of many previous attacks over a prolonged period.

During the stress of an epidemic, it is not at all uncommon to get any ailment which is associated with headache or backache, even when chronic and in existence for years, suspected of being small-pox and presented for diagnosis. The number of these causes, which may be found in any text-book on diseases of women, precludes their adequate discussion in this paper.

Initial Rashes.—These generally appear on second day of the fever and may be erythematous or petechial, or both. The first kind often disappears within forty-eight hours, and may resemble measles or scarlet fever.

The *morbilliform variety* is very irregular in distribution, is flat not elevated very ephemeral, and does not exhibit the systematic invasion of the body from forehead to feet shown by measles proper. It may be generalized at the outset, or restricted to certain areas. It is commoner than the other kind, and more frequently ushers in attacks of varioloid.

Scarlatiniform Prodromal Rash.—The distribution of this, though often irregular, resembles that of scarlet fever. It may, however, be confined to certain areas, such as the trunk, thighs, groins, or extensor surface of the legs. It is frequently associated with petechiæ.

Hæmorrhagic Rashes (Prodromal). These, as Simon has shown, are often localized to certain fairly well-defined sites—the lower abdomen, the groins, the inner surfaces of the thighs, the genital regions, the axillæ, and the sides of the thorax. They usually, but not always, indicate that the succeeding attack will be severe. These rashes may or may not be associated with one or other of the two prodromal rashes already described. The diagnosis has to be made from :—

1. *Measles.*—It does not yet seem to be sufficiently recognized in text-books that measles may be preceded by three types of prodromal rash : (a) Scarlatiniform : this is the commonest variety, its distribution may be irregular, and not confined to the trunk and limbs; unlike scarlet fever it may, and often does, invade the face; (b) and (c) Papular—resembling in distribution with varicella or small-pox, or an irregular distribution suggesting the presence of both.

2. *Scarlet Fever.*—In both these diseases the diagnosis is made from a consideration of the prodromal signs and symptoms, the presence or absence of headache, backache, vomiting, sore throat, enlarged cervical glands, coryza, Koplik's spots, and the other details already given ; the distribution, duration, progress, and movement of the rash, its associated rash, the history of an epidemic, exposure, and the appropriate incubation period. A short delay will often decide the question of measles ; the prodromal papules of measles later become flatter and shade off more into the surrounding skin. The papules of small-pox, on the contrary, become more raised and more firm.

3. *Septic Rashes*, associated with "closed suppuration" in the body, e.g., in middle ear disease, or appendicitis. The petechial prodromal rash has not been distinguished from the various conditions described in text-books under Purpura Hæmorrhagica, and associated with various causes : (1) Infectious diseases ; (2) Toxæmias due to drugs—KI, KBr, quinine, ergot, and others ; constitutional affections, e.g., tubercle, cancer, Bright's disease ; (3) Neuropathies ; (4) Arthrites.

The Rash.—The stage of invasion lasts forty-eight to seventy-two hours or more, and then the eruption becomes manifest. With the appearance of the rash the fever subsides, but this remission may not be very marked for one, two, or three days. Simultaneously the headache and backache cease, and the patient's general condition improves; he passes from a state of *malaise* to a state of *bien aise*.

This coincidence of three factors (the remission of the fever, the appearance of the rash, and the establishment of *bien aise*) is a most remarkable feature of small-pox, and one of its cardinal characteristics, and of great value in its diagnosis. The rash then appears about the third day of illness, dating the onset from the chill, and is generally first seen on the forehead, temples, and wrists, and spreads rapidly, first to exposed surfaces and then invades the scalp, neck, forearms, hands, back, upper arm, breasts, legs, and feet. Occasionally, especially in very young children, the rash may be first seen on the trunk.

The rash at first consists of minute pink-red spots hardly appreciable to the touch becoming later of a darker colour. Few at first, increase both in number and size, so that in twenty-four hours they are papular. The increase in number continues for two or three days. At first always discrete, they may later become confluent, so that it frequently happens that a case which, when notified, is described to the friends as discrete and mild, after a few days' stay in hospital may prove confluent and severe. When mature the papule is hard to the touch, and possesses the so-called shotty attribute. When fully established the distribution is characteristic; it is well marked on the forehead, face, and wrists, the exposed parts, and may be confluent here. It is less numerous on the trunk, upper arms, and thighs. It is rarely, if ever, confluent on the trunk. The incidence on the exposed parts is probably due to the greater vascularity of these sites, for the same profusion may be seen wherever the skin has been irritated or congested, e.g., by the constriction of garters, the application of plasters or tincture of iodine. This explanation is more or less borne out by comparing the distribution in animals.

