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Dr. U. RAMA RAU
AND
U. KRISHNA RAU M.B., B.S.

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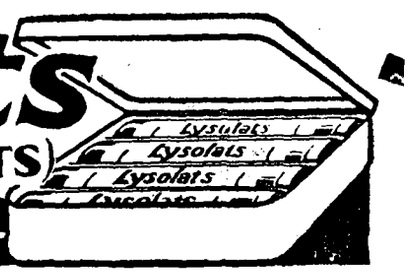

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*THE CEREBRO-SPINAL FLUID

BY

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A good deal of work has been done within the last few years to investigate the possible sources of the Cerebro-spinal fluid and the methods by which it is absorbed into the general circulation. The subject has been most admirably and fully dealt with by Harvey Cushing in his Cameron lectures delivered in the year 1925. I have attempted in the following few lines just to give a short summary of the recent knowledge.

Sources of Cerebro-spinal fluid:— 1. It has now been definitely proved that the fluid is formed in the ventricles of the brain by the secretory activity of the ependymal cells covering the choroid plexuses. These plexuses are extremely vascular and are covered by cubical or polyhedral epithelium. The largest of these plexuses are found in the lateral ventricles of the brain where the fluid is chiefly secreted but smaller ones are also found in the third and the fourth ventricles of the brain. The cells during the process of secretion form granules in the cytoplasm which gradually increases in size by the absorption of fluid and are ultimately extruded from the cell. If pilocarpine is injected into the system the cells increase in size to almost double their height and the cytoplasm shows a basal granular and a clear

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apical zone. Experimental work has proved that the fluid is a secretion and not a mere dialysate. The evidence of secretion is further supported by the association of hypertrophy of the choroid plexuses with internal hydrocephalus. The fact that the cerebro-spinal fluid is free from the protein constituents of the blood, from bile pigment in jaundice and from most drugs injected into the circulation has lent further support to the theory of secretion.

2. The cells lining the perivascular spaces of Virchow and Robin which dip down into the cerebral substance round the pial vessels are also supposed to secrete. These spaces contain Cerebro-spinal fluid and are in direct communication with the sub-arachnoid spaces on one side and with perineuronal spaces between the nerve cells of the cortex on the other side. The waste products of the nerve-cell activity are thus thrown into the Cerebro-spinal fluid. The admixture here may probably account for certain serological differences between the ventricular and the sub-arachnoid fluid.

3. The cavities of the ventricles and the central canal of the spinal cord are lined by ciliated columnar epithelium. It is conjectured that these cells though differing greater in structure from those covering the choroid plexuses may contribute something to the fluid.

Circulation of the Cerebro-spinal fluid.—This has been aptly called by Harvey Cushing 'The third circulation.' The Cerebro-spinal fluid is mainly produced in the lateral or the first and the second ventricles of the brain. From here it passes into the third ventricle by way of the foramina of Munro. Here it becomes augmented by the secretion from the choroid plexuses of the third ventricle and then passes by way of the Cerebral aqueduct of Sylvius into the fourth ventricle and the central canal of the spinal cord. In the fourth ventricle the choroid plexuses projecting from the lower part of its roof make a further contribution.

In the region of the fourth ventricle the fluid enters the subarachnoid space of the Cisterna Magna which lies behind the Medulla Oblongata by way of the foramina—the foramen of Megendie in the lower part of the roof and the foramina of Key and Retzius at the lateral recesses. The existence of these foramina has now been accepted on embryological grounds. The foramen of Megendie appears as a diverticulum of the roof. the fourth Ventricle during embryonic life. The diverticulum becomes constricted off leaving the median aperture.

The foramen of Meckel at the extremity of the inferior horn of the lateral ventricle through which also the fluid was supposed to be escaping into the interpeduncular cistern has now been

shown to be an artefact. From the Cisterna Magna the fluid passes in two directions,—slowly downwards into the spinal sub-arachnoid spaces and more quickly forwards into the cisterns at the base of the brain through the narrow isthmus of the sub-arachnoid space which surrounds the mid-brain and is bounded all round by the free edge of the tentorium cerebelli and the basisphenoid. From the latter situation the fluid ascends into the sub-arachnoid spaces over the cerebral hemispheres where its absorption will mainly take place. Very little absorption takes place from the sub-arachnoid spaces around the spinal cord where the fluid extends in the spinal theca as far as the second sacral vertebra. There are four places where this pathway is narrow and constricted.

1. Foramina of Munro,
2. Aqueduct of Sylvius.
3. Foramina of Megendie and of Key and Retzius.
4. Tentorial Isthmus around the mid-brain.

The first three are situated in the ventricular system and the fourth in the sub-arachnoid system. These points of constriction are very important in the Pathology of Hydrocephalus.

1. *Absorption of Cerebrospinal fluid*:—The experiments of Weed in America have proved beyond doubt that the major portion of the fluid is absorbed into the venous sinuses of the brain and a smaller quantity escapes into the lymphatic system.

The experiments were carried out by injecting a non-toxic dye like potassium ferrocyanide or iron-ammonium citrate into the sub-arachnoid space. The brain and meninges were subsequently fixed in situ in acidified formalin so as to precipitate the prussian blue along the pathways of the cerebro-spinal fluid. This method has demonstrated that small arachnoid villi capped by clusters of mesothelial cells project in large numbers through the dura mater into all the venous sinuses of the cranial cavity large or small. These villi consist of a central core of the element of the sub-arachnoid space covered by a single layer of arachnoid cells. These are present at all ages in man and it is through these that the cerebro-spinal fluid mainly escapes into the venous sinuses. Enlargements of these villi in later life along the course of the superior longitudinal sinus constitute the Pacchionian bodies and these are usually present only in man and the higher apes.

2. A much smaller amount has also been observed to pass along the perineural spaces of the spinal nerves and the fluid only reached the actual lymphatic vessels outside the dura mater.

Characters of the Cerebro-spinal fluid:—The cerbro-spinal fluid is a thin transparent watery fluid resembling lymph. It is alkaline in reaction and has a specific gravity of 1007. In composition it

resembles blood plasma minus its protein constituents. It contains a trace of globulin which increases in quantity in all inflammatory conditions of the meninges. The inorganic constituents in the fluid are identical with those in the blood plasma. It also contains small traces of other diffusible constituents of the blood plasma e. g., sugar and urea. It is normally under a pressure of 100 mm. of $H_2°$, the same as that in the cerebral venous system. Any slight increase of pressure in the cerebro-spinal system will cause absorption of the fluid. The total quantity of fluid is about 100 c. c., but is liable to great variations. The fluid is quickly replaced after any escape e.g., in injuries of the skull and membranes.

Functions of the Cerebro-spinal fluid :—The precise functions of this fluid are not definitely known. The fact that the fluid fills the sub-arachnoid spaces round the brain has led to the cerebro spinal fluid system being regarded as a fluid cushion for the brain to rest upon inside the rigid box of the Cranium. It has been pointed out that the perivascular spaces around the pial vessels entering the cerebral substance are in communication with the sub-arachnoid spaces on one side and with the perineuronal spaces around the nerve cells on the other side. These spaces secrete cerebro-spinal fluid which constantly flows towards the subarachnoid spaces where it mixes with the ventricular fluid. This has led to the suggestion that the fluid is a medium for carrying away the products of nerve cell activity. The cerebro-spinal fluid is also supposed to act as a vehicle for the distribution of the secretion of the posterior lobe of the pituitary gland which enters the third ventricle of the brain.

The sub-arachnoid cerebro-spinal pathway is lined by a pavement epithelium everywhere and in certain places e. g., in the region of the arachnoid villi, there are clusters of specialised cells which appear to exercise a phagocytic action on any foreign material circulating in the meningeal spaces such as R. B. C., products of inflammation etc. These cells have been called the meningocytes and in certain conditions they become free and float in the cerebro-spinal fluid. Their phagocytic action has been compared to that of the Kupffer cells in the hepatic capillaries and on that account they may be regarded as representing the 'reticuloendothelial apparatus' for the meningeal spaces. The fluid has also been observed to exercise a protective reaction in any non-neural tissue with which it comes into contact by forming a new dura mater similar to the normal membrane covering it. Consequently operations for the relief of intraventricular tension by draining the fluid into lymphatic spaces have not been permanently successful.

Summary :—1. The cerebrospinal fluid is formed by a process of secretion.

2. It circulates through the ventricular system and round the brain and spinal cord—third circulation,—and finally reaches the general circulation through the medium of arachnoid ville projecting into all the cerebral venous sinuses.

3. It takes the place of lymph for the cerebro-spinal axis —there being no so called lymphatic vessels for the brain and spinal cord.

4. It exercises a protective action for cerebro-spinal axis by surrounding it by its phagocytic meningocytes and its capacity to form dura mater where it is injured or lost.

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*A SHORT STUDY OF PERNICIOUS ANAEMIA FROM THE STANDPOINT OF INDIAN MEDICINE

BY

P. L. DESHMUKH, M.B.B.S.

The Medicine of India has a history and a character of its own; whatever its worth it has been no mere reflection of medicine elsewhere.
— Sir Clifford Albutt.

The difficult task of comparative study of modern medicine and Ayurvedic medicine is, in fact, a field for clever scholars ripe with experience and thorough with knowledge. So there will be little wonder if my premature and audacious attempt of discussing a disease like Pernicious Anaemia from the point of view of the two schools turns out to be poor. The difficulties in such an attempt are numerous and varied. They are as follows :—

Firstly, insufficient knowledge of both the views by the same individual. This difficulty is obvious. An attempt made by an Allopathic scholar will be deficient for want of adequate knowledge regarding the theory and practice of Ayurvedic Medicine while that by an Ayurvedic Vaidya will be more so as he will not probably be well informed of the intricacies of recent advances in modern medicine.

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The second difficulty is in understanding the technical terminology of Ayurvedic medicine in the terms of modern medicine. *Kapha*, *Vata*, and *Pitta*, which are included in "Tridoshas" popularly mean Phlegm, Wind and Bile. But the significance conveyed by "Doshas" often referred to in Ayurveda is not the same as mentioned above. They are the symbols for the elementary forces which govern the different systems of the body. Thus, *Vata* does not mean Wind but comprehends all the phenomena which come under the functions of central and sympathetic nervous system. The word *Pitta* does not mean Bile but signifies functions of thermogenesis or heat production and metabolic changes, comprehending in its scope the processes of digestion, colouration of blood, formation of various secretions and excretions. *Kapha* does not mean Phlegm but implies the function of thermotaxis or heart regulation and regulation of formation of adhesive principles of the body e.g., Synovia Mucus, etc. Thus the terminology is more symbolic than explanatory.

The third difficulty is due to the fundamental difference in the view of origin of disease in the two systems.

The tendency of modern medicine is to attribute the cause of disease to pathogenic organisms, while Ayurvedic School bases the origin of disease on the disturbance of equilibrium of the three "Doshas" viz., *Kapha*, *Vata*, *Pitta*, which may be regarded as the tripod on which Indian Medicine rests **(सर्वेषामेव रोगाणाम् निदानं कुपिता मलाः)**[1] Thus, a modern medical man who ascribes Plague to B. Pestis and knows he can produce the same disease in animals by inoculation of the bacilli finds it difficult to comprehend how the same disease can be caused by the simple disturbance of equilibrium of the three *Doshas*. According to Ayurvedic expert to ascribe the origin of Plague to B. Pestis is only to consider the superficial cause of Plague, while the perversion of *Tridoshas* which comprehend the vital changes produced in the body as a result of infection is the true and ultimate cause. While modern medicine, ignorant of vital tissue changes, boasts of showing micro-organisms of disease under the microscope, the Indian Medicine goes beyond it and professes to explain the vital tissue reactions which are ultra microscopic and as yet beyond the reach of modern Pathology. Thus, in fact *Tridosha* theory of Ayurveda may be said to commence where modern Pathology stops.

The fourth difficulty is the possibility of different interpretations of the words used in books of Ayurvedic medicine. The authoritative works on Indian Medicine were written thousands of years back and there appears to be a tendency for the old writers to cram

as much meaning in as few words as possible. These have made the statements particularly prone to different interpretations. Difference of opinion as regards the particular meaning of the word is more dangerous in medicine than anywhere else, as it may cost the life of the patient.

Fifthly, the empiric nature of the statements for which no definite reasons can be found, make it difficult to understand and put them in the words of modern medicine with a convincing chain of arguments. This is because the Indian medicine consists of accumulated experience of many ages which was mainly obtained by remarkable powers of observation. This knowledge was transmitted by the Guru to his pupil orally till recently in the history of Ayurved a i.e. about 1000-200 years B. C. when the valuable observations were collected in the form of books by some of the distinguished scholars of Ayurveda viz., Charaka, Vagbhata, Sushruta etc.

Pernicious Anaemia as a clinical entity recognized by modern medicine, is a disease characterized by progressive weakness, lemon-yellow discolouration of skin, soreness of tongue and digestive disturbances ultimately ending in death. Its etiology is still unknown as may be inferred from the multiple theories put forward to explain it. Some secondary anaemias simulate primary anaemias so closely that except for the reason that their cause is known, it is impossible to distinguish between the two types.

The knowledge of pernicious anaemia is recent in the history of modern medicine. A typical case with the pathological changes was described by Addison in 1845 by whose name the anaemia is called. It is supposed to be known even before this but had not attained the dignity of a name. The description of Pandu Roga **(पाण्डुरोग)** which includes all the anaemias, is found in the works of Charaka, Vagbhata, Madhava, etc. which date as far back as 1000-200 years B.C.

According to popular belief Pandu Roga as described in Ayurvedic Medicine is supposed to stand for Pernicious Anaemia, but if we consider the etiology and symptomatology of the varieties of Pandu Roga it will be easily seen that Pandu Roga includes the general group of anaemias. Thus to diagnose a case like Pandu Roga is as useless as to diagnose a case like anaemia. Before proceeding to treat a case it must be found out to what variety it belongs and whether it is of the curable type.

Now, we shall see from the symptoms of different varieties of Pandu Roga which of the types more or less, closely stimulate the clinical picture of pernicious anaemia.

Pandu Roga, disease of paleness, is so called because paleness pervades the skin and all the tissues of the body (पाण्डुत्वं तेषु चाधिक्यं यतोतः पाण्डुरित्युक्तः स रोगः)[2] The varieties are five in number and are as follows :—

(स पंचधा पृथग्दोषैः समस्तेः मृत्तिकाखादनात्)[2] Three of these are due to predominance of one of the *Tridoshas* over the others and they are called accordingly as

Vatajanya Pandu (वातजन्यपाण्डु) when Wind predominates.

Pittajanya Pandu (पित्तजन्यपाण्डु) when Bile predominates.

Kaphajanya Pandu (कफजन्यपाण्डु) when Kapha predominates. The fourth variety is due to an excess of all the three *Doshas* and is called *Sannipatajanya Pandu* (सन्निपातजन्यपाण्डु). The last variety is called *Mrittikakhadana Pandu* (मृत्तिकाखादनपाण्डु) or that due to eating earth.

Following are the symptoms by which each of the varieties can be recognized :—

Symptoms of *Kaphajanya Pandu*:—Flow of phlegm (कफप्रसेकः) Anasarca (श्वयथुः), Sleepiness (तन्द्रा), Sluggishness (आलस्यम्) Heaviness of body (अतिगौरवम्), Paleness of skin, urine, eyes and mouth (शुक्लत्वङ्मूत्रनयनानः), Paleness of blood vessels [2] (शुक्लसिरादिता), salty taste in the mouth (लवण वक्त्रत्वम्), hair standing on the ends (रोमहर्षः), lowness of voice (स्वरक्षयः), Cough (कासः), vomiting (च्छर्दिः).

Sleepiness, sluggishness, heaviness and low voice appear to be due to the general debility. Paleness of blood vessels is due to diminution in quantity and pigments of blood corresponding to low haemoglobin content.

Hair standing on end appears to be due to the presence of some sort of sepsis causing rigors.

Anasarca and paleness will be common to all varieties of anaemia.

The outstanding symptoms of *Kaphajanya Pandu* appear to be flow of phlegm, cough and vomiting. Thus, it appears that pulmonary symptoms predominate in this variety and it may be taken to represent secondary anaemias caused by pulmonary sepsis *e.g.* bronchiectasis, chronic pulmonary abscess, early pulmonary tuberculosis etc.

Symptoms of *Vatajanya Pandu* (वातजन्यपाण्डु) :—Pain in limbs, tremors (कम्पता), sensation of pins and needles (वातपाण्डुरामय) blackening of blood vessels, nails, fæces, urine and eyes,

anasarca (शोफा), distension of stomach (उदानाह), dry fæces (विट्शोषाः) pain in back and head (पार्श्वमूर्धरुक्), tastelessness and hallucinations or delirium (भ्रमादयः).