Sheep-pox.—Rash first seen on the inner side of the legs, then on the cheeks and lips where bereft of wool, the nude portions of the body; the anus and under surface of the tail may also be involved, and later, more or less the whole of the skin.

Horse-pox.—Site of election the fetlock joints of the hind legs, perhaps because these parts are most exposed to injury, and therefore more vascular.

Cow-pox.—Always confined to the udder or its base.

To return to man, the rash is practically always unsymmetrical, and after the first day or so every pock is, with respect to its age, more or less at the same stage of maturation. Thus the lesions first to appear on the face, arms, and legs may be vesicular, while the later papules on the trunk are not. So the face may be pustular while the legs are still chiefly in the vesicular stage. While the general distribution is characteristic, it has other features no less well marked.

Defining the rash-distribution—intensity, as the number of papules per square inch of skin surface. This is least on the abdomen, and increases progressively as we approach the exposed parts from the trunk. Diagrammatically, the intensity of distribution of the arm and hand would be represented by a triangle, whose apex was at the shoulder and base in the palm.

The hypochondria are very frequently free from the rash, or if present it is sparse. The anterior abdominal wall as a whole has the least number

of papules per square inch. The dorsal surface of the hand and wrist is more thickly affected than the ventral. The intervals between the toes seem to be in a large number of cases rash-free.

Mucous Rashes.—The rash is not confined to the skin, but may be found early on the mucous membrane of mouth, nose, fauces, and larynx, giving rise to sore throat and dysphagia. Small red points may be found on the buccal mucous membrane very early, becoming a little elevated later. The mucous rashes do not have the same stages of evolution—of papule, vesicle, pustule—as the skin rashes; they develop into superficial ulcers.

Vesiculation.—On the third or fourth day of the eruption the earliest sign of vesiculation appears. By the fourth or fifth day all the papules have become vesicular save in some mild cases of varioloid, where the papules may abort. The vesicle is very firm and hard, as hard as the papule it supplanted: when small it is almost conical, when large, hemispherical. Its contents are almost pearly yellow, and there is a red areola. A large proportion, but not all, of the vesicles become umbilicated, chiefly on the forearms and backs of the hands; so some, but not all, become separate. These septa do not persist, but disappear shortly before or after pustulation. Neither umbilication nor the formation of septa is of much value for the purpose of diagnosis. The edge of the vesicle is never wavy or crenate, whereas in chicken-pox the crenation may be marked.

Pustulation.—The vesicle becomes pustular about the sixth day, and the areola at the same time is now dark red. It is at this period that the face, eyes, lips, and nose become so much swollen that the features are unrecognizable.

Meantime though the face may be pustular, the trunk and legs may be papular; there is a wave-like progression in the sequence of the development of the rash. In the hands and feet, the pustules which form beneath the epidermis give rise to very great pain, and later from the hard lumps known as "seeds." There may be delirium, leading even to suicide or homicide during the three stages, but is generally most pronounced, if present, during the papular and vesicular periods. With the onset of pustulation comes, too, the secondary fever of suppuration, commencing generally on the fifth or sixth day, lasting indefinitely and depending on the extent of the rash.

Involution of Rash.—First noticed when the swelling of the skin subsides, and occurs primarily on the face, appearing elsewhere in the order of the evolution of the exanthem. At this stage may be seen the secondary umbilication due to the rupture of large pustules and consequent sinking in of their centres. Those pustules which do not rupture become dry, flat, slightly convex, extremely hard, and of a dark mahogany colour, exhibiting sometimes the former umbilication. These crusts are of great value in diagnosis. Upon the palms and soles they resemble reddish brown lentil seeds, and are shelled out by patients.

Decrustation.—The drying of the pustule gives rise to the shedding of the crusts and scabs, a process which takes about three or four weeks. When shed, the subjacent skin is red, becoming later darker, and finally brown or coffee coloured. The scars are white in four to six months. The pitting of the scars is not necessarily of diagnostic value, inasmuch as similar pitting may occur as a sequel to any severe attack of acne.

The above represents, as far as is useful for diagnosis, the progress of events in a discrete attack of small-pox—in the confluent form the signs and symptoms are the same, but more marked, more intense—save that

the temperature in the confluent form, with or after the appearance of the rash, is not so early nor so great.

Mild Small-pox in persons not previously vaccinated.—Some persons are said to be immune to small-pox; in other, although unvaccinated, there may be six or twelve papules, which may not proceed to vesiculation or pustulation. The invasion period is generally well marked.

Varioloid.—In this form the secondary rise of temperature may be absent or very slight. The invasion period is well marked. though possibly slight in degree. Prodromal rashes are common. Some of the papules may abort. The maturation of the papules is earlier. The pustules are often conical and not hemispherical as in the unmodified form. The disease runs a milder course, and is of shorter duration.

The diagnosis of this variety depends upon the presence of an epidemic, the history of exposure, the appropriate incubation and invasion periods, the fall of temperature and establishment of *bien aise* with the onset of the rash, the character and the distribution of the rash.

Small-pox without a rash.—This sometimes occurs; thus, a man fell ill with what was called a "bilious attack," but on the fourth day pronounced to be small-pox, and removed to hospital. From the eleventh to the thirteenth day after his removal, the rest of the family, consisting of his wife, son, and daughter, fell ill with another "bilious attack," with high fever, backache. and headache. Three and four days later in all three the temperature fell considerably and the constitutional signs disappeared. The daughter now had a well-marked small-pox rash, the son had a few papules on forehead and wrists, the mother, however, even on the closest scrutiny, showed no sign of a papule or any other form of rash on the skin or mucous membranes. She was now vaccinated, and although she had not been vaccinated since infancy, forty-four years previously, the operation was unsuccessful.

Hæmorrhagic Small-pox may be of two varieties: (1) Hæmorrhagic from the onset; and (2) Secondarily hæmorrhagic into the pustule or its antecedents.

Primarily Hæmorrhagic Small-pox.—The incubation period is often short—five to eight days. The pain in the back and loins is excruciatingly severe. Vomiting and epigastric pain are prominent and intractable. The rash generally appears first on the trunk and legs, and last in the face. There may be hæmorrhages from the mouth, nose, lungs, kidneys, and even the uterus. The temperature, as a rule, is not high. It may, and occasionally does, occur in the vaccinated as well as in the unvaccinated.

Cases are often included in the death returns under purpura hæmorrhagica. During an epidemic, therefore, every household in which a death has occurred from purpura hæmorrhagica should be visited for the discovery of unrecognized cases of small-pox.

Secondarily Hæmorrhagic Small-pox.—The second variety is merely a special kind of, or the result of a special complication of the ordinary small-pox, and therefore need not be further described. After the appearance of the rash, small-pox has to be diagnosed from the following.

In all stages: Chicken-pox, acne, syphilis, drug eruptions, glanders, scabies, lupus, especially of the face.

In the papular stage: Prodromal rash of measles, erythema nodosum, lichen planus.

In the vesicular and pustular stages: Herpes, erythema iris, and erythema bullosum.

In the pustular stage: Impetigo, and pustular scarlet fever.

Chicken-pox.—The incubation period is longer than in small-pox—thirteen to nineteen days. The invasion period, save in adults, is practically absent. In adults it may be moderately severe and lasts for twenty-four hours.

Generally speaking, the first thing noticed is the rash, so that when the mother says, "I didn't know the child was ill until I saw the spots come out on the body," her statement goes a long way towards the determination of chicken-pox.

Constitutional Disturbance is mild in chicken-pox—grave in small-pox. It is not at all uncommon to find cases of chicken-pox which have passed through the attack with the temperature not exceeding 99° F. It sometimes happens that in a specified instance the data at one's command may be negative, or may be insufficient to base a positive opinion thereon. In these cases the amount of constitutional disturbance is a very important consideration. One asks the question: "Is this case, when all is taken into account, a grave affection or a mild one?" and calls it small-pox in the one, and chicken-pox in the other.

Rash Distribution.—In small-pox, the face, hands, and feet are specially attacked, the trunk only slightly; in chicken-pox the trunk chiefly, the face and limbs only slightly. There is one other type of chicken-pox, chiefly found in adults, in which the face distribution may be nearly, if not equally, as intense as that on the trunk. This variety is distinguished from small-pox by the profusion of the trunk exanthem. The palms and soles may be attacked in chicken-pox as well as in small-pox, but never to the same extent as in the latter. If, therefore, there are a large number of papules on the palms or soles, or both, the diagnosis is in favour of small-pox. Later the chicken-pox rash comes out in distinct crops, so that we may have papule, vesicle, pustule, and scab all present at the same time on the same patient.