In this variety nervous symptoms appear to predominate. No parallel is found in modern medicine corresponding to the symptoms of blackening of fæces, urine and conjunctiva except perhaps when the cases are associated with Ochronosis and Alcaptonuria. Blackening of nails and blood vessels may be due to cyanosed condition.

This variety of *Pandu Roga* may be taken to represent the stage in Pernicious Anaemia where nervous symptoms predominate.

Symptoms or *Pittajanya Pandu* (पित्तजन्यपाण्डु) :—

Yellow or greenish discolouration of blood vessels[2] and nails, fever (ज्वरः), giddiness (तमः), thirst (तृट्), sweating (स्वेदः), fainting (मूर्च्छा), pungent taste in the mouth (कटुवक्त्यता), sensation of heat (दाहः), liking for cold things (शीतेच्छा),[2] diarrhoea (भिन्नविट्को), extreme yellowness (अतिपीताभः), anorexia.[4]

The symptoms more or less closely resemble those of chlorosis and also of Pernicious Anaemia. The mention of greenish tinting of skin, fainting, diarrhoea, and anorexia goes in favour of chlorosis. The prognosis in this variety is not as bad as that in Pernicious Anaemia. So the *Pittajanya Pandu* variety may be taken to represent chlorosis and not Pernicious Anaemia.

Symptoms of *Sannipatajanya Pandu* (सन्निपातजन्यपा) :—

These include all the symptoms of the previous varieties and are supposed to be incurable. Following are some of the prominent symptoms :—

Fever (ज्वरः), vomiting, tastelessness (अरोचकम्), nausea (हृल्लासः), thirst, lassitude (क्लमः), weakness (क्षीणः), and inability of senses to perform their functions (हतेन्द्रियः). This variety is called the formidable Pandu (सुदारुणं पाण्डुरोगम्) [5]. It is also described as one which can be cured only with great difficulty (सुदुःसह[4] अतिदुःसह[2]..)

The variety, I think, corresponds with the Pernicious Anaemia of modern medicine, as the symptoms are progressive and prognosis bad.

Symptoms of *Mrittikhakadana Pandu* (मृत्तिकाखादनपाण्डु) :—oedema of cheeks, eyes and feet, ascitis, diarrhoea with blood and mucus (मलं सासृक्कफान्वितम्), and worms in stools (कृमिमत् मलम्).[2].

Thus, *Mrittikakhadana Pandu* appears to be a variety of secondary anaemia caused by intestinal parasites. Diarrhoea with blood and mucus and ascitis suggest Ankylostomiasis, though tape worms and round worms also cause severe secondary anaemia.

If the view that *Pandu Roga* is the same as anaemia is correct it will be strange to find that one of the common causes of secondary anaemia e. g. haemorrhage is not included in describing the varieties of *Pandu Roga*. But if we recollect the genesis of disease in Ayurveda the difficulty will be solved. In traumatic conditions there is no primary disturbance of the *Tridoshas*, though it may be caused later as a result. One of the important considerations in the classification of diseases in Ayurveda is the site of disease and in injuries the site being external, traumatic haemorrhages may be included in the group of diseases due to external agents (आगन्तुकरोगाः).

The etiology of *Pandu Roga* attributes the origin of the disease to heterogenous factors like excessive sexual indulgence (अतिमैथुनम्), [3] ingestion of every sour and pungent substances, abuse of alcohol, eating earth and sleeping by day. These are believed to cause *Pandu Roga* by spoiling the blood (विदूष्यरक्तम्).

Very pungent and sour things and excess of drinking may help to cause anaemia by causing chronic gastritis.

None of these causative factors can be correlated with those put forward as probable causes of Pernicious Anaemia. The discord is due to the bare clinical aspect from which Indian Medicine was learnt and taught in olden days. Experimental side of medicine though not unknown was in its infancy. The accuracy that is seen in the descriptions of certain clinical conditions in remarkable.

Pathology:—Since the physiology of Ayurveda is based upo- the proper balance in the Doshas, the pathology is explained by their disturbance. In *Pandu Roga* all the *Doshas*, *Pitta* in particular, [2] are increased or stimulated, and *Pitta* is thrown by the strong Wayu in the heart. From the heart it flows in the ten *Dhamanis* (धमनी) or arteries and affects skin, blood and flesh, colouring these yellow, green or grey. This leads to slackness of 'Dhatus' or tissues (धातून्) and diminution in the quality of 'Ojas' or lustre (ओजस्). These produce the different symptoms in the body.

Here if *Pitta* is taken in its literal sense viz., bile the pathology of paleness will be found to correspond with that of Pernicious Anaemia where bile is known to circulate in blood and colour the

skin and other tissues yellow. Jaundice (कामला) is considered as a complication of *Pandu Roga* and is described under that heading.

Signs and Symptoms:—

Premonitory signs (पूर्वरूपम्):—

Palpitation (हृदयस्पंदनम्) [2] dry or fissured skin (त्वक्स्फोटनम्) anorexia (अरुचिः), yellow urine (पीतमूत्रत्वम्), absence of sweating (स्वेदाभावः) dyspepsia (अल्पवन्हिता) and easy fatigue (सादश्रमः).

General symptoms:—

Salivation (ष्ठीवनः),[2] oedema under eyes (शूनाक्षिकूटः), diminution in speech (अल्पवाक्), irritability (कोपनः), hatred for cold things (शिशिरद्वेषी), falling of hair (शीर्णरोमा), dyspnoea (श्वासी) tinnitus (कर्णक्ष्वेडी), fever (ज्वरी), and diminution of fat and blood (अल्परक्तमेदस्को).

Most of these symptoms are well known to be present in the different stages of Pernicious Anaemia.

Yellow urine is, according to modern medicine, due to the presence of excess of urobilin and bile pigments and is important in the diagnosis of haemolysis in the body.

Salivation is perhaps due to soreness of tongue and mouth.

The symptoms palpitation, dyspepsia, easy fatigue, and anorexia sound as if they are the productions of a modern brain.

Dry skin, diminution of speech, hatred for cold, absence of sweating and falling of hair show that Myxoedema was also perhaps included in the group of anaemias.

Loss of fat appears to be contrary to modern teaching but may appear in later stages when nutrition markedly fails.

Laboratory methods were not used in diagnosis as clinical observation was solely depended upon. Hence there is no reference to Hæmatology which has only recently appeared on the horizon of modern medicine. But it was known that in anaemia there is deterioration of blood (असृक्क्षयात्).[4]

Reference to incidence of haemorrhages in intestinal tract is found in the description of jaundice (कामला), where the stools are described as reddish (रक्तपीतशकृत्).[5]

Other symptoms of *Sannipata Pandu* are included under the first three varieties described above.

Thus we find that most of the symptoms of Pernicious Anaemia as described in modern text books of medicine have been mentioned in the works of Indian Medicine.

Gastro-intestinal symptoms are included anorexia, vomiting, nausea, diarrhoea, soreness of tongue, tastelessness and dyspepsia

Nervous symptoms are described separately under Vatajanya Pandu variety, which includes tremors, pain in the limbs, sensation of pins and needles, and delirium.

Respiratory and Circulatory symptoms consist of dyspnoea, palpitation, flow of phlegm, and cough.

Complications :—1. Kàmala (कामला) :—

It is due to excess of bile (बहुपित्तैषा) and is said to be caused in a patient of Pandu Roga who indulges too much in bile stimulating or cholagogue substances (पित्तलानि).[1] The bile affects the flesh and blood and produces Kamala or jaundice.

In such a man, the eyes are extremely yellow and also skin, nails, and face. Urine and faeces are yellowish red. The affected man appears yellow like a toad in rainy season. His senses are unable to perform their function (हतेन्द्रियः) There is burning sensation (दाहः), indigestion (अविपाकः) weakness, drowsiness, (तन्द्रा) tastelessness (अरुचि).

Kamala is said to be of two types viz. *Shakhashrita* (शाखाश्रित) when Pitta flows in vessels and *Koshthashrita* (कोष्ठाश्रित) when it is limited to gastro-intestinal tract. This suggests an analogy to the Haematogenous and Hepatogenous types of jaundice in modern medicine.

The prognosis in a case of jaundice in which faeces are black, urine extremely yellow, face, eyes, urine, faeces and vomit red, and where anasarca, giddiness, delirium, constipation and drowsiness are also present, is bad, and the disease should be considered incurable.

Red colour of vomit, faeces and urine are perhaps indicative of haemorrhages in the respective organs.

Burning sensation of body may be due to extreme itchiness of the body, which, in turn, is known to be due to the presence of bile salts in blood.

Appearance of nervous symptoms like delirium, drowsiness and giddiness in jaundice is well known to be of bad prognosis.

Inability of senses to perform their functions may include retinal hæmorrhages leading to ultimate blindness, lowering of general mental powers and deafness.

2, Kumbha-kamala (कुम्भकामला) :—

When Kamala becomes chronic or persistent (कालान्तरात् खरीभूता) it is called Kumbha-Kamala and then it can only be cured with great difficulty. Kumbha-kamala is also described as Jaundice in which, due to neglect, anasarca (उपेक्षयाचशोफश्च)[2] has appeared.

3. Haleemaka (हलीमक) :—

This is said to have occurred in the courrse of Pandu Roga when the colour of the skin is yellow, blue or green, when there is drowsiness, low fever, thirst, dyspepsia, malaise, delirium and absence of sexual desire. This perhaps is only an advanced stage of Pandu Roga.

4. Panakee (पानकी) :—

This is an obscure disease. It appears to be a variety of jaundice where there is irritation of both mind and body (सन्तापः),[5] liquid motions (भिन्नवर्चस्त्वम्) yellowness from inside and outside (बहिरन्तश्चपीतता) and also of eyes (पाण्डुतानेत्रयोः).

Prognosis :—Prognosis in Pandu Roga of the Sannipatajanya type is very serious, as already mentioned, the disease should be considered incurable under the following conditions :—

(1) When Pandu Roga is of long standing and tissues are dried up.
(2) Where the patient sees everything yellow.
(3) Where there is general anasarca.
(4) Where stools are solid, scanty, of greenish tint and with mucus.
(5) In one whose senses are devoid of function.
(6) In one whose body appears as if smeared with white paint.
(7) When the patient is greatly afflicted with vomiting, fainting attacks, and thirst.
(8) Where one appears pale due to deterioration of blood in the body.
(9) When teeth, eyes, and nails are pale or almost white and when the patient sees everything white.
(10) Where there is œdema of extremities with wasting of the trunk, or conversely, where there is œdema of trunk with wasting of extremities.
(11) Where there is œdema of anus, penis, and testis.
(12) Where the patient is unconscious.
(13) Where diarrhœa and fever are marked.

The conditions above mentioned undoubtedly form the clinical picture of an advanced case of Pernicious Anæmia.

Treatment :—Ayurvedic medicine is particularly remarkable for its elaborate and thorough treatment of disease. It includes a large number of drugs, medicinal herbs and preparations with directions regarding the hygiene and the diet of the patient.

The drugs are divided into groups according to Doshas which they affect. They should be used in such a way that they will

counteract the effects of disturbance of *Doshas* which have led to the causation of the disease.

After deciding from the conditions mentioned above that the prognosis is favourable, treatment should be commenced.

Remedial agents are described as being of two kinds viz., those which help to eradicate the disease or radical (शोधक) and those which cure the symptoms for the time being or palliative. (शामक). (शोधनं शमनं चेति समासादौषधं द्विधा)[2]

Among those described as the Shodhakas (शोधकाः) are enemata (बस्तिः), purging (विरेकः), and emesis (वमनम्) And among the Shamakas (शामकाः) are oil (तैलम्), ghee (घृतम्) and, honey (मधु). Remedies from these two groups are to be used in the respective order in diseases due to Vata, Pitta and Kapha.

Treatment mainly consists of remedial agents, vehicles (अनुपानम्) for medicine, and dieting (पथ्यापथ्यम्). All these are of great importance individually.

If the remedial drug is wrongly used the prospect of cure is obviously very little.

If the vehicle is not properly selected the drug may produce opposite and sometimes dangerous effects, while with a proper vehicle the same preparation may be invaluable in the treatment of multiple diseases.

As regards dieting (पथ्यापथ्यम्), it is said that drugs are of no use if the patient does not observe Doctor's directions as regards food. If the patient observes the rules of dieting there is no cause for disease; for, the perversion of "Tridoshas" which is the root cause of all diseases is due to unwholesome dieting (विविधाहितसेवनम्)[1]

Following are included among the wholesome dietary of a patient suffering from Pandu Roga:—

Moog (मूग green gram), Toor (तूर pigeon pea or Congo pea), Massor (मसुर Masuri), Padol (पडवळ snake guard), Yavas (यव Tritticum Sativum) Sali (साळी), Ripe Plantains, Sugar-cane of black variety, Tandulja (तान्दुळजा) Brinjals (वांगी) Meat Juice, Onions; Garlic, Mangoes, Butter, Butter-milk, Ghee, Oil, Saffron etc.

The following things should be avoided by a Pandu Rogi as being unwholesome:—

Hæmorrhages, smoking, delay in passing urine and faeces, sweating, sexual intercourse, pods, green vegetables, Udida (उडीद् common pulse), asafaetida, alcohol, sour things, spices and over-eating.

The drugs used in the treatment in Indian Medicine being numerous and the knowledge about them mostly empirical, it is difficult to describe the whole treatment in detail. So, the drugs commonly used in the treatment of Pandu Roga with their pharmacological actions and preparations will be described in brief below:—

Before starting with the treatment proper, the patient should be given a smart and oily purge as well as a strong emetic. After purifying the body with these, the medicinal treatment should be commenced.

Loha (लोह) Iron.

Iron improves the quality of blood, stimulates the functional activity of all the organs of the body and is a general tonic and an alterative. It is used in the following preparations:—

1. Loha Bhasma (लोहभस्म Prepared from Iron).

It is an alterative, tonic, hæmatinic and astringent. The process of preparation is complicated.

2. Navayasa Loha (नवायस लोह)

It is useful in all forms of anæmias. Its important preparation is a powder called Navayasa Churna (नवायस चुर्ण) It consists of:—

Trikatu (त्रिकटु) or the three bitters including
Pimpali (पिम्पळी) or Long Pepper,
Miri (मिरी) or Black Pepper,
Suntha (सुंठ) or Dry Ginger,
Triphala (त्रिफळा) including,
Harada (हरडा) or Chebulic Myrobolans,
Behada (बेहडा) or Embelic Myrobolans,
Awalakathi (आवळकति) or Belleric Myrobolans
All these are mainly astringent, stomachic and laxative.
Nagaramotha (नागरमोथा) or Tuber of Cyprus Rotundus,
Chitraka (चित्रक) or Plumbago Zaleynica root, and
Wawading (वावर्डिग) or Embelia Ribes.

DOSE:—4 grains with honey and ghee.

3. Lohasava (लोहासव)

It consists of the constituents of the previous preparation together with

Ajwan (अजमोदा)
Dhayati (धायटी) or woodfordia Floribunda flowers.

4. Shlothahara Loha (श्लोथहर लोह).

This consists of Trikatu, Yavakkshara (यवक्षार) or impure Potassium Carbonate and Loha Bhasma.

5. Mandoor (मण्डूर) or Ferro-Ferric oxide of iron or iron rust.

This drug is the most favourite and considered to be successful in the treatment of Pandu Roga in all its aspects. It is used in anaemia, menstrual irregularities, diarrhoea, and chronic intestinal complaints.

DOSE :—2-6 grains three times a day.

Mandoor Vataka (मण्डूर वटक), a preparation of Mandoor contains Trikatu, Triphala, Chitraka, Devadar (देवदार) and Wawadinga.

Chitraka (चित्रक) or Plumbago Zeylanica. In English it is called white Lead Wort.

It promotes appetite and is a stomachic tonic. It is included in many preparations prescribed for Pandu Roga.

Punarnava (पुनर्नवा) or Boeravia Diffusa; also known as spreading Hogwood.

It is a common weed in the tropics. One with white flowers is used in medicine. Its active principle is an alkaloidal sulphate, Punarnavin (पुनर्नविन्). It contains Potassium Nitrate in large amount. It is a bitter, stomachic laxative, powerful diuretic, expectorant and emetic. Its active principle promotes diuresis by action on glomeruli of the kidneys by raising peripheral blood pressure. It is very useful in deficient renal function and accumulations of fluid in serous cavities in the body, and in general anasarca. It may be given in the form of juice of its leaves, powdered root, decoction or infusion. It enters in the following important preparations:—

1. Punarnava-Mandoor (पुनर्नवामंडूर):—

It contains the following drugs :

Trikatu, Punarnava, Mandoor, Wawadinga, Triphala, and Neem bark.