General Character and Progress.—In chicken-pox the papule becomes vesicular within twenty-four hours, in small-pox in seventy-two hours. The chicken-pox vesicle is soft, often unilocular, thin-walled, easily ruptured, varies very much in size in the same patient, and frequently has a wavy crenated edge. In the intercostal regions the chicken-pox vesicle are often eliptical, with the long axes running in the direction of the ribs. They rarely show umbilication, save in drying. Owing to the fact that they are easily ruptured, the base of the vesicles dries and shows early a depressed or cupped scab, sometimes even on the first day. These early cupped scabs are most characteristic and almost diagnostic. The small-pox vesicles are hard, nearly all of the same size, are mostly umbilicated, frequently multilocular, and are ruptured with great difficulty. Many of the papules in chicken-pox abort, in some cases the majority of them. This is recognized by the laity, who define two kinds of chicken-pox—chicken-pox proper, in which the vesicles are very few or none, and the water-pox, or glass-pox, in which they are plentiful. The chicken-pox vesicle tends to spread laterally much more than small-pox, so that the resulting scar may be often much wider, but of course not so deep or so much pitted. The small-pox vesicles, being hard and frequently separate, are ruptured with difficulty, so that early cupped scabs are very rare.

These and other differences between chicken-pox and small-pox are associated with the site of the irritant focus in the integument.

In chicken-pox this primary pathological focus is in the epidermal layer; in small-pox it is well in the corium or true skin.

Thus the greater depth of the initial skin lesion in small-pox explains: (1) the shotty character of the rash; (2) the pearly yellow contents of the vesicle, the colour being due to the thicker epithelial covering; (3) the hardness and hemispherical surface of the vesicle; (4) the absence of the crenated edge in the vesicle. This is possibly damped out by the thicker layer of epithelium, just as the several layers of an onion hide the irregularities at the core; (5) the absence of early cupped scabs owing to the difficulty of rupture; (6) the pitting; (7) the thickness of the crusts; (8) the presence of "seeds" in the palms and soles; (9) possibly the umbilication and the formation of septa.

The superficial position of the lesion in chicken-pox explains: (1) the moderately soft character of the rash; (2) the clear transparent, almost colourless, contents of the vesicle, due to the very thin epithelial covering; (3) the soft and sometimes spherical or ellipsoidal surface of the vesicle; (4) presence of crenation or puckering in the vesicle; (5) early cupped scabs; (6) the absence of pitting, save in severe cases; (7) the thinness of the crusts; (8) the absence of "seeds" in palms and soles.

Further the progress of the two diseases may be associated with the position of the lesion in the skin; in chicken-pox, with its superficial localization, the early rupture of the vesicle, and the poor lymphatic transport facilities of the epidermis, little toxin is probably absorbed. In small-pox, owing to the deeper position of the focus, the vesicle is not ruptured, and the lymphatics are present in greater abundance to absorb the toxin. That this is not merely a theoretical consideration is seen in those cases of chicken-pox where the lesion extends deeper, as, for example, in varicella gangrenosa; these may give rise to extensive scarring and even pitting.

Crops.—Chicken-pox comes out in crops for several days, and the rash may co-exist as papule, vesicle, puckered vesicle, pustule and scab. The small-pox rash comes out in one crop in one to two days, and invades exposed parts first, and covered parts later. Owing to this, the rash on the face and wrists is, in regard to evolution, a little in front of the rash elsewhere.

Sequence of Events.—In small-pox the rash passes from papule to crust in about twelve days; this interval may be as short as six days. In chicken-pox it rarely exceeds four days.

Crusts.—In small-pox these are thick and hard; in chicken-pox they are thin and easily broken. The presence of "seeds" in the palms or soles is characteristic of small-pox.

While the foregoing details in most cases will enable a diagnosis to be made, it must be confessed that there is no one characteristic sign on which absolute reliance can be placed; for example, absence of umbilication, and absence of septa formation in the vesicle is no indication that the case is not small-pox. It often becomes a question in one's mind whether the case is one of moderately severe chicken-pox or mild small-pox. In such circumstances it is well, after full consideration, to decide first of all whether the affection is a trival one or a grave one. In the latter case it should be vaccinated and treated as small-pox; in the former, vaccination also if the doubt persist, and treated as chicken-pox.

Acne.—This by itself rarely gives rise to difficulty, but when complicated with other affections, e.g., granular kidney, the associated headache or lumbar pain may prove very puzzling.

The absence of exposure to small-pox, the absence of the invasion period and the attending illness, the presence of blackheads, the history of previous outbreaks, the distribution on forehead and shoulders, the

absence of the sequence from papule and pustule, with the recognized time intervals, are in favour of acne; whereas the appropriate analogous signs or their opposites are in favour of small-pox. Cases of varioloid in persons already the subject of acne generally give the history of exposure, the appropriate incubation period, the prodromal three days' illness, the appearance of a *new* rash, with the concurrent remission of temperature and the establishment of *bien aise*. It will generally be found that in these cases, although they have had many outbreaks of acne before, that this is the first occasion on which they have had to lie up or keep in bed.

Syphilis.—History of exposure may be obtained in one or the other, and in syphilis the original chancre, its scar, or the usual secondaries may be recognized. In the male, where there is no chancre or its scar, the urethra should be examined for its presence.

Mode of Onset.—In syphilis, slow, insidious, the fever is not high, nor are the constitutional signs urgent or severe. There is no initial chill, no backache; the headache, if present, is not severe. The patient is able to go about his daily work; he does not lie up. The temperature does not remit with the appearance of the rash—there is no feeling of *bien aise*. In small-pox there is a sudden onset by chill, early high temperature, severe backache and headache, often vomiting. The patient lies up at home and stops work.

Rash.—In syphilis this takes many days to appear; in small-pox twenty-four to forty-eight hours. In syphilis there is no remission of temperature, no establishment of *bien aise*. The distribution of the syphilitic rash may be like, or unlike, that of small-pox. It is generally more copious on the trunk than on the face, and is rarely found in the soles and feet. The rash of syphilis is polymorphic, and may exist as papule, pustules small and large, or vesicle concurrently. The pustules and vesicles of syphilis are usually conical, with deep subjacent ulceration; they are not flattened hemispheres as in small-pox.

Progress.—The regular sequence from papule to vesicle to pustule, with the proper time intervals, is present in small-pox, absent in syphilis. In the latter the development of the lesions is most irregular and slow.

Drug Eruptions, especially iodides and bromides.—In these there is the absence of the invasion period, the absence of fever (unless pustulation is present), the irregular distribution of the rash, and its irregular and often indolent evolution.

The history of the drug-taking cannot always be obtained; the vehicle may be a "blood mixture" or a much-advertised "fit cure." It is well, therefore, to make enquiry as to these specifically. The bromide and iodide rashes are generally found where there are sebaceous glands; by these the drugs are partially excreted. They are, therefore, absent from the palms and soles.

Acute Glanders, with inoculation and invasion periods of two to three days.—The patients are usually stablemen. The nasal mucous membrane may be soon involved, with the attendant abscess and ulcer formation, and mucopurulent rhinorrhœa. The disease generalizes, and there is an eruption of papules on the face and at the joints. The cervical lymph glands become greatly enlarged. The diagnosis is usually made from the condition of the nose and the cervical lymph glands; the bacillus may be isolated from the blood, the pustules, or the nasal discharge. When the papules are developed there is no remission of temperature with the usual concomitants seen in small-pox.

Scabies, Lupus, and Impetigo are mentioned to be borne in mind; at epidemic times they are sent for diagnosis. This usually presents no difficulty. In the *papular* stage, small-pox has also to be distinguished from—

Erythema Nodosum.—This is common over both tibiæ and ulnæ. The papules are flat-topped and come out in crops for about seven days. They may soften, but never suppurate. There may be some slight malaise and pain in the joints, so much so that the disease is often said to be associated with acute rheumatism. The fever is slight and the diagnosis, as a rule, easy.

Papular prodromal Rash of Measles, and Lichen Planus.—The first has aldeady been considered, and the second offers no difficulty. In the *vesicular* and *pustular stages* from *herpes*; this must not be forgotten, it is usually easily recognized.

Erythema Iris.—This is generally symmetrical, which small-pox rarely, if ever, is, and affects the backs of the hands and fingers, the insteps and knees; the face is generally spared. It may come out in crops. At first a small papule, then vasicular with a pink areola; the fluid is soon absorbed from the centre, leaving a dark red depression, surrounded by the rest of the vesicle, giving rise to the appearance of variolous umbilication. The duration of this affection is, roughly, two weeks.

Erythema Bullosum.—This is a more severe variety of the foregoing, and has the same initial site, characters, and distribution as erythema iris. There is central bullæ, and around this a ring of smaller vesicles, enclosed possibly by a second and even yet a third ring of vesicles. These rings may suppurate and induce severe scarring. It is occasionally notified as confluent small-pox.