2. Punarnavadi Kadha (पुनर्नवादिकाढ) also known as Punarnavashtaka (पुनर्नवाष्टक).

It contains Neem Bark, Dry Ginger, Harada, Gulancha. (गुळवेल) Punarnava, Kadu Padol, (कडुपडवळ Tricosanthus Doica.), Kutaki (कुटकी) Picrorhiza Radix), Daru Halad (दारुहळद Berberis Asiatica).

This preparation is useful in jaundice, general anasarca with ascitis, cough and difficulty of breathing.

Devadangari or Devadali (देवडांगरी, देवदाली Luffa Echinata).

This is known as Kukudavela (कुकुडवेला) in Guzarati and as Pittaphala (पित्तफळ) in the Bombay market.

This valuable drug is often neglected by the Vaidyas. It is a fruit of the size of a small nut with hair-like fibres on the surface. It is a powerful emetic and a purgative. It is also a bitter tonic, stimulant and diuretic. It helps healing of wounds. It is very useful in jaundice. It should be given by mouth with great care as it may cause in large doses dangerous symptoms. It is often given per nose or as a Nasya (नस्य).

DOSE:—1-2 Gunjas (about 2 to 4 grains) pulp of the fruit in two tolas (about an ounce) of cold water.

Shilajita (शिलाजित) or Swetia Decussata.

It is a bitter laxative, tonic, febrifuge and antiperiodic. Its preparation Shilajit-Vataka (शिलाजितवटक) contains the following drugs:—

Triphala, Neem bark, Kadu Padol, Nagarmotha, Dry Ginger and Shilajita.

Miscellaneous Preparations Dhatryavaleha (धात्र्यावलेह):—

This preparation contains Vanshalochana (वंशलोचन, द्विपलाश) Dry Ginger, Glycerrhiza Radix (जेष्ठमधु) black Pepper, Grapes, Sugar, and juice of Phyllanthus Embelica (आंवळा).

This preparation is useful in jaundice, Pandu Roga, Haleemaka (हलीमक) cough etc.,

For Haleemaka, is also prescribed Juice of Gulancha (गुळवेल) and milk, followed by powder of Ipomoea Turpethem or Indian Jalap (निशोत्तरचूर्ण).

For the jaundiced, branding with copper plate just above the wrist is also practised. Though this is an empiric remedy, it is often very successful in the treatment of jaundice.

The treatment of Panaki is almost the same as that of Haleemaka and Pandu Roga.

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AN INVESTIGATION INTO THE CAUSE OF THE RECENT EPIDEMIC OF BERI-BERI AT BURDWAN.*

BY

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Burdwan.

"It is characteristic of modern science that the whole world is seen to be more vital than before. Everywhere there has been a *passage from the static to the dynamic*. Thus the new revelations of the constitution of matter, which we owe to the discoveries of men like Professor Sir J. J. Thomson, Professor Sir Earnest Rutherford and Professor Frederick Soddy, have shown the very dust to have a *complexity* and an *activity* hitherto unimagined. Such phrases as "dead" matter and "inert" matter have gone by the board.":—*Professor J. Arthur Thomson.*

The central idea as embodied in the above citation is just a faint echo, couched in plain language, of that bold aphorism of the Sankhya system of Hindu Philosophy, enunciated when the world was thousands of years younger than now, which affirms that *every insignificant grain of dust beneath our feet is omnipotent and omniscient in* a potential way. That it does not exhibit evidences of such super-phenomenal possessions, *ordinarily,* is due to the fact of its being *limited* by certain agencies, into the metaphysical nature of which I do not propose to enter. Suffice it here to say that modern **Science** is just beginning to glimpse into the mighty truths revealed centuries ago by the sages of ancient India. Thus **Science** has come to declare, for instance, that there is enough energy contained in a *gramme* of water to propel a locomotive engine, with a full train of coaches and each with full load on, with marvellous speed through incredible distances! That it does not do so before our eyes is simply due to the fact that the energy, which is to accomplish this almost incredible feat, is locked up fast inside the atoms entering into its composition. If only by suitable means the tremendous amount of energy thus locked up could be liberated, the feat would be an accomplished fact!

Sir Oliver Lodge has written to say that 1/70th grain of Radium discharges, at a *speed, a thousand times that of a rifle bullet, thirty million electrons a second!*

Specially contributed to the Antiseptic.

* Readers who may so desire can refer to the author's article entitled "Reflections on the Epidemic of Beri-Beri at Burdwan" published in the September and October 1929 issues of the Medical Review of Reviews, Calcutta. (Editors).

Professor Le Bon has calculated that it would take *1,340,000 barrels of gunpowder to give a bullet the speed of one of these electrons!* He shows that *the smallest French copper coin*—smaller even than a farthing—contains an amount of energy equal to *eighty million horse-power! A few pounds* of matter contain more energy than we could extract from *millions of tons* of coal!

Such is the verdict of sombre **Science** which is incapable of cracking a joke or joining in a hearty laugh.

It is to be remembered, however, that *the energy inherent in an atom is only liberated when an atom passes from one state to another.* The stored up energy is fast bound by the electrons (which constitute the atoms) being held fast together in a most marvellous manner. If it were not so "the earth would explode and become a gaseous nebula"!

Another solemn pronouncement of stately **Science**!

The *circumstances* which lead to this locking fast of the tremendous amount of energy in every insignificant particle of matter, is what the Sankhya calls *the limitation.* But remove the bonds that confine the energy thus stored *potentially* in the almost contemptible gramme of but too familiar water, and see what feats it can accomplish!

The Sankhya conception is, of course, ever so much higher in that it places no limit to the amount of energy thus locked up, and, besides, in endowing that energy with intelligence. Judging from its general trend it would be no idle speculation to anticipate that **Science**, before long, will come to discover evidences of intelligence in energy hitherto considered blind.

The transition, thus, is from a static to a dynamic conception of the universe. Our dear old mother Earth forming, as she does, just an inconceivably small fraction of the stupendous Universe, and a relatively greater fraction of the solar system of ours must, necessarily, claim a fair share of this fairy conception of Modern Science, and she is quite entitled to do so. Everywhere on this sublunary sphere of ours in these days men of education with a reflective turn of mind are beginning to discover, in place of the "dead as a door-nail" matter, evidences of energy which would appear as though big with the suggestion of intelligence. Metaphysicians—Oriental (and some among them authors of the orthodox systems of Hindu Philosophy) thousands of years before the earliest Occidentals—have long ago reduced our ever-familiar, so very substantial "matter" to eerie energy, and they have been laughed at as roving fools for their trouble. But it would appear that the class of men most responsible for the ridicule are coming slowly to think in the way

of the roving fools themselves. The world is, indeed, a fickle *place*, and the human mind a *phenomenon* very much so!

The cause of the Epidemicity of Diseases.—A disease is said to occur in an *epidemic* form when, broadly speaking, *several cases* of it *occur at the same time.* Now why should a disease occur in an epidemic form at all? Obviously, there must be some reason for the occasional outburst. These reasons, broadly speaking again, may be grouped under the following heads;

I. In the class of the specific Infectious Diseases, the only class in which such reasons have been ascertained to any degree approaching completeness, may be enumerated as follows:

(A) Exaltation of virulence of the causative organism, the resistance of the individual remaining *practically* unaltered.

Bacteria being living organisms depend for their existence, among other items, on food, temperature and moisture. When, owing to some reason or other, these fall below a certain level, or otherwise become unsuited to the needs of the bacteria, the vital activities of the organisms become lowered accordingly. When, however, these items are present in a form and degree suited best to the requirements of the organisms (optimum), the bacteria thrive, multiply quickly, and each individual thus formed produces a relatively larger amount (?) of toxin of a more potent character. This concatenation of events would lead to an "exaltation of virulence" of the organisms.

(B) A lowering of the resistance of the individual who suffers. An organism, like the Diphtheria bacillus or the Pneumococcus, may be present for days or weeks in the throat of a healthy individual, who may never know that the organism is there. But if, owing to some reason or other, the personal resistance of the individual happens to be lowered, preferably suddenly, infection may occur. The virulence of the organism in such cases is not positively increased; only the resistance of the individual being lowered, the organism now feels itself relatively stronger to obtain a successful footing in the way to invasion, whereas while better resistance of the tissues prevailed, the organism found itself relatively weak to effect this.

It is, thus, purely a question of *relativity*—relative integrity of tissue resistance as representing the natural defensive mechanism of the body, and the capabilities of the invading organism. Thus, privation and exposure, acting separately or conjointly, may bring about such a result in an individual or a number of individuals who may, otherwise, have escaped the disease. Thus it is that epidemics of diseases are so rife during times of famine.

(C)—An unusual increase in the number of the causative organisms and their broadcasting. Such a state of affairs obtains in

epidemics of Cholera, Bacillary Dysentery, etc. Here owing to defective sanitation-crude methods of disposal of the highly infective discharges—the bacteria find their way to food and sources of drinking water, and thus wholesale infection becomes possible.

Further, the causative organisms would appear to possess an increased pathogenicity towards the beginning and middle of an epidemic than towards its termination. This may be due either to an actual exaltation of virulence of the organism on such occasions, or to a lack of acquired immunity on the part of the persons affected in respect of the diseases concerned. As the epidemic advances, the organism possibly loses the exalted virulence it appeared to have possessed towards the beginning and middle, or, what would not sound a less sensible proposition, the people by such time develop a certain amount of relative immunity by having lived through the epidemic. Thus, it is a fact that doctors, nurses aad hospital personnel in attendance upon cases of infectious diseases seldom develop such diseases themselves. It is also a fact that people protected against diseases such as Cholera, Typhoid, Plague, Influenza and the like suffer less than unprotected people. Should the former have the misfortune to catch the diseases during the period, the immunity thus conferred on them artificially is assessed to last.

II. It is otherwise, however, with the class of diseases supposed to be due to "Intoxications," or those due to grave disturbances of metabolism, or the so-colled "Deficiency Diseases". It is worth mentioning here that medical writers are not agreed upon the grouping of diseases under the above heads. Thus, while some regard Pellagra and Beri-Beri as "Intoxication" diseases, others regard them as coming definitely under the head of the "Deficiency" diseases. In the face of such difference of opinion, the best thing I can do, perhaps, is to adopt the classification of that authoritative work, "The nomenclature of Diseases" (5th Edition 1918), which does not recognise "Intoxication" as forming a separate group by itself.

As this class of diseases are not due to any *causative organisms* that we know of, the observations that apply to the bacterial diseases do not, for obvious reasons apply here.

One striking difference between the two classes of diseases is that, whereas the bacterial diseases are, for the most part, *acute in their onset and course* (excepting a few, like Leprosy and Tuberculosis in a majority of cases), the "Diseases due to disorders of nutrition or of metabolism" are characterised by an *insidious onset and an extremely chronic course* and this is what it should be when we consider the origin of this latter class of diseases, so far as we know this at present.

The nutritional and metabolic diseases are believed, in the present state of our knowledge, to be due to certain bio-chemical changes effected in our organism as a result of either an impoverished nutrition, or a faulty metabolism; and as these processes must, with any degree of reason, be extended over some length of time to produce the bio-chemical changes peculiar to each, the *symptoms* characterising the diseases thus induced can only be *slow in their evolution*, and the diseases themselves protracted. They tend to drag on their lengthy course and are not, as a rule, killing outright in the absence of complications of an acute nature. The prevailing tendency of such diseases is to disable or cripple the sufferer, who often has to drag on a painful, miserable existence e. g., Gout, Beri-Beri, etc.

Epidemics in the case of such diseases do not occur in the same sense as with the bacterial diseases. Yet, such may occur in a modified sense. Thus it was usual for epidemics (strictly speaking, outbreaks) of scurvy to occur on boardships when fresh supplies of food were not available ("ship scurvy"). Here, the men were subjected to the same deficiency of food, and none besides themselves (e.g., the crews of other vessels who were fed on fresh-food) showed signs of the disease. The investigation of such isolated outbreaks would, at first sight, seem easy, but it was certainly not found so in practice at the time.

It is, however, different with Beri-Beri, and the recent epidemic of the disease at Burdwan furnishes a case in point. The rapid mode of spread and the large number of persons attacked (scarcely a member left untouched, in some form or other, in a house, and scarcely a house left unvisited) would certainly stand a very good comparison with an epidemic of a bacterial disease In fact, the resemblance has been so striking that it has compelled many medical men to pause and reflect *whether Beri-Beri was not an infectious disease after all.*

The epidemic has certainly been a memorable event in the history of Burdwan, the number of persons attacked and the death-roll being simply unprecedented by any previous epidemic of any disease occurring within the last twenty years, and during this period Burdwan has been visited by such scourges of humanity as Plague and Influenza.

(*To be continued*)

SUMMER DIARRHOEA IN CHILDREN.

BY

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Small children have a remarkable susceptibility to bowel complaints. This is more so in those, who being for some reason deprived of mother's milk, have to be artificially fed on bottles. Ignorance with regard to rules and system of artificial feeding amongst the masses in general, is an additional reason for the greater prevalence of bowel complaints amongst the children of this country. Overfeeding is done in almost every house and no regard whatsoever is paid to the quality and suitability of the food given. A variety of bowel complaints is the natural consequence and the worst types of these are seen in the hot weather.

The infective diarrhoea of summer, commonly known as summer diarrhoea on account of its prevalence in summer, is a serious affection. It ranks high amongst diseases responsible for infant mortality and needs a careful treatment. Irregularities in diet with the resulting indigestion, constitute an important predisposing factor and the disease itself in ushered in with vomiting, fever which may go up to 104° or 105° and diarrhoea. The stools are offensive, fluid and contain large quantities of undigested food and curds. The faecal nature of stools may disappear after a time and these may consist simply of fluid, little mucus and occasionally little blood. A specimen if examined under the microscope reveals undigested food residues, cast of epethilial cells, a few red and white blood cells and a large number of bacteria. Constitutional symptoms in this disease are always marked. Fever is high, the child becomes irritable and does not sleep properly. Convulsions and coma may also occur in bad cases. Thirst is a prominent symptom and in some bad cases is almost insatiable.

Treatment.—Dietetic treatment is of utmost importance. All food including milk must be completely stopped. Nothing but plain water should be given to the child for some hours, or even for some days if the condition is very acute. Later on when acuteness subsides barley water or albumin water should be given in small quantities. Unless the temperature becomes completely normal, return to milk diet should on no account be made. Even when the trouble has completely subsided return to full diet should, if possible, be avoided during the remainder of the hot weather.

In cases of summer diarrhœa, it must always be remembered that diarrhœa is an attempt on the part of Nature to get rid of undesirable matter from the intestines. Any attempt to check the diarrhœa in the beginning will not only do no good but may

even lead to disastrous consequences. *Elimination* should therefore be the watchword of treatment. Nature should be assisted to get rid of the waste material, and alkaline sulphates particularly the sodium sulphate in suitable doses are the best for this purpose. With the relief in irritation there will be an automatic reduction in acuteness of the condition and interval between the doses can be regulated according to the condition of the illness. Rest of the treatment should be carried out on symptomatic lines. Hydrotherapy for high temperature, sedatives for nervous irritability and stimulants for cardiac weakness should be resorted to. Astringents should only be made use of, when diarrhœa persits even after disappearance of all constitutional symptoms.

Cases & Comments

AN INTERESTING CASE FOR DIAGNOSIS.

BY

AISHI RAM SINDHI, *Amritsar.*

I was called to see a patient at 4 p.m. on 27th April 1930. The patient a Mahomedan male aged about 40 years, cultivator by occupation was seen in a condition of complete unconsciousness with laboured breathing. His mouth was closed. I inquired the history of the patient from his relatives who described it thus.

A few days before my seeing him, he had painful swelling of the throat with dysphagia. He was treated by a Hakim who suggested him Venesection and some Desi medicine to be applied externally to either side of the throat. This sort of treatment removed a bit of his swelling and he was able to take liquid diet. Early in the morning of 27th April, while at work in his fields, which were nearby, he got an acute attack of shivering which lasted for about 2 hours followed by an abrupt rise of temperature and subsequently unconsciousness. He was not given anything till 4 p.m. When I examined him I found him in the following condition.

Temp. 105.8 F.
Pulse 138.
Respirations 22 per mt.

No injury on any part of the body. Eyes shut. Pupils reacted to the touch of the fingers.

Physical examination.
Heart and lungs—normal.
Abdomen—soft.
Liver—not enlarged.
Spleen—normal.

No history of taking alcohol, no odour from his mouth.

He passed stools and urine in the morning. I tried to open his mouth but could not. There were sometimes tremors of the arms.

Thinking it to be a case of Cerebral type of malaria I injected Quinine Hydrochl gr V with digitalin intramuscularly. After that I gave him Diaphoretic mixture and iced water to be applied on his head.

Next morning I again went to see him. He was in that very same condition. I tried to open his mouth but could only partially open it. The tongue was found a little black at the back part. Temperature 104. I touched his eyes with my fingers and found the pupils inactive and less transparent. So I thought that he was nearing death. Thinking it like this I did not inject him but only gave him stimulant mixture. But before the mixture reached, the patient succumbed. I request my fellow brothers to let me know the probable diagnosis. I think that it may be either of the two: (1) Diphtheria (2) Tetanus. His blood was not examined.

MAGGOT IN THE NASAL CAVITY.

BY

N. N. BISWAS L. M. F.

Dariapur (*Nadia*).

Patient:—B. Biswas, a Hindu male, aged about 48, complained of continuous bleeding from the nose for the last 3 days. Several kinds of medicine both Homoeopathic and indigenous, were tried but they failed to produce any beneficial effect.

I attended the patient on the 3rd day of his illness.

Clinical picture:—The patient was lying on his bed in a very dejected state of mind and the bed-sheet and clothes were stained with blood. All these presented a horrible picture. I asked the relatives to change the bed-sheet and clothes but they informed me that they had changed them several times. However they changed them at my request. The flow of blood was not rapid but was oozing slowly from the right nasal cavity. A piece of handkerchief moistened with cold water was placed on the bridge of the nose in the form of cold poultice. The water in the handkerchief and the blood from the nose caused the spreading of blood-stain on the clothes and bed-sheets.

On examination I found the following:—The patient had no fever, temperature 97° no enlargement of spleen and liver, pulse 65° to 70°. The patient looked pale, he had full sense but he was very much afraid. the colour of blood was dark black but when it was mixed with water it became red, no history of injury, or previous ulceration. I found blood clot in the right nasal cavity, the left one was healthy.

Previous history:—The patient had been suffering from dyspepsia. He was addicted to drink habit but at that time he was trying to control himself. In spite of his desire to get rid of this bad habit he met with partial success. He used to drink a small quantity every day. Further he began to take sidhi in the form of sarbat as a better substitute for wine. This, according to his own version of the case partly relieved him of his dyspepsia. He gave a history of Syphilis. Previous to actual bleeding he felt some sensation in his nose, and actual bleeding commenced thereafter. This was rapid on the first day but gradually slower in motion on the following days, quantity remaining the same.

Treatment:—I cleaned the nose with hot Boric lotion and tried to remove the clots but the whole clot could not be removed. Adrenalin chloride sol was put into the nose drop by drop but it could not check the bleeding perhaps owing to the clots. I then prescribed the following:

Borax	ʒiii
Sodi bi carb	ʒii
Hazeline	℥i
Tr. Benzoin Co	ʒiv
Sacch Alba	ʒiv
Aqua dist add	Pint 1

Wash for nose.—A little quantity of it was poured into the affected nose while the head of the patient was kept extending backwards so that the medicine could not come out. This checked the bleeding for some time. I then plugged the nasal cavity with cyanide guaze.

I then injected the patient with Emetine-hydrochlor gr Ī and advised the patient to take absolute rest. The patient was not allowed to use pillow, the bed was so adjusted that the head of the patient rested on a lower level than the legs.

I also prescribed the following:

(*a*) ℞

Calcii Lactas	gr xx

F. P. 4 such

(*b*) ℞

Ext Ergot Liq	m xv
Tinct Ferri perchlor	m v
„ aconite	m ½
Aqua add	℥ i

F mixture send 4 such

a and *b* alternately, every 4 hours.

17-4-28. I was informed that blood began to reappear just after I had left. They changed the gauze several times. The patient could get temporary relief as soon as a little quantity of the solution was poured into the affected part, but it reappeared after a while. The patient was weak, the bleeding was still going on. Temperature 96½°. Pulse became weak and he was pale.

I injected adrenaline chloride solution 1 c.c. and cleaned the nose with hydrogen per-oxide. This almost cleared the clots, now bright red blood slowly came out. I mopped the blood with absorbent cotton and douched the nose and plugged it with the gauze.

I waited an hour and found no bleeding. Still I injected 10 c.c. of normal horse serum into the abdominal muscles of the patient. The mixture was omitted, only calciun lactas powder was continued.

18-4-28. On this day the patient informed me that after my departure from the house he felt some sensations in the affected nose; this led him to take out the gauze. As soon as he did this he saw some maggots coming out of the nose. They were living creatures. He showed them to his relations; there were twenty in number; after this the bleeding almost stopped but on the morning of the 19th it began to ooze again.

19-4-28. This day I also cleaned the nose with hydrogen peroxide and found 4 maggots almost dead coming out from the nose.

Prescription same; injection same.

20-4-28. Bleeding was absolutely checked, no maggot appeared, the patient slept well and looked cheerful.

Treatment same.

24-4-28. No complaint. I advised him to take a course of antisyphilitic treatment and prescribed the following:

Pot Iodide	gr. iii.
Syp tri folium Co	ʒi
Spt ammonia	m xx.
Aqua add	℥i

m. ft. send 16 such 3 times a day.

From this day the patient made an uneventful recovery.
The points of interest:

(1) What was the original source of the maggots there?
(2) Can they be the probable cause of the bleeding?
(3) Did they come out from the nose or from some other place?

ROUND-WORM, THE ROOT CAUSE OF VARIOUS AILMENTS.

BY

DR. M. BAROOA, L. M. P., F. T. S., SAHITYABHUSHAN,

Mancotta T.E. Hospital. Dibrugarh, Assam.

The havoc done by the common round-worm is not inconsiderable. That it is the root cause of various ailments will also be admitted by the readers of the medical periodicals and by those physicians having had exepriences of such cases. It is thus playing an important part in the role of diseases, sometimes giving rise to very peculiar and obscure symptons. Needless to say it very often baffles the skill of the attending physician.

Now, let me make a brief summary of some case notes that have appeared in the medical journals which I have the opportunity of reading regularly.

1. Night-blindness due to Ascaris lumbricoides infection in a child, aged 6 years.—(*I. M. G., March, 1926.*)
2. An interesting case of round-worm infection. Patient, a boy, aged 2½ yrs.

Signs and Symptoms:—

i. "Tossing restlessly in bed with occasional cry and convulsions.
ii. Abdomen distended, painful on pressure and gurgling noise.
iii. Temperature 102° F.
iv. Eyes shut: when opened forcibly the eye-balls were found turned upwards.
v. No response to call or anything."—(*The Antiseptic. December, 1926*).

3. Patient, a Hiudu boy, 9 years old.

Had severe colic followed by profuse diarrhoea (12 to 15 motions daily). "Any kind of treatment for diarrhoea could not cure him. Suddenly one dose of calomel and Santonin brought a bundle of the worms and cured him in no time.—(*The Antiseptic, September. 1927*).

4. A peculiar case (a boy 10 years of age.)

Symptoms:—Fever—abdomen slightly tympanitic—crepitations heard on ausculations.—(*I, M, J., April, 1929*).

5. Round-worm more than ½ yard in length (a Hindu boy, 4 years). Passed 4 other round-worms nearly 1 foot in length each.—(*I.M.J., October, 1929.*)
6. Chorea caused by round-worms.

Patient, a Brahmin girl, aged about 9 years. Treated with Santonin and passed some 50 worms. Symptoms disappeared.—(*I.M.G., April 1929.*)

7. Asc. Lumbricoides—a case of hiccough.

Patient, a Hindu female, 20 years old. Treatment for hiccough had no effect. Cured by Santonin, Calomel and Sodii Bicarb followed by Ol. Recini (The *Antiseptic December 1928.*)

8. A case of Ascaris infection simulating typhoid. A Hindu F. ch., aged 4 years. (The *Antisepiic, July, 1929.*) A similar case reported in. *I.M.J.*, (*March, 1928.*)
9. Cases simulatiug cholera reported in *I.M.J. June 1927 & May 1928* in the *Antiseptic, December, 1929.*

The following cases have come to the notice of the present writer:

1. A case simulating acute intestinal obstruction. The case was seen in my student life. It was operated upon, but on opening the intestines were found to be full of worms, over 300 of which were removed and placed in a basin which really presented a horrible sight. The patient expired soon afterwards.

It was reported by my humble self and appeared in the correspondence column of *I.M.G., January, 1927.* The specimen is still in the Pathological Museum of the B.W. Medical School. Dibrugarh.

2. Two cases of Ascaris Lum. infection simulating cholera. Contributed by me to *I.M.G.* and appeared as a case note in its *July, 1927* issue.

3. A fatal case of Asc. L. infection. Patient, a male ch., 2 years old. Had fever and convulsions. Passed some round-worms, but expired within 24 hours. (The *Antiseptic, September, 1928.*)

4. Remittent fever caused by Asc. Lumbricoides. Patient. a female child, 5 years old. (The *Antiseptic, September. 1928.*)

5. A case of round-worm infection. Patient, a Hindu female child, 1½ years old.

Had general debility—a pendulous abdomen—was restless and crying bitterly.

On treating with santonin suspended in castor oil emulsion the child passed 32 round-worms in a lump and 11 on the following days. The child was in the hospital for 12 days and then discharged cured.

The same child was readmitted on the 29th August, 1928, i.e., after 11 days, with Broncho-Pneumonia. I surmised that the child was not free from toxaemia and so treated her with santonin in castor oil emulsion. This time she passed 4 worms only. Then general treatment for Broncho-Pneumonia was adopted, Antiphlogistine applied and a slow rectal injection of warm Pot. Perm. solution (Grs ii to oi) was given twice daily (2 ozs. at a time).

The injection produced the desired effect, for, the temperature came down to the normal on the following day. The child made an uneventful recovery.

A CASE OF CHOREA

BY

CAPT. SHYAM LAL B.A., M.B., P.M.S.

Civil Surgeon Ballia.

Cases of Chorea among Indians are so very rare that the following case admitted into the District Hospital, Ballia will be of general interest.

1. *A boy aged* 7:—Admitted for involuntary movements of the arms and the face, and weakness of the hands and the legs.

Present History:—20 or 21 days ago, he was taken for worship to a temple of Shiva on the last Sheoratri. While coming back he fell down in the way all of a sudden. Since then he has developed the symptoms noted above.

No history of rheumatic fever in the child or of rheumatism or any other neurotic ailment could be traced out in other family members.

Symptoms:—No prodromal symptoms could be traced out. The boy has been said to be quite healthy before the attack. No acute disease or unfavourable circumstances are said to have preceded the disease.

There are peculiar jerky clonic spasm of the muscles of the face and the left arm, there are sudden quivering and twistings of the face, sudden closing and opening of the eyes; twisting movement of the arms.

Sudden seizure and sudden dropping of any object which it attempts to catch.

When the boy is asked to walk, he walks with a sudden jerky movement and turns round after two or three steps. The movements are intensified by the voluntary muscular effort of any kind.

Speech is also affected giving rise to peculiar jerking out of words, and resulting in indistinctness of speeches.

Peculiar points in the above case are as follows:—

(1) Sudden onset.

(2) No prodromal symptoms.

(3) No history of rheumatic fever in the child, no history of rheumatism or any other neurotic ailment in any other member of the family.

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FIBROSITIS.

Fibrositis is a term which is fast becoming recognised as a definite clinical entity. In its true form it is an inflammatory reaction of the fibrous tissue in any part of the body to an irritant poison.

The poisons that cause fibrositis may be either bacterial or metabolic. The former is genarally a toxin derived from one or the other forms of streptococci. These streptococci can be lodged either in the teeth, tonsils and the accessory nasal sinuses, appendix, gall bladder and the intestinal mucous membrane. The Staphylococci or the B. Coli are also held by some to be causative but the evidence in favour of this view is not conclusive. The metabolic toxins are the products of muscular activity and impaired digestion. Lactic acid, urea and uric acid are the chief products of mucular activity and therefore when their elimination is imperfect they might collect within muscles and give rise to tissue reactions. Whatever the type of poison it is very essential to know the circumstances under which this toxin is deposited. The fact that some people and some families are prone to it makes one feel that there is a hereditary and constitutional factor. That this is a metabolic fault is suggested by the affinity it has with gout. Both the dry skinned and those who sweat profusely are liable to it. In the former perhaps there is deficient thyroid activity and consequent flatulent atonic dyspepsia with an intolerance for carbohydrates. In the latter there is no time for steady evaporation and

they get a "chill" when they expose themselves to sun or wind even in summer. What probably occurs is an impairment of circulation and a doposit of toxins.

The commonest localities in which deposits of toxins occur are in the facsial bands, muscular sheaths, and the tendinous insertions of muscles, sheaths of nerves, fibrous capsules of joints, fibrous tissue of pleura or peritoneum. So many cases of muscular rheumatism, Sciatica, pleurodynia, bronchial neuritis &c are in reality cases of fibrositis.

What really happens when there is a deposit of toxins? At first there might only be a point of irritation. In this stage there is tenderness and pain with resultant loss of sleep and impairment of general health. Next, if the irritation still persists, there is scar tissue formed as a protection. To this the neighbouring muscles and nerve fibres become adherent. Pain and stiffness are the result. In the final stage the typical hard ridge or nodule forms. As the irritation subsides they might lose their tenderness but in view of their poor blood supply there might be sites of fresh deposits of toxins and relapses are common.

The complications and late results may assume very serious proportions. In muscular rheumatism the pain and stiffness may cripple the patient and the consequent lack of sleep and exercise may affect the general health of the patient. In the case of perineuritis the inflammation may spread to nerve fibres and result in muscular wasting, paresis, sensory and trophic disturbances. When the capsules of joints are involved there may be contractures and deformities and later on Osteo-Arthritis may result.

The question of treatment is therefore of prime importance. The first thing ought to be to remove the toxæmia. The bacterial toxins have to be searched for. Dental abscess, dead and decayed teeth, accessory nasal sinuses and diseased tonsils especially the flat, chronic septic tonsils, appendix, gall bladder and the general intestinal tract must be eliminated as causes of the trouble. In the removal of the metabolic toxins the skin and the kidneys are the organs which must be activated, the former by the application of heat in the form of hot air or hot baths and the latter by measures promoting diuresis. Laxatives may be used but frequent purgatives should not be given. No definite rule can be laid down regarding the diet. Many sufferers are better for a reduction in the intake of starch and sugar. But it is always advisable to avoid hard and fast rules regarding diets.

Local treatment resolves itself into the treatment of the fibrositis and that of the nodule. In the former case rest in the best orthopaedic position is essential. In the acute stage of the latter, the pain is so severe that no active treatment is possible

Rest, heat applications and aspirin relieve pain. When the nodule is formed it has to be rubbed away by massage and the liberated toxin removed through skin by hot baths or hot air baths.

The avoidance of recurrence is also of great importance. The upkeep of the general health at a maximum efficiency is absolutely essential for this. The teeth and other sources of trouble must be attended to regularly. Digestion must be unimpaired. Exercise is essential and should be, if possible, followed by a hot bath to keep the skin active and eliminate products of muscular disintegration.

Medical News and Notes

NOTES

BY

MAJOR LABERNADIE M.D.M.S., P.E., (*Paris*).

"Epidemiology of Tuberculosis in India".—In the beginning of January, before the members of the "Societe de Pathologic Exotigue de Paris," gathered at the Pasteur Institute, Prof. UKIL (Calcutta) has given, in French, a striking lecture on the above subject.

On the use of the Vernes' Photometer for the Chopra and Gupta's test.—In order to measure more exactly the degrees of this test for the diagnosis or the control of the treatment of Kala-azar, ANDRE and LABERNADIE use the serum of the patient diluted to $\frac{1}{100}$ and a solution of ureastibamine in water at $\frac{1}{100}$. The floculation obtained in the mixture is ciphered with the photometer and the slightest changes in the serum are made conspicuous.—(*Soc. Path. Exotigue—8th January '30.*)

A New test for the diagnosis of Leprosy.—To take a recent skin leproma and to squeeze it or to crush it with normal saline—To warm the mixture at 60° C. during an hour—To inject 0·5 or 1 c.c. under or into the skin of a suspected patient. If an abscess gets on, the patient is sound; if not, the patient is a leper.

(*Tisseuil.—Soc. Path. Exotigue - 8th January 1930.*)

Treatment of Furunculosis by the Zn-stovarsolate.—This product prepared by M. M. Poulenc (SPECIA) contains As. 23% and Zn 10%. It is no more toxic than stovarsol, which is, as we know, very well tolerated by patients.

The tabloids (0·5 gramme) must be taken thrice a day, a long time after meals, during 4 or 5 days. The disease, so tenacious chiefly in hot climates, is quickly cured.—(*Prof. TANON—Soc. Med. Hyg. Trop.—23rd January 1930.*)

Electric treatment of Elephantiasis.—The bipolar galvanization has given to Dr. CHOMEREAU-LAMOTTE some hopeful results.—(*Soc. Med. Hyg. Trop.—23rd January 1930.*)

Prevention of Tuberculosis,—PARISOT et SALEUR have used the B. G. G. (T. B. modified by Calmette and Guerin) *hypodermically* (and not orally, as usual) for preventing tuberculosis on 443 young children and have quite well succeeded.—(*Presse Redicale—29th January 1930.*)

Encephalitis (sleepy sickness) after inoculation against Small-pox.—It has been established several years ago that cases of severe encephalitis follow sometimes vaccinations against small-pox. During 7 years, nearly 300 cases have been reported, chiefly in England and Holland; in France, there are hardly more than 20 cases known.