Scarlet Fever.—It sometimes happens that in scarlet fever the red points constituting the rash become the site of secondary infection and develop into pustules. The original rash is then taken to be the prodromal rash of small-pox and the pustules the true exanthem.

The history of the case, the distribution, and the time relations serve to make the diagnosis clear. The condition, however, opens up an interesting speculation. It is said that the pustulation in small-pox is due to the essential organism of variola; the presumed cytoryctes, and in support

of this it is pointed out that in the early vesicles, and even the early pustules, it is difficult to find the ordinary pyogenic cocci, even on culture or by inoculation. But the same is true, to some extent, of the vesicles and pustules in herpes, injury due to burns, and erythema iris. It may be that at first the small-pox toxin present prohibits the growth of the pyogenic cocci—these are acknowledged to be present later.

The investigation has other consequences; the analogy with scarlet fever, not only in the pyogenic infection of the rash, but the almost rise of temperature in the third week, associated with the nephritis when present, seems to be analogous to the secondary fever of suppuration in small-pox, and suggests that in the latter, as in the former, the subsequent complications are due to pyogenic cocci, and furthermore, that with the evolution of the rash, the specific organism of small-pox sinks in the background, and the streptococci and staphylococci come forward. This has a bearing upon treatment, inasmuch as, if well founded, it would be a rational procedure to inject cases of small-pox during the early period with serum derived from mixed cocci.

Vaccination.—Is this of any value as an aid to diagnosis? I think not. There are rare cases on record in which patients efficiently vaccinated have subsequently passed through undoubted attack of modified small-pox within a few months.

The possible consequences of even one unrecognised case of small-pox set free are so appalling that any uncertain criterion must be ruthlessly discarded. On the other hand, I have never seen a case of small-pox which could be successfully vaccinated within two years of the attack. We want to know the interval between a case of small-pox and the possible subsequent successful vaccination. Second attacks of small-pox are known, so that it is quite legitimate to assume that small-pox patients may be at some later period successfully vaccinated.

It has been stated that if vaccination is performed within three, or even four days of exposure to small-pox, the threatened attack will in all probability be aborted. More definite information is required, too, on this head, so that the possibility of successful vaccination may become an efficient help in diagnosis. It is not at all uncommon in small-pox hospitals to see small-pox and vaccinia run parallel courses simultaneously in the same patient.

Diagnosis in later years.—Here the pitting, the distribution, and the presence of scars on the soles and palms are significant, as also are nebulæ or old lucomata on the cornea. It is curious that Sydenham should hardly mention the eye complications in this disease, though Rhazes (10th century) states: "When the signs of small-pox appear, we must take very great care of the eyes."

Sources of Error in Diagnosis.—

1. Inaccurate history, e.g., former alleged attacks of small-pox. Too short or too long a period intervening since exposure.

2. Relying too much on the presence of vaccination scars, even when performed a few months previously. Their presence does not justify the exclusion of small-pox.

3. The formation of septa in the vesicle, estimated by pricking with a needle along the periphery. In small-pox the vesicles are said to stand, but in chicken-pox to collapse, being unilocular in the latter. This is a most unsatisfactory criterion and quite unreliable.

4. Presence or absence of umbilication—this too is no sure guide.

5. Being satisfied with the existence of a cause sufficient to explain the existing clinical complex without making sure that the cause thus presumably ascertained is the actual and effective agent—the *causa causans.*

In order to avoid this, it may become necessary in cases of difficulty to examine the various systems (digestive, cutaneous, vascular, etc.) in fuller detail and methodically.

In conclusion, although the diagnosis of small-pox is at times easy, there are occasions upon which it is most difficult, and no one sign is to be absolutely relied upon. Cases such as acne with granular kidney, chlorosis with backache, septic rashes from causes unascertained, syphilis in a rheumatic subject, a case of cerebral tumour, taking KI or KBr. with vomiting—all these may be most misleading.

In cases where small-pox is present, however, it is often found that though the patient admits having had previous attacks of the same kind, yet the present is the first occasion on which he has for this cause abstained from work, laid up at home, or "had a doctor at home."

I wish to acknowledge my indebtedness to the writings of Ricketts, Wanklyn, Osler, Welch, Taylor, and Schamberg, and others from whom I have consciously or unconsciously borrowed.—*Public Health,* January, 1908.

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