They do not know whether this disease is due to the extensions of the lymph-virus to the nervous centres or whether the lymph-virus prepares simply the way to another virus till now unknown.

At any rate (1) the disease being very uncommon in new born children, it is warned to inoculate them as early as possible (as done in France).

(2) The disease getting developed specially after cases where inoculations have caused a strong or generalized eruption, it is preferable to make only one and small scarification.

Moreover, though there is great discrepancy of opinion, to inoculate lymph obtained from heifers is perhaps better than to use the neuro-vaccine obtained from rabbits.

At last, the rareness of the post vaccinal encephalitis does not lead to limit the practice of the vaccination against small-pox.

—(*PAGNIEZ—Presse Medicale—29th January 1930*).

Gold—therapy in the Diabetes with Tuberculosis.—VILLARET JUSTIN-BEZANCON, CACHERA think that treatment is dangerous for the patients suffering from both diseases.—(*Presse Medicale—12th February 1930.*)

Rat-leprosy and B. C. G. (T. B. Modified by Calmete and Guerin).—We know that rats are very often struck by a kind of leprosy due to B. Stephanski. VALTIS and MARKIANOS have seen that hypodermic injections of B. C. G. improve and cure quickly the ulcers of the skin and delay the generalization of the lesions.—(*Soc. Biol. 15th Feb. 1930*).

[These attempts agreed with the previous experiments *on the man*, of Rau (Bombay) with a T. B. extract,—of Pons (Saigon) with the B. C. G. itself].

Psittacosis.—In 1892, Nocard found B. psittacosis in the parrots suffering from this disease. In human cases, they thought the same microbe was the cause. Recent works seem to lead to an ultra-virus in any cases, B. ps. being of accidental or secondary contamination. Till now the treatment of this severe kind of pneumonia (striking now the suburbs of Paris) is only symptomatic.

(*MARIANNE ROMME*—(*Presse Medicale—5th March 1930*).

NOTES

BY

PROF. COL. FROILANO DE'MELLO, NOVA—GOA.

THERAPEUTICS.

Pathogeny and treatment of Black Water Fever A. Aravantinos (*Medecina de los paizes calidos* II n°4 July 1929)

Black water fever is the consequence of an abnormal activity of reticulo-endothelial apparatus due to chronic malaria. The access may be produced by a malarial attack, by quinine or other drugs. In the first case quinine cures blackwater; in the second case quinine is contra-indicated.

The treatment of black water fever comprises two periods of time: firstly hemolysis should be ceased. This can be done by intravenous injection of any colloidal substance which produces the blockage of reticulo-endothelial system. In the second time elimination of hemoglobine should be activated: intramuscular injection of novasurol or salyrgan, 2 or 3 hours after the colloidal injection gives excellent results.

Further treatment must be directed against malaria, avoiding however a recidive of blackwater. This should be done by de-sensibilisation of the patient, injecting intravenously 0·1 gr of a-

quinine salt among two injections of colloidal substances. Repeat 2 or 3 days after and generally after 3rd or 4th intervention no more hemolysis occurs and quinine may be given per os. Quinine produces also hemoglobinuria in non-malarial patients whose blood contains hemolysis.

Treatment of Tuberculosis with Morrhuic Acid Salts and esthers. F. Gomez *(Revista de hygieney Tuberculosis 258 30 XI 29.*

The author used subcutaneous injection of 3% solution of sodium morrhaute. Dose: 3 injections per week according to technique of Boette. Begin with 1/10cc and increase till 1cc. Repeat this dose from 5 to 50 times. If there is no favourable result after 10 or 15 injections cease the treatment. Number of cases treated in this way are 80 with at least 12 injections. 6 had hemoptisis during treatment and in 31% no amelioration.

The author used also *colloidal cupric morrhuate or Gadusan.* This is an excellent treatment specially because, being atoxic, can be safely used in nephretics, asthmatic patients, pregnant women etc. It finds its best indication in pulmonary fibrocaseous Tuberculosis.....Hemoptisis is not a contraindication. 46 cases treated; the bacilli disappeared in 10, considerable amelioration in 24, no amelioration in 8, became worse in 14; weight increased in 23. The treatment was used by subcutaneous and intravenous method: three weekly injections of 2cc. or 10cc once a week. Series of 30 injections. Repeat the treatment after some months.

The author has little experience of the *chalmorrhuate* of Pomaret.

Experimental Pulmonary Tuberculosis through digestive tract Lopo de Carvalho and F. Mira (*in Revue de la tuberculose X.* 2 Apr. 1929. Collectanea. *Instituto Rocha Cabral Travaux de laboratoire* III 1929.

Conclusions of Experiments made on dogs.

1. Primary tuberculosis of lungs may be realised through digestive tract.

2. The Bacillus of Koch may follow the venous system from the intestine where it is absorbed, till the lung where it is developed.

3. Such a traject explains the reasons why the tuberculous lesion of the lung is fully developed with no alteration of the ganglion tributary from the absorption place.

Conclusions of Experiments made on monkeys: (*Compt. Rend. Soc. Biol. CII 206 1929—Collectanea ibid*).

The bacilli absorbed by the intestine give a miliary tuberculosis generalised to both lungs. The aspect of the lesion is analogous to that following massive intravenous injections of a bacillary emulsion. The hypothesis according to which the bacilli follow the vein system from the intestine to the lung is fully demonstrated.

On the pathogeny of toxic accidents due to soluble Mercurochrome 220 Silveira Ramos *Archives Portugaises des Sciences Biologiques* II Fasc II 1928).

The use of mercurchrome by intravenous injections provokes sometimes accidents similar to those found in hydrargyric intoxications: diarrhoea, stomatitis, nephrosis and sometimes colitis. The studies made by the author give the following results:

1. The toxic effects are attenuated when the presence of the drug in the intestine is avoided. The intestine is the place where mercurochrome is transformed.

2. The toxic effects of mercurochrome are independent of its concentration when passing through kidneys. So, they are not due to mercurrochrome *in se,* but to the products of the fragmentation of its molecle *in vivo.* As they are very similar to hydrargyric intoxication they are caused by the presence of iron Hg. in the intestinal content.

3. The intravenous injection of mercurochrome is equivalent as far as concerns toxic accidents to the administration *per os* of a hydrargyric salt.

Fattening therapy in tuberculosis by Insulin.—Combemalle, Gernez, Breton.—(*Annales de Medecine XXVI n° 5 Dec 1929*).

Insulin cannot be administered systematically to all tubercular patients. It should bo avoided in evolutive tuberculosis, in sub-febrile cases or in those having unstable temperatures, hypotension or hemoptoic forms.

Insulin should not be given in strong doses. The *optima* dose is 30 units per day in two injections; 45 to 60 units are useless and sometimes dangerous. Cure should not be prolonged over 2 to 3 weeks.

The treatment should be interrupted at the least accident. Arterial tension and temperature must be particularly studied.

In patients submitted to insulintherapy, there is remarkable increase of weight and amelioration, of nutrition, also a curious euphoric action. But one must always have in view that dangerous accidents and evolutive accesses may occur.

Essays of treatment of Leprosy by tellurium Stanziale **(Giorn italianodi malattie exotiche tropicale** June 1628 n°6.

5 lepers, 4 with lepra tuberosa, 1 with lepra maculosa treated with intramascular injections of tellurium preparations. Rapid regression of nodules, rapid healing of ulcers.

SURGERY.

The surgical indications for sympathetic ganglionectomy and trunk resection in the treatment of diseases resulting from vasomotor spasm of peripheral arteries A. W. Adson **(Bull of the New York Acad of medicine** Vol. VI n° 1 Second series Jan. 1930).

The factor of vasospasm and impairment of the circulation undoubtedly give rise to or contribute to the production of Raynaud's disease, thrombo-angiitis obliterans, scleroderma, chronic periarticular arthritis and causalgia and sympathetic ganglionectomy and trunk resection are justifiable procedures when palliative measures are inadequate. The results depend on the extent of the disease and the degree of vasodilation accomplished by the operation; the extent of the disease can be determined and the effect of the operation can be forecast, preoperatively, by means of careful vascular studies. (Summary of the author himself).

PATHOLOGY.

Monilia from osteomyelitis—Ch. L. Connor *Journ. Inf. Dis 43 pp. 108, 112.*

A monilia was isolated from an abcess of the buttock which communicated with the iliac bone. There had been a long standing osteomyelitis of the humerus and the organisms were seen in the tissues of this lesion also. The interest of this communication resides specially in the fact that the author claims that it is not possible actually to make a classification of such organisms. Reference is made to a classification of Anderson much simpler than that of Vuillemin, Castellani and other mycologists and Anderson's paper should be oonsulted by researchers in this branch of mycology.

Serological types of Clostridium Tetani—G. E. Coleman & J. B. Gunnison. *Journ. Dis 43. pp. 184. 88.*

Tullock, studying the types of tetanus bacillus during the Great War arrived at the conclusions that there were four serological types. The work of the present author increases this

number to at least nine distinct serological types. Considering that the serum treatment in tetanus by massive doses gives very good results, the reviewer believes that this preliminary work may be full of promises to the therapeutic of this disease.

Doderlein bacillus: Lactobacillus acidophilus.—Stanley Thomas. *Jour. Inf. Dis 43 pp. 218. 27.*

The author concludes that Doderlein bacillus is lactobacillus acidophilus, that the organism has an inhibiting effect in vitro on the growth of gonococcus and he suggests that Lactobacillus acidophilus vaginal implantation may present a rational cure for gonococeal vulvovaginitis and other gonococal infections.

Septic infection due to Bacterium morgani I. Th. Thjotta *Jour. Inf. Dis. 43. pp. 349. 52.*

Case of septic infection which originated in gall bladder and terminated fatally on the 12th day after the onset of acute symptoms. The bacillus was isolated from gallbladder and blood. Patients serum agglutinated the strain at 1/320 B. morgani is generally considered non-pathogenic, giving sometimes dysentery. History of the patient: cholelithiasis, jaundice, fever. Treatment: cholecystostomy, pus freely evacuated. Death, after amelioration during some days.

Neisseria subflava meningitis in an infant.—H. Benson, R. Brennuwasser, D. D' Andrea. *Journ. Inf. Dis. 43 pp. 516-24.*

Chronic meningitis in a child of 7 months old. Anatomically, marked internal hydrocephalus and a pressure displacement by a circumscribed abcess of the tissues of the inferior portion of the cerebellum and the upper part of the spinal cord. Mild course of the illness for about 3 months. *Neisseria subflava* Bergey isolated.

Gram negative diplococci observed in stained preparations of spinal fluid are commonly considered as meningococci. Such conclusion cannot be safely made without careful study of the organism in culture media. Although *N. Catarrhalis, N. Sicca, N. flava* have little pathogenicity, they may produce disease.

Cobra poison rendered inactive by ultraviolet rays loses its immunogen properties A. Arthus (*Comptes Rendus de la Soc. de Biologie CIII. 3* 1930).

M. Arthus and H. Warner Collins have shown that ultra violet irradiation of Cobra poison solution renders it quite atoxic. Favre has studied whether such destruction of toxicity affects also the immunogen power of this poison.

The researches of the author on inoculations in rabbits are very conclusive: cobra poison, rendered inactive by ultraviolet rays, loses its immunogen power.

Immunisation against cobra poison by the complex poison-soap M. Renaud (*Compt Rend. Soc, Biologie* C III. 3. 1930). The author has shown that cobra poison forms with coloidal solutions of sodium oleate, sodium palmitate or medicinal soap, a compound whose toxicity is rapidly attenuated and disappears in such a way that the animal may resist to doses 60 times larger than the lethal dose. Studying now the immunogen power of such compound the author finds very definite results in rabbits, somewhat irregular in guinea pigs as some of these animals, on account of the extreme sensibility of this species, immunised in this way, did not resist to 2 lethal doses. In 30% of guinea pigs. thus immunised. however, the mortal dose did not cause any trouble.

Tetanic Antitoxin in the abcess of fixation. Belin *Compte Rend.* Soc. Biol CII-33 1929).

Roux, Vaillard, Salomonsen, Madsen have shown that the pus of the fixation abcesses on immunised animals is strongly antitoxic but less than the serum. The author, working in the Bacteriological Institute of Tours, shows that such pus is more antitoxic than the serum and that specific pyotherapy is more active than serotherapy. The most part of the antitoxin is fixed on leucocytes which yield it to the ambient liquid after autodigestion and without modification.

The experiments were indeed made on animals. They will perhaps afford to the practitioner new means for the cure of tetanus.

Inapparent experimental infections in monkeys yellow fever. A. Pettit & G. Stefanopoulo, Compt. Rend. Soc. Biol, C11-33. 1929.

The designation *in apparent infections* belongs to Ch. Nicolle and was first observed in his studies of typhus exanthematicus. It means an acute infection, a septicemia, which is cured and gives a more or less durable immunity, without having shown any clinical sign, in spite that the blood has the virus which can be trasmitted to other susceptible animals.

Inapparent infection differs from *latent infection* which is a chronic or subacute stage in which the carrier keeps for more or less time, without troubles, the germ of a disease from which he has suffered formerly and which is susceptible or not to regain its virulence and to be transmitted to other individuals.

In resume, in typhus exanthematicus, many times a rat or monkey inoculated with infective blood gets the disease, without any clinical sign and however their blood is virulent and subinoculated to other rats or monkeys develops typical signs of enxanthematic fever.

Such facts have also been discovered in some other diseases and it is possible that many cases of eruptive epidemic fevers which sometimes seem to grow almost spontaneously, without any noticeable inter-relation with other similar cases, are conveyed by such inapparent infections.

The authors report two inapparent infections, in experimental yellow-fever, one in *M. cynomolgus*, one in *M. rhesus*.

Davis and Shannon seem to have found similar facts in *Cebus macrocephalus* in Brazil.

Etiology of yellow fever. Costa Cruz *Compt. Rend. Soc.) Biol. CII 31* 22-XII-29).

Medical scientists in India are certainly aware from the studies of Prof. Kuczinsky and his *Bacillus hepatodistrophicans* (the *Lancet* CCXVIII. Jan. 25 1930), where the author considers "to be a culture not of the virus, but from the virus, i.e. a modification of the virus under the influence of our nutritive media", to quote the words of Kuczinsky.

Costa Cruz studies in Instituto Oswaldo Cruz (Rio de Janeiro) in a very full and accurate report this Bacillus and concludes that it has no etiological relation with yellow fever. B hepato distro-*phicans* of Kuczinsky is a diphtheroid organism very close to *Corynebacterium lymphophylium* Torrey 1916, from which it differs only by sugar fermentation reactions.

Fever of recurrent type due to pyelitis and to bronchitis. A. Nazari (II *Policlinico* Sez Medica XXXVII 1 Jan. 1930).

We owe to Lenhartz (1907) the first observations on recurrent fevers due to pyelitis. Escherich, Pfaundler, Heubner have shown the aetiological importance of *B. coli* in such infections. Mathes in his *Lehrbuch der Differential-diagnose innerer Krankheiten* 1928 record the facts reported by Lenhartz and shows the relation of such recurrent attacks with the menstruation in women. Many times the evolution of pyelitis fever remembers relapsing fever or Malaria. The author describes in detail 2 cases:

(*a*) One in which the pyelitis gave during 2 years 19 attacks of fever, each lasting from 2 days to 28,31,33, and even 66 days. B. Coli in pure culture in urine. Autovaccines gave brilliant

results checking the accesses but did not influentiate the bacteriuria.

(*b*) On similar lines the author classifies his second case, due to a phlogosis of bronchi (8 accesses of fever lasting from 9 to 13 days during six months). Recurrent bronchitic fever is the designation of this case which ended fatally, the following lesions being found at autopsy. Pleural adhesions, sclerosis pneumoconiotica diffusa. Hepatitis chronica intersticialis atrophica. Amylotic degeneration of spleen. Amyloid Kidney.

The pulmonary parenchyma was without any acute inflammation. Mucopurulent secretion filled the lumen of bronchi with no sign of tuberculosis.

Acute polyneuritis due to influenza Dalla Torree A. Chinaglia (*Jl. Policlinico* XXXVII. I. Jan. 1930).

Every one knows the action of influenza on the nervous system and however there are only 4 hystopathological records of the nerve lesions in this form of disease (case of Bonnet, of Leyden of Weill and Regaud and of Bury.) The authors have studied the histopathology of the peripheric nerves in a case of tetraplegia caused by influenza and report serious degenerative lesions of the nervous fiber.

Some notes on the mechanism of immunity in diphtheria. Tzekhnowitzer and Kochkine (*Journal de microbiologie de Leningrad* IX 1929 n° 2).

All known methods of active immunisation in diphtheria protect well against clinical manifestation of diphtheric intoxication, but not against the possibility of a local diphtheric process. Such facts may have a certain epidemiological interest. Schick test in local immunisation of conjunctiva in guineapigs remains always positive and experimental diphtheria of conjunctiva may be easily produced. But in general immunisation Schick test becomes negative in 73% of cases and in spite of this 57% give a local diphtheria when inoculated in conjunctiva. A negative Schick does not exclude therefore the possibility of the production of a local diphtheria (in Russian. resume' in french).

Chemiotherapy of experimental melitococcia by acridine derivatives Lisbonne and Balmes. *(Compt Rend Soc. Biol CII 31. 573 1929).*

The authors injecting in goats a solution of gonacrine to 1% till 0,01, par kilo have remarked the sterilisation of milk, with

negative lactocultures. The experiments should be continued in many other animals on account of the prophylactic measures which would derive from these facts if duly controlled.

Method of Friedmann for the Prophylaxis and Treatment of Tuberculosis *M. Isaacson*) *Anais da Faculdade de Medecina de Parana 1929*).

Friedman isolated in 1902 from the lungs of a tortoise died in Berlin Aquarium and showing anatomopathological lesions quite similar to those of tuberculosis, an acid fast bacillus, different from other acid fast organism isolated from reptiles, fishes etc., and completely innocuous to warm blooded animals. Moreover, Friedman noted that such inoculations conferred a strong immunising power vis-a-vis of tuberculosis.

Isaacson having seen in the service of Friedman the excellent, results of the method (not to be employed in advanced lesions) think it is in every respect superior to any method hitherto known.

Haemolytic power of choleric vibrio Marras *Annali d'Igiene* 39—1929.)

Many strains of cholera vibrios isolated at Campbell Hospital Calcutta, proved to possess haemolytic properties. The same strains studied by the author 6 months after at the laboratory of Quarantine service in Port Said had lost haemolytic power (11 over 15 strains).

Haemolytic power is not therefore a good criterion for the identification of cholera vibrios.

Infection simulating enteric fever due to Proteus pseudovaleriae Assis. (*Sciencia Medica VII. 7 July 1929*).

In 1927 the author isolated by hemoculture from a patient with a sort of enteric fever a bacillus which belongs to the group *Proteus* and was named *P. Pseudovaleriae.*

The Widal test has shown that many of the so called typhoid patients have agglutinins to *P. Pseudovaleriae.* Coagglutination to this bacillus has also been found in 3 times over 165 sera.

The infections by this Proteus are not, therefore, rare in Brazil

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Gleanings from Medical Press

SURGERY.

The Causes and Treatment of Low Back Pain.—By Samuel Kleinberg.

Since backache is a frequent complaint in every physician's practice we are all naturally interested in its etiology and therapy. Backache occurs in such a great variety of lesions in the chest, abdomen, pelvis and back that I would not venture to present, nor am I capable of discussing it from all its aspects. I will limit myself to a consideration of this subject from the orthopædic point of view, and hence will review only those conditions in which there is a lesion in the back. I am especially interested in backache not only because we have many patients with this complaint in our hospitals, but also because, I am called upon frequently to make an examination and render an opinion in protracted and often disputed, "compensation" cases of backache.

The causes of backache may be conveniently considered under the following divisions: 1, Injuries of the back; 2, diseases and tumors of the spine; 3, static disturbances; 4, congenital lesions of the spine.

Injuries of the Back.

Strain of the back.—This common affection of the back, corresponding to the condition formerly called lumbago, is found in a large proportion of all orthopædic cases in which there is complaint of backache. It results in the acute form from a sudden forcible movement of the trunk and is due to muscular violence. It may occur when rising from a stooping position, lifting a heavy weight, twisting the body in attempting to avoid a fall, or in some similar manner. The patient has a sharp pain in the back, usually in the muscular area, and has difficulty in finding a comfortable position. Every movement of the body, even ordinary breahing, may increase the pain, which sometimes disappears in at few minutes or it may last for hours or days. In most cases when relief comes it is complete and the incident can be forgotten. The pathology in the acute case probably consists of a tear of some of the muscle fibres or perhaps the fascia. Repair is usually complete and uneventful.

When a patient strains his back severely or repeatedly the symptoms may last a long time and result in a so-called weak back. One often sees a patient who states that ever since he strained his back, weeks or months previously, he has been unable to lift heavy weights, and an attempt at vigorous exercise has been followed by backache and a varying degree of disability. Examination of such patients reveals but few confirmatory objective signs, and often none. There may be tenderness upon pressure at the site of the pain. Those motions of the spine which place the injured muscle on tension are painful. The X-ray films are always negative. These cases of chronic strain of the back are treated sympathetically and usally successfully in ordinary practice. When compensation is involved the patients are likely to be considered malingerers for the reason that there is no very definite objective evidence of the pathology. However, by reason of our experience with chronic strain of the back among those who have no monetary gain to expect from prolonged illness, we must conclude that a strain of the back can and may be responsible for prolonged disability.

Sprain of the Back.—A sprain of the back is the result of an injury to the itervertebral or costovertebral articulations. The lumbosacral joint is involved more often than any of the others. Sprains occur from a forcible or unexpectedly violent motion of the trunk. There is localized pain and tenderness to pressure at the site of the injury, stiffness of the back and limitation of the spinal motions. The symptoms, due to a tear or stretching of the ligaments, may disappear after a short time or may last weeks or months. They are likely to be severe in those patients who already have some pathological condition, such as round shoulders, scoliosis osteo-arthritis or other disease of the spine of a congenital vertebral malformation. The symptoms in the latter condition may last a long time and the sprain may give rise to a disability which is apparently out of all proportion to the original injury.

The treatment of strains and sprains of the back is essentially rest and immobilization of the trunk. In the vast majority of cases rest alone or rest with strapping of the back gives complete relief. In cases with persistent symptoms, and in all instances in which there has been a severe or extensive injury, absolute rest in bed, after strapping of the back with adhesive plaster, or the application of a plaster of Paris jacket is the best method of obtaining a cure. When the acute symptoms subside physiotherapy is beneficial in restoring muscle, tone and normal mobility.

Fracture of the spine.—In fractures of the spine pain is the first and most important symptom. It is always referred exactly to the site of the injury, and, by its location, indicates the site of the

fracture. The pain persists during the entire period of convalescence which varies from six months to several years. It is relieved by rest or immobilisation of the back and is increased by motion of the trunk. The pain varies in degree. It may be so mild that there is very little comment, but usually it is of moderate intensity. Its localisation is so definite that the patient is always certain of its exact distribution, which rarely covers an area more than the width of two vertebrae, unless there are multiple injuries.

The diagnosis of fracture of the spine is facilitated, not only by the location of the pain, but by the presence of localized tenderness, an angular deformity, stiffness of the back and limitation of the spinal motions. Then, too, the X-ray films show characteristic wedging of a vetrebra or distinct lines of fracture.

The foregoing remarks refer particularly to fractures of the body of the vertebræ. In fractures of any of the processes there is always localized pain and tenderness but there is no deformity and a positive diagnosis is possible only by an X-ray examination.

The treatment of fractures of the vertebral bodies depends upon many factors. If the deformity is mild and there are no nerve symptoms and the patient is not pressed for time, conservative treatment will yield an excellent result. The patient ought to be kept in bed preferably on a convex frame, for several months. He should then be provided with a spinal support which ought to be worn for a year or more. At the end of this period the patient will probably be able to resume some mild occupation. Occasionally we find a patient who can engage in moderately laborious work.

If there is marked crushing of a vertebra, great deformity and severe pain, or if the individual is a vigorous or a young person anxious to get back to work, a spine fusion will abbreviate the convalescence and hasten the cure. As a result of the operation there is a comparatively rapid bony fusion of the injured and adjacent vertebrae, and we may expect that within six to nine months the backache will have disappeared and the patient can return to a profitable employment. After an operative fusion of the spine there is the further advantage that there is no likelihood of future increase of the deformity.

In patients who have severe root pains and in the exceptional instances in which we are convinced that there are spicules of bone encroaching on the spinal canal and pressing upon the cord a laminectomy is advisible. In the cases with an apparent complete transverse lesion of the cord I am not inclined to do a laminectomy, but rely upon rest in the attitude of hyperextention

as the most favourable treatment. The results of laminectomy in this desperate group of cases has not been encouraging. If there is crushing or severance of the cord laminectomy is useless. If the symptoms are due to hæmorrhage into or oedema of the cord the damage has been done by the time we are called and the operation is equally useless. Morever, many cases of fracture of the spine with paralysis improve under conservative treatment which, in my judgment, always deserves a trial.

The duration of the disability following a fracture of a vertebral body varies within wide limits. I have seen an elderly man return to a porter's job within a month after a fracture of the spine. I had the later care of a young muscular fellow who, secretly and without any harm, engaged in a wrestling match several weeks after an extensive fracture of the third lumbar vertebra, and at about the time when a prominent orthopaedic surgeon was urging a spinal fusion. On the other hand, some patients remain almost completely disabled for five or six years. In the average patient we may expect total disability for about a year and a half and a permanent weakness and partial disability of the back.

Fractures of the vertebral processes have a more favourable prognosis than those of the bodies. There may be no discomfort whatever. Usually there is a moderate amount of pain and the individual is likely to stay away from work for several months. In the exceptional case the disability may last a year. All cases having symptoms should have some form of immobilization for one to two months. In the rare cases in which conservative treatment does not effect a cure, and particularly if there is a displaced fragment of bone, the loose piece of bone ought to be removed.

It is my policy in cases of fractured vertebral processes not to tell the patient that he has a fracture of the spine. It is likely to excite undue alarm and in "compensation" cases may fix in the patient's mind a sense of profound incapacity and a desire for an unreasonably large remuneration.

Derangements of the sacroiliac joint.—Much unnecessary confusion surrounds disturbances in and about this joint. This is due chiefly to its deep position and the impossibility of palpating and inspecting the periarticular tissues except at operation. Before going to a consideration of the pathological changes, I would like to emphasize certain anatomical facts. The sacroiliac joint is a true joint. There are two articular surfaces covered with hyaline cartilage and numerous, rather strong ligaments. Within the joint there is a small amount of synovial fluid. There is only slight motion in the joint because of the flat irregular articular surface, the small joint space and the strong ligamentous attach-

ments which bind the sacrum and the ilium. Nevertheless it is subject to the same types of lesions as other joints.

The most frequent lesion of the sacroiliac joint is a sprain. All of us have seen patients who complain of an acute onset of pain in the sacroiliac area after some trauma due to lifting, rising suddenly from the stooped position or wrenching the back in some peculiar movement. The chief symptom is pain in the back at the sacroiliac joint. The patient points distinctly to the affected joint as the site of his discomfort. There is local tenderness. Movement of the trunk or straight leg raising increase the pain at the sacroiliac joint. The pain may radiate to the lower part of the back or down along the sciatic nerve. This group of symptoms is unquestionably indicative of a sprain of the sacroiliac joint. The X-ray pictures, as in simple sprains of other joints, are negative. It seems to me unreasonable to doubt, as some surgeons do, the possibility of a sprain of the sacroiliac joint because we cannot demonstrate all the signs of a sprain. I am convinced that the group of symptoms which I detailed above indicates a sprain. The treatment is simple and, as in the case of sprains of other joints, consists of rest and immobilisation of the pelvis. The symptoms usually disappear rapidly and completely.

At times the sprain is so severe that it does not subside with simple therapy, but persists for weeks or months. There may be a succession of sprains. In such instances adhesions form about the joint, or the irritation may result in an actual arthritis of the sacroiliac joint. In order to relieve himself of the pain the patient may shift his trunk to one side or the other. Thus there may appear a sciatic scoliosis and this may remain as a deformity which the patient cannot correct. In this severe type of lesion in the sacroiliac joint a stretching of the trunk and leg on the affected side and immobilization in a plaster of Paris spica jacket usually give prompt and permanent relief. In a few chronic and very resistant cases it may be necessary to do an arthrodesis of the sacroiliac joint.

Subluxation or actual dislocation of the sacroiliac joint is of rare occurrence. I have seen distinct dislocation only in association with very extensive injury of the pelvis in which there was a fracture of the ilium or sacrum or both. In this type of case the ilium was rotated on its vertical axis and there was widening of the sacroiliac joint with an evident tear of the ligaments. In only one of five or six such cases was operation advised because immobilisation of the pelvis did not give complete relief.

Minor degrees of apparent subluxation or upward displacement of the ilium are seen not infrequently after sprains or more severe injuries. The apparent displacement is, I believe, due to a

peculiar formation of the bones and does not represent a true subluxation. I have seen several such without any history or other evidence of an injury.

Spondylolisthesis.—Forward subluxation or dislocation of the fifth lumbar and less commonly of the fourth lumbar vertebra is nowadays recognized much more frequently than formerly. We used to believe that spondylolisthesis occurred only in women. In my own experience I have seen it more often in men. I have in several articles on spondylolisthesis called attention to the characteristic clinical picture and X-ray findings.

The important point which I desire to emphasize here is the relation of spondylolisthesis to trauma. In most cases the symptoms appeared only after an injury and hence the lesion was presumably traumatic. Other observers had a similar experience and the conclusion was drawn that the injury caused a fracture of the lateral masses of the vertebra with subsequent dislocation of the body.

So far as the treatment is concerned, the only effective method for cases with symptoms is a spine fusion to consolidate the congenitally weak area of the spine.

Sciatic scoliosis.—This is a deformity of the trunk secondary to a painful lesion of the back, buttocks, sacroiliac joints or a sciatica. The trunk is bent forward and laterally, the back is flat and the spine is held rigid by spasm of the muscle of the back. Walking is difficult and painful. In the mild forms the deformity disappears when the patient lies down and relaxes. In the severe cases the deformity remains in all positions of the body because of adhesions about the vertebrae or other affected tissues.

The treatment consists of a thorough stretching of the trunk and the affected leg under an anaesthetic. By manipulation the adhesions are broken up, the sciatic nerve is stretched, and the normal hollow of the back is re-established. A plaster of Paris spica jacket is applied immediately to hold the limb in normal alignment with the trunk. The immobilisation is as important as the stretching and should be continued for no lesss than three weeks. The patient is then provided with a spinal brace and the treatment is completed by physiotherapy.

Myositis.—Inflammation of the muscles of the back and of the gluteal group occurs with sufficient frequency to deserve special mention. It may result from trauma or from an infection. It is most often seen in the gluteus medius or the lower part of the erector spinæ. The diagnosis is usually made by a process of exclusion. The patient complains of pain in the buttock or the loin. Examination reveals tenderness of the muscles and no evidence of any other lesion. There is never any local heat, redness

swelling or induration, that is, the usual signs of an inflammatory reaction. Nevertheless, it is conceivable that there may be a mild inflammation of the muscle fibres without sufficient change to cause marked local pathology. In the mild cases physiotherapy with or without rest may relieve the symptoms. In the more advanced cases with secondary lateral distortion of the trunk it may become necessary to stretch the affected muscles under an anaesthetic.

DISEASE AND TUMOURS OF THE SPINE.

Tuberculosis.—The commonest disease of the spine is tuberculosis. In this condition, backache is a very prominent symptom and appears early. The pain may at first be somewhat general over a wide area of the back but usually is pretty definitely localized to the region of the lesion. In addition there are other symptoms, such as stiffness of the back, muscle spasm, deformity of the spine, restriction of spinal motions, and, in the later stages abscesses and paralysis which render the diagnosis fairly easy. Moreover, the X—ray pictures show a destructive process in the bodies of the vertebrae and the inter- vertebral discs, which is fairly characteristic.

There are certain questions relative to tuberculosis of the spine in adults, which have a special interest for us. First, does trauma aggravate the disease? Secondly, can a trauma initiate or precipitate Pott's disease? Both questions must be answered in the affirmative. An adult having a healed or, more properly speaking, quiescent tuberculous disease of the spine, falls and wrenches his back. Soon there is increasing lameness and deformity and the patient suffers much pain and disability. These symptoms are the result of a lighting up of what was prior to the injury, a symptomless or so called quiet lesion.

An injury may also be the proximate cause of Pott's disease. In fifty per cent. of all patients with tuberculosis of the spine, young or old, there is a history of an injury. It is universally conceded that a trauma may bring on a destructive tuberculous process in the hip and knee. It may equally well do so in the spine. It is, of course, true that the patient must harbour the tubercle bacilli, and that the spine must at the moment of injury be the seat of diminished resistance. Nevertheless, the injury is the chief exciting factor and must be considered as responsible for the disease of the spine.

Syphilis.—This appears usually in one of two forms. It may cause a destruction of one or more vertebrae just as in tuberculosis. The symptomatology is then the same as in tuberculosis, and the differential diagnosis is dependent upon a specific blood reaction and the response to specific therapy. In the second form or Charcot spine there is disintegration of the vertebrae with marked new bone formation. There is broadening and irregularity of the vertebrae, many masses of new bone and in general, an extensive change in the vertebrae entirely out of proportion to the symptoms. The pain in the back is less marked than in the other type or may even be entirely absent.

Gonorrhoeal arthritis.—This usually affects the articulations between the vertebrae and the paravertebral tissues. The commonest type is that which occurs in young adults and results in fibrous, sometimes bony ankylosis of the spine with fixation of the spine in flexion. The pain is rather severe during the early stages and disappears when the back becomes ankylosed. The appearance of the back and the X-ray films are not characteristic. In the early stages there may be no recognisable bone changes. When the spine is ankylosed, the vertebrae appear joined by bridges of bone. The diagnosis depends on the history or the presence of a gonorrhoeal urethritis and a positive gonorrhoea fixation test. There is one point of particular interest for us in connection with spondylitis deformans due to gonorrhoeal or rheumatoid arthritis, namely, that in the early and painful stage we can, by keeping the patient on a convex frame in bed, and later by a spinal brace holding the patient erect, *prevent flexion deformity of the spine* and its attendant discomfort and disability. It is therefore imperative that we institute appropriate therapy to the back just as soon as the diagnosis is established. Valuable as is the local treatment for urethritis or the systemic effect of vaccines, the immobilisation of the spine in a proper position is the most effective measure to assure the erect posture and a symmetrical back.

Typhoid fever.—Following this disease either immediately or at a remote period the patient may develop a paravertebral inflammation. Usually the symptoms are pain and stiffness of the back and disability which limit the patient's activities but do not necessarily completely incapacitate him. The X-ray pictures show a haziness about the vertebrae, but no destruction of the bone. Sometimes the affection coming on early during the convalescence from typhoid fever may be fairly acute, with irregular rises in temperature and severe localized backache which is increased by all movements of the trunk. Because of the fever and tenderness we may be led to suspect an abscess of the muscle. The acute symptoms usually last several weeks and the total disability about six months. There may ensue a partial permanent stiffness of the back. Unlike typhoid lesions in the long bones the process in the back rarely goes on to suppuration.

Osteoarthritis of the spine.—This is a very common condition and one of its earliest symptoms is pain in the back. I have placed this disease in the category of infectious lesions of the back, and this is undoubtedly true many times. However, I am not at all sure but that frequently infection plays no part, and that the vertebral changes are due to some disturbance in metabolism or are the result of the repeated traumata incidental to laborious work. This disease appears during middle age and especially in stocky or heavy set people. Usually it exisis for many years causing no symptoms, and it is discovered accidentally in the routine examination. It may never give symptoms and never cause any disability. It ordinarily manifests itself by bony spurs or osteophytes along the margins of the vertebral bodies. Several vertebrae may be fused by the union of osteophytes of adjacent vertebrae. Groups of two or more vertebrae at different levels may be completely united by bony bridges.

Pain and stiffness in the back in cases of osteo-arthritis of the spine are brought on by trauma. This may be in the form of slight but repeated injuries or strains in the course of routine labour, or the trauma may be due to some violent injury or wrenching of the back. The pain is felt as a dull ache which is increased to a sharp discomfort by sudden or forced movements. The patient finds that he cannot bend freely, and that lifting brings on severe backache. The back becomes weak, causing a variable degree of disability. Some doubt has been raised as to whether an injury aggravates an osteo-arthritis. I believe that it may. I have seen many labourers who had no symptoms prior to an alleged accident and persistent backache and disability subsequently. The injury did not cause osteophytes but did produce a strain, traumatic myositis or a sprain of the adjacent vertebral joints with aggravation of the osteoarthritic lesion. From the point of view of the industrial surgeon, trauma is a most important factor in aggravating a pre-existing osteoarthritis. And furthermore a comparatively mild injury may cause a disability which will last for months or even permanently.

Tumours.—Tumours of the back may be primary, as sarcoma of a vertebra, ribs or pelvic bone, or metastatic, secondary to a primary focus of carcinoma, myeloma, hypernephroma, etc., elsewhere in the body. The lesion is very painful. The backache is severe and is out of proportion to the extent or degree of the lesion in the back. A rather significant fact is that the pain is not relieved by rest or immobilisation of the back. The X-ray appearance is strongly suggestive of malignancy. Usually the vertebra retains its outlines but is mottled. The diagnosis is based not only on the character of the lesion, the X-ray findings, the

severity of the pain and lack of relief by rest: but also by a process of exclusion of the other likely lesions. Sometimes it is somewhat difficult to exclude a fracture of the spine or a destructive infection such as tuberculosis.

Sometimes there is a shadow around a vertebra that resembles a tuberculous abscess. The differe ntial diagnosis between a tumour of a vertebra and tuberculous disease may at times be very difficult.

In many cases of metastasis to the spine the primary focus in the breast, stomach or cervix is definitely known and the diagnosis of the spinal lesion is at once apparent. If the diagnosis is not clear, we should always suspect malignancy when the pain in the back is intense, continuous, increased by motion of the body but *not* relieved by rest, immobilisation or mild medication.

STATIC DISTURBANCES.

Rigid posterior curvature of the spine or round back is frequently accompanied by backache. This condition is usually seen in short stocky people who have had round shoulders since adolescence. There is always an increase in the lumbar hollow and limitation of the spinal motions. The loss of flexibility of the spine makes the individual susceptible to strains. These patients may go along for years able to do a great deal of manual labour until they injure their backs in some trivial way, and thereafter they suffer from backache. The physical examination may be negative, but these people continue to suffer and are incapacitated. The symptoms are probably due to the increase in the lumbar lordosis and associated sprain of the lumbar articulations.

Lordosis.—There are some individuals, women somewhat more frequently than men, who have a congenitally marked or exaggerated lordosis. So long as the individual remains thin, he has no difficulty. During and past middle age, when there is a tendency for most people to put on weight, there appears a varying degree of backache. Examination shows nothing abnormal except the lordosis. The spine is freely movable, there is no tenderness to pressure: and the X-ray picture is negative except for an increase in the forward lumbar curve and the lumbosacral angle. In this type of case the increase in weight causes continuous strain on the lumbar and lumbosacral joints resulting in pain.

Relief is obtained by reducing the weight through proper diet, judicious physiotherapy and exercise to increase the tone of the muscles. At times temporary support of the back by a corset or brace is advisable. Very rarely when conservative measures have failed, one may be compelled to do a spine fusion.

Structural scoliosis.—This in the adult is likely to cause backache. The pain is rarely acute. It is usually a dull ache that is increased by activity and relieved by rest. Often the pain can be relieved wholly or in great part by restricting activity and by a spinal support. In a limited number in whom the pain is a constant disturbing factor, spinal fusion is indicated inasmuch as it provides an internal splint and eliminates motion between the vertebrae and gives complete relief of the backache.

Posture.—Finally under the group of static disturbances we must consider faulty posture. This condition is seen in adults in varying degrees and can be cured by toning up the muscles through a well planned system of exercises. The treatment is necessarily slow and prolonged and the patient must be made to appreciate the cause of his backache, so that he will co-operate in the treatment to the fullest extent.

CONGENITAL LESIONS OF THE SPINE.

There is great variety of congenital lesions in the lower part of the back, and particularly at the lumbosacral articulation. The commonest abnormality is a defect in or lack of fusion of the neural arch of the first sacral segment. A defect in the neural arch of the last lumbar is seen almost as often as in the sacrum. There may be a lack of fusion of the lamina to the body of the last lumbar on one or both sides. The articulations in the lower lumbar vertebrae may be asymmetrical. The facets on one side may face laterally while those of the other side may be directed forward and backward or nearly vertically. The transverse processes of the last or the fourth lumbar may be unusually large or long or bifid; they may be in contact with the ilium or articulate with it through a well formed joint. There may be sacralization of the last lumber on one or both sides. The last lumbar may be placed deeply between the iliac bones so that it is below the iliac crests, or its position may be comparatively high. There may be a wedge shaped malformation of one of the lumbar vertebrae or an extra centrum or wedge mass of bone interposed between adjacent vertebral bodies on one side. There may be a distinct spina bifida with deformity of the vertebra and an external mass or a spina bifida occulta. The lumbar spinous processes may be bifid and may incline downward instead of backward. Finally I want to mention lordosis or increase in the anterior curve of the lumbar vertebrae which is a congenital lesion except when secondary to disease or to a static deformity. The average angle between the long axes of the lumbar spine and the sacrum varies between one hundred forty and one hundred fifty degrees. At times this angle is

reduced to nearly a right angle. Between these two extremes we see all graditions.

The question that concerns us at this time is, do these lesions cause backache? This cannot be answered with a monosyllable. We see many individuals whose X-ray pictures show an unfused neural arch on the last lumbar or first sacral segment who have no backache. I have seen adults who have a wedge malformation of a lumbar vertebra, asymmetrical articulations, spina bifida occulta or any of the above mentioned lesions without any pain in the back. But what of the patient with low back pain who does show an anomalous bone formation?

Undoubtedly some of the conditions such as lordosis, malformation of the last lumbar or an unusually large process can cause discomfort. Each case must be studied individually, with an open mind on the subject, remembering that these same patients have lived for thirty, forty or more years with the bone anomaly but without backache. In my own experience the anomaly makes the individual susceptible to strain more readily than those without such bony change. In the treatment, therefore, we must seek the actual causative agent, such as laborious work, obesity, faulty posture, flat feet, and so forth, and apply appropriate treatment. In a very small per cent of our patients,—and the number is indeed very small,—when conservative measures have been faithfully applied and found not to give relief, we may resort to an operation for the removal of a process causing irritation, or fusion of the spine to stabilize it.

In certain types of fracture of the spine, in painful spondylolisthesis, in progressive tuberculous disease and similar lesions for which bony ankylosis of the vertebrae is manifestly desirable a spine fusion is advisable. In the case of a backache in a patient in whom we discover a bony anomaly in the lumbo-sacral area, we must carefully study the condition and the patient. The congenital anomaly and the backache may have no relation whatever to each other. In many patients the bony malformation undoubtedly predisposes to strain. Most of the latter group can be satisfactorily treated by support and other simple measures. In a few persistent and resistant cases it is necessary to resort to operative intervention.—*Medical Journal and Record*,—Through *Medical World.*

Acute Edema of the Pancreas.—Edward Archibald (Ann. Surg., 1929, XC, 803-816). By the transduodenal injection of non-infected bile directly into the pancreatic duct the author has repeatedly produced changes in the pancreas of animals which

both grossly and microscopically appear to represent acute edema without necrosis. The effect appeared identical when either gall bladder bile or hepatic duct bile was employed. The beginning of this change could be observed grossly within half a minute after the injection. After the elapse of five minutes the major portion of the pancreas had become involved. Care was taken not to inject the bile under pressure. Operation upon the same animals several days later revealed almost complete subsidence of the process both grossly and microscopically. The similar use of infected bile caused the graver lesion of necrosis.

Archibald feels that a condition may exist in the human similar to that which he has been able to produce in animals by the injection of non-infected bile into the pancreatic duct. In substantiation of this persuasion he reminds the reader that not infrequently patients who have had an interval exploration because of a history of repeated short abdominal colics have been found to have a negative abdomen at operation. The inference that the pathologic process had subsided during the interval he thinks quite logical. He further cites a case of his own in which he operated before complete regression of the acute attack had occurred. At operation palpation disclosed definite enlargement of the pancreas, but he was unable to visualize the organ. As further evidence that such a condition may exist he reviews the work of Zoepffel, who in 1922 described acute edema of the pancreas found at operation during the acute stage of the common variety of gall bladder colic.

The symptoms suggesting such a condition consist of severe pain located in the epigastrium with radiation to the left abdomen and left back, associated with localized tenderness over the pancreas and a corresponding area of skin hyperesthesia.

The author feels that all patients having symptoms suggesting such a diagnosis should undergo exploration because of the inability to determine which cases may, if operation be postponed, be found to have acute pancreatic necrosis. The principle of the operative procedure he thinks should be that of bile drainage for one to two months in order to eliminate further similar attacks. He recommends cholecystostomy and removal of stones if present if cholecystectomy has already been performed, choledochostomy *minnesota medicine.*

Torsion of the Great Omentum.—K. SCHWANK (*Munch. med. Woch.*, December 13th, 1929, p. 2095), who records an illustrative case of torsion of the great omentum, states that in most cases inguinal hernia is the cause of the condition. According to Lejars

three varieties of omental torsion may be distinguished: (1) torsion in irreducible hernia; (2) torsion with an empty hernial sac after the hernia has been reduced; and (3) pure abdominal torsion without hernia. Most collected 146 cases of omental torsion associated with hernia and 19 cases of abdominal torsion only. To the latter must be added cases reported by Trojan and Schroder, as well as Schwank's case, so that there are now 22 examples of pure abdominal omental torsion on record. Their occurrence is very difficult to explain, but probably in the present case pregnancy was a factor. The diagnosis of torsion of the omentum is very difficult, the condition being usually first mistaken for acute appendicitis or cholecystitis, and the true state of affairs is not revealed until operation, which is the only possible treatment. Schwank's patient was a women, aged 25, who developed severe pain in the right iliac region in the sixth month of pregnancy. A diagnosis of acute appendicitis or torsion of the right ovary was made and laparotomy was performed. An infarct of the omentum was found and part of the omentum measuring 15 cm. long by 5 cm. broad was resected. The patient made a rapid recovery and went to full term.—*B.M.J.*

Acute Prostatic Abscess.—W. G. S. HOPKIRK (*Kenya and East African Medical Journal*, November, 1929, p. 230) reports a case of prostatic abscess which illustrates the damage that may result from unskilled syringing and the taking of alcohol. He considers that these are the two most important factors in the causation of posterior urethritis and therefore of chronic gonorrhœa. The patient had been treating a urethral discharge by syringing himself with a permanganate solution. Acute posterior urethritis followed, and acute retention ensued, necessitating suprapubic puncture of the bladder. Perineal prostatotomy was performed, and an abscess cavity was found and drained; complete recovery followed. Hopkirk remarks that, although acute prostatitis and prostatic abscess are most commonly gonorrhœal in origin, they are not infrequent in cases of senile enlargement of the prostate, and may occasionally appear also in the course of a general infection, such as influenza, pyæmia, or furunculosis. The abscess originates in a number of necrotic spots scattered through the substance of the gland. These enlarge, coalesce, and form an abscess cavity. Both lobes of the prostate are usually affected; the abscess lies posteriorly and in the closest contact with the urethra, into which it usually bursts, when spontaneous cure may result, though the imperfect drainage afforded by the small opening renders it more probable that chronic prostatitis

will ensue. In view of this and also of the danger of a recto-urethral fistula resulting, Hopkirk advises drainage of a prostatic abscess by the perineal route. He thinks this should always be undertaken if marked improvement does not quickly follow spontaneous rupture into the urethra; if spontaneous opening is delayed and the general symptoms are severe; or if there is evidence of inflammation round the prostate. The principal difficulty of the operation is the liability to tearing of the rectal wall; this occurred in Hopkirk's case.—*B.M.J.*

Congenital Dislocation of the Hip.—F. MANDRUZZATO (*La Chirurgia degli Organi de Movimento*, October, 1929, p. 200) has studied the statistics of cases of congenital dislocation of the hip dealt with between 1899 and 1927 in the orthopædic clinic of the University of Bologna. His report is based on 2,578 patients, of whom 2,192 (85.02 per cent.) were females and 386 (14.58 per cent.) males. Bilateral dislocations amounted to 42·94 per cent. and unilateral to 57.06 per cent.; of the latter variety, 39.02 per cent. affected the right hip and 21.83 per cent. the left. The percentages in the two sexes were as follows: (1) Females: bilateral 36.96, unilateral—right-sided 29.82, left-sided 17.72; (2) males: bilateral 5.97, right-sided 5,39, and left-sided 4.11 respectively. The influence of heredity was clearly indicated in 502 cases out of 2,276, a direct causation being evident in 6.54 per cent. and an indirect familial in 16.69 per cent. These percentages of congenital causation are lower than those of Vogel (30 per cent.) and Le Damany (42 per cent.). Birth injury as a factor seems to have little influence in causing dislocation; of 2,297 cases 88.45 per cent. were born normally. The percentages in respect of age in 2,482 children were: in 88.43 per cent. the disability appeared with the first attempts to walk; in 5.03 per cent. within the first five years of life; and in 1.08 per cent. after the age of 5. Out of the total number of patients 88.48 per cent. received treatment by circumduction, and 3.16 per cent. by operation.—*B.M.J.*

Treatment of Renal Lithiasis.—A. L. CHUTE (*Minnesota Med.*, December, 1929, p. 731) advocates the early removal of renal calculi, though he is prepared to watch those of less than 5 to 6 mm. in diameter. Early removal is especially important if the kidney is infected or single; with bilateral calculosis the better kidney should be operated on first. When both the kidney and the ureter of the same side contain stones they should be operated on at the same time, or the renal stone may be removed first and the ureter dealt with as soon as possible thereafter. Relatively

small uninfected calculi in the renal pelvis should be removed by pyelolithotomy, the pelvis being generally opened on its posterior surface and in the direction of its long axis. Nephrolithotomy is the operation the author generally performs, and he incises the kidney on its convex surface just behind the mid-line. Care should be taken that every fragment of a stone or all multiple stones are removed, the kidney being irrigated with sterile water if necessary. The author passes a soft drainage tube of one-quarter inch diameter with a "fishtail" end down to the renal pelvis, bringing together the kidney tissue by deep catgut sutures on either side of this tube. His rule for ureteral calculi is removal if there is any particular degree of infection, or if more than moderate pain or occasional disability is caused. Immediately before the operation he verifies his diagnosis by the passage of an x-ray catheter. In cases of non-infected small stones low in a ureter, "dilatation" with one or more ureteral catheters may be tried. The usual oblique kidney incision is used for ureteral calculi down to the lower border of the third lumbar vertebra. In stones still lower the incision should start a finger-breadth internal to the anterior superior spine, and extend downwards parallel with the fold of the groin, and about three-quarters of an inch internal to it, ending above the pubis; or a straight incision should be made along the outer edge of the rectus muscle. The ureter should not of choice be opened in the depths of the pelvis, the stone being either "milked" up, or grasped and withdrawn with a curved stone forceps introduced through an incision an inch or two above the impacted stone, or pushed through into the bladder with a probe. Closure is expedited if the edges of the incision in the ureter are brought together with 0 or 00 catgut. A rubber wick should be carried down to the incision.—*B.M.J.*

Treatment of burns with horse-serum.—S. R. Monteith and R. Clock have obtained excellent results from the treatment of burns, scalds, or acid-injuries with normal horse-serum containing 0·3 per cent. of cresol as a preservative. This is sprayed from an ordinary oil-atomiser (thoroughly sterilised) upon the damaged area which has been previously immersed in a bath of normal saline to stay any absorption of toxins, all devitalised tissue being then removed before the serum is applied. The authors claim that even in extensive injuries pain is shortly relieved and infection prevented, new epidermal tissue being rapidly formed, while above all, there is a complete absence of scarring. Not only is the normal appearance of the parts restored completely but on hirsute regions a new crop of hair soon grows. The serum should be

applied twice daily and the surface then covered with rubber-tissue to prevent evaporation, drying being inimical to the new cell-production. The treatment is simple and easy of application, a great recommendation being that it is cleanly, causing no soilage of the clothes or bedding. (*Journal of the American Medical Association.* xcii.)—*Medical World.*

MEDICINE.

On the Management of the Spastic Colon and Mucous Colopathy Especially in Hypervagotonic Persons. Barker, L. F., *Am. J. M. Sc.* **178**: 606, Nov. 1929.

Barker draws attention to the fact that there are two types of chronic constipation commonly found in neurotic individuals, —a spastic and an atonic type. Habitual constipation of the hyperkinetic, dyskinetic, or spastic type is caused by a persistent spasm of the colon. It occurs in hypervagotonic persons and is characterized by paroxysms of colicky abdominal pain and the passage of large amounts of mucus in the stool (mucous colopathy or myxoneurosis intestinalis). In addition to the foregoing symptoms these patients invariably give a history of other forms of vagotonia, such as hyperacidity, pylorospasm, dizziness, paræsthesias, and even vagotonic heart block. The abdominal pain is not infrequently so severe as to simulate peptic ulcer, acute appendicitis, or even gall stone colic. Physical examination will reveal on palpation of the abdomen the tender spastic bowel which can be rolled under the fingers. When the spastic area is low down it may sometimes be palpated by rectum. Confirmation of the spastic colon is readily carried out by an x-ray examination done before and after the administration of atropine which relieves the spasm temporarily. The treatment of the condition consists in removing in so far as is possible the cause of the underlying neurosis. The diet should be bland and smooth, not coarse and bulky. If the stool is foul, acidophilus milk may be given twice daily. Atropine or belladonna in some form is of the greatest benefit and should be used liberally. The author has found that homatropin methylbromide (novatropin) is an excellent antispasmodic and is much less toxic than atropine. It is used in doses of 2.5 mg. given three times daily. Where gastric hyperacidity is present mild alkalis may be given. Surgery has no place in the treatment of this disease.—*Canadian Medical Assn. Journal.*

Functional Disorders of the Colon. Kiefer, E. D., *New Eng. J. Med.* **201**: 715, Oct. 10, 1929.

One of the most common complaints which the general practitioner is called upon to treat is chronic constipation. General

experience indicates that probably the normal bowel function consists of the passage of one formed stool each twenty-four hours. More important than the frequency of the stools is their consistency.

In outlining treatment consider, first, the condition of the colon; secondly, the general health of the patient; thirdly, the emotional or psychic influences present. In the case of a sluggish bowel function in a strong young person the increase in the stimulation of the bowel by adding raw fruit, vegetables and bran will bring about the desired result. If the colon is hyperirritable and shows evidence of loss of co-ordination in the muscular contractions, the function will be improved if a non-irritating diet with a moderate amount of bulk is prescribed. It is essential to withdraw completely laxatives of all kinds.

When there is loss of tone of the bowel, rest is the keynote of reatment. The diet should be small in residue and non-irritating. As the tone returns the residue in the diet may be gradually increased and more stimulating food included. Often it is necessary to put the patient to bed for one or two weeks. The soothing effect of heat is used by having him drink hot water and by applying external heat to the abdomen. Atropine seems to help in re-establishing function. If there has been no movement in twenty-four hours three ounces of warm cottonseed oil should be instilled into the rectum, to be retained over night. If the oil does not induce a movement a small low enema is given. Patients who have had only liquid stools for a long time are apt to have difficulty in expelling the first few formed stools because of a chronic contraction of the anal sphincter. Laxatives of all kinds and large enemata are forbidden. Patients should be taught how to use a small rectal syringe which has a capacity of two or three ounces. Many patients report months and years after their treatment that if they follow the rules of diet they have no symptoms, but if they eat much roughage, they immediately have trouble.

Patients with migraine usually have hyperirritable colons. The examination of the patient should be general and thorough, including a rectal examination. Laboratory examinations of urine, stools, gastric contents and blood are important and helpful. The x-ray is necessary to rule out organic disease and to estimate the condition of the colon.—*Canadian Medical Association Journal.*

Syphilo-dermo urologic maxims.—Sharp needles mean pleased patients.

Syphilitic chancres may be multiple.

Aortic aneurism is usually due to syphilis.

Never administer arsphenamin without filtering it.

With the roue a prophylactic a day will keep the doctor away.

Intraspinal therapy should only supplement intravenous therapy.

Knowledge of syphilis in the younger generation never did any harm.

Never neglect to neutralize arsphenamin. You'll regret it if you do.

When syphilis is contracted in ignorance is it then folly to be wise?

Syphilis—if diagnosed late—the disease that ends only in the grave.

Patience and peresverance will usually insure success in treating syphilis.

The old proverb "It is better to give than to receive," is, also, true of syphilis.

It is better to know syphilis and be safe, than to be ignorant of it and be sorry.

Giving mercury, arsenic, and bismuth is attacking syphilis with a three-edged sword.

A routine Wassermann is one of the most valuable laboratory procedures of all time.

Keep your spinal puncture cases in bed at least twenty-four hours; forty-eight is better.

The danger of the public toilet as a purveyor of syphilis has probably been greatly exaggerated.

Many cases of syphilis with negative Wassermanns reveal their identity through the therapeutic test.

Intramuscular injections are best given with the patient lying face downward, and thoroughy relaxed.

If arsphenamin is contra-indicated, bismuth and mercury can usually be given and with excellent results.

The dark-field equipped microscope is of as much value to the syphilologist as the compass is to the mariner.

If you are not sure of a Wassermann from your own laboratory don't hesitate to check it with another laboratory.

If you can't find a vein in the elbow for intravenous therapy, a branch of the v. marginalis lateralis often prominent.

Some moralists would do away with syphilitic prophylaxis, but why run the risk of infecting many for one man's indiscretion?

Bleeding from the puncture following intravenous therapy can usually be prevented by elevating the arm for two or three minutes.

The spirochaeta pallida may lie dormant for years like a hibernating bear, only to awaken to an active life when long forgotten.

Don't forget the spirochaeta pallida may at times be found in the inguinal lymph nodes if the penile lesion has been cauterized so as to preclude finding them in it.—*The Urologic and Cutaneous Review.*

Cardiospasm in the New Born Infant, T. L. Birnberg, Am. J. Dis. Child., 38: 1183-1195, Dec. 1929.

Cardiospasm in the new-boru infant has hitherto escaped early diagnosis.

Three cases of cardiospasm occurring in the new-born infant are reported. They present similar symptoms, of which the outstanding is forcible vomiting, beginning with the first feeding, occurring during or soon after nursing and showing no gastric contents in the vomitus. Roentgen examination is simple and definitely positive.

The spasm of the cardia is apparently easily overcome by the passage of a catheter through it for a number of feedings. The apparent association with a mild degree of pylorospasm is present in some cases.

The condition of cardiospasm in the new-born infant probably exists more commonly than has previously been apparent and should be considered as a possibility in vomiting of early infancy.

Correspondence.

TO THE EDITOR "*The Antiseptic*" *Madras.*

DEAR SIR,

Please publish the following in the next issue of the 'Antiseptic' as an answer to a query.

In reply to the enquiry of Capt. Shyam Lal, B.A.M.B., in the April 1930 issue of your 'Antiseptic.' p. 253. I would suggest the following.

℞

Luminal	gr. ii
Tr. Belladonna	m xv
Pot. Bromide	gr xv
Liq arsenical	m vi
Aqua Chloroform	℥ iii

(℥i (1 oz.) T. D. after food.

or Calcium Lactate 30 grains daily for at least a fortnight. I shall be pleased if the Captain gives this a trial and report his findings through the medium of your journal.

Yours truly,

MANJUNATHA PAI, L. M. P.,
Regd. Medical Practitioner.

Nileshwar, (S. K. Dt.)

Book Reviews

Aids to Psychology.—By John H. Ewen M. R. C. S., L. R. C. P. [Bailliere Tindale & Cox London. Price 3/6.]

As one of the student's aid series, this little book presupposes a previous acquaintance with the subject and is intended as an aid to rapid revision.

In the face the different schools of thought and of conflicting view-points in the domain of Psychology, an author's task is somewhat formidable when he has to present the subject to a student in a clean yet concise form.

The author of this book has drawn upon various sources which are acknowledged in the preface and in the body of the book.

One cannot help noticing the large space devoted to Instinct, which covers nearly 30 pages. This is in marked contrast with the excessive brevity in other equally important subjects. A partiality for Mc Dougall, whom the author quotes freely, probably accounts for the elaboration of the subject of Instinct.

There is a corresponding lack of enthusiasm for Freud, who is only casually mentioned in relation to Dreams.

As the aim of the book, as stated in the preface, is to emphasise those points useful for students preparing for a diploma in psychological medicine, a reference to some salient points of New Psychology e.g. repression, conflicts, regression and sublimation, would have made it a more complete compendium for the students.

As it is, an omission of these subjects would indicate to the students their comparative unimportance, which however is not the case.—*F. N.*

The Analysis of Medical Jurisprudence:—By Dr. Kamath and Dr. Viswanathan. [Messrs. Butterworth & Co.; Calcutta. Price Rs. 4].—This Book has so soon seen its 3rd edition because of its practical usefulness to the medical Officers, the magistracy and the Police. It has been well revised, enlarged, and brought up to date; and contains the departmental Regulations and the case law on the subject.—*E.K.G.*

The Rockefeller Foundation report for 1928. Published by the Rockfeller Foundation, New York.—It is well- known that the Rockfellor Foundation which was instituted in the year 1913 has now grown to a considerable proportion carrying out an extensive programme of aid to Public Health and

Medical Education all the world over. The emphasis has been obviously on the training of Doctors, Health officers, and Nurses, the creation or strengthening of institutions of Medical or Public Health Education, the building up of official health organisations, the promotion of field research, the demonstration of new methods.

During the past 16 years anti-hookworm campaigns have been organised in many places, rural health organisations have been completed, local health machinery either created or reorganised by the help of the Foundation. Tuberculosis, Malaria and Yellow Fever are being vigorously investigated and preventive measures being taken.

Public Health Schools or Institutions have been created or aided in the United States and in a number of other countries except India. Liberal aid has been promised to the new school of Public Health which would soon be started at Calcutta.

Schools of Nursing have been aided in several countries of Europe, in the United States and the Far East but not in India.

Very large sums of money have been expended in the building equipment and support of the Peking Union Medical College and aid to hospitals and the pre-medical sciences in China. The Peking Union Medical College is now on the way to autonomy. It is the only medical centre for teaching and research to which the foundation has contributed the entire cost of land, buildings, equipment and maintenance. In June 1928, this College turned 13 M. D's. and the total number of students here is only 118. The goal of the Foundation is to make this College a completely Chinese Institution, serving the Chinese people, staffed mainly by Chinese citizens, and administered under Chinese auspices." Here is a lesson for those interested in Medical Education in India.

In the year under report the China Medical Board, Incorporated, has been formed, quite independent of the Rockefeller Foundation. To this Board is entrusted the maintenance of the Peking Union Medical College. The endowment of this Board is 1,20,000 dollars.

The Foundation has the breadth of vision to see that it is only by helping Medical Education that Public Health can improve in any country. In the year 1928 the Foundation aided, to some degree or other, 18 medical schools all over the world—9 in Europe 2 in Canada, 1 in Haitie, 1 in Brazil, 1 in Japan, 2 in China, 1 in Siam, and 1 in Syria. India finds no place in this list. It is worth enquiring why India which is so well known to be a poverty—stricken land and consequently, backward, in matters of sanitation should have received such poor attention on the part of the Foundation.

During 1928, 201 Fellowships have been granted out of which only six go to the credit of a large country like India, whereas countries like Bulgaria, Hungary, Zugo-Slavia and Poland have been lucky to secure a verylarge number.

In the Madras Presidency the name of the Rockefeller Foundation is well known, since the Bureau of Sanitation of the Foundation started the anti-hookworm campaign and emphasized rural sanitation. In Madura, Nilgiris, Chingleput, and Malabar districts active compaigns against soil pollution are being done. The film on hook-worm has been repeatedly shown in various places in the Madras city and in moffusil.

In the State of Travancore a Public Health Survey is being done by the Rockefeller Foundation. In the State of Mysore, the Foundation has entered into a 2 year working agreement to provide the services of a consultant in Public Health and a Sanitary Engineer. A Fellowship in Sanitary Engineering has been granted and a rural health demonstration and 2 malaria field stations have been organised.

Funds have been appropriated by the Foundation for the establishment of an All India School of Public Health and Hygiene at Calcutta. This school will be maintained by the Government of India under the scientific control of the Indian Research Fund Association.

107 fellows from 27 countries received assistance under the head "Improvement of Teaching and Research." Only 2 in India received such assistance.

This report should be read by all those who are interested in Medical Education and Public Health in this country. The grand achievements of the Foundation so far are clearly reported and of them the Foundation may justifiably be proud.

It is hoped that the Directors of the Foundation will pay an increasingly greater attention to the needs of India and extend in an increasing measure their good offices and influence over this country, so that she may feel ever grateful for the benefactions of this Foundation.—*T. S. T.*

Hydatid Disease.—By Dr. Harold R. Dew. Published by the Australian Medical Publishing Co. Ltd. Sidney, Price 27 s. 6d.

In spite of this country being an agricultural one, it is fortunate that hydatid disease is rare in India. The disease is common in all sheep-rearing countries, especially, in the South American Republics, Australia and New Zealand. Prof. Dew's contributions and researches have extended our knowledge on this subject but there has been no authoritative work on

it, in English so far. Dr. Harold Dew's book on hydatid disease has now supplied this want. In the book we find a full and up-to-date information regarding every aspect of this disease.

There is nothing new regarding the life cycle of the parasite, except drawing attention to the possibility of an intermediate cycle in which scolices may grow into fresh hydatid cysts, without passage through an intermediate host. Recurrence of hydatid disease in operation scars and multiple hydatids in the peritoneal cavity from a rupture of the cyst in the liver are possibly due to such an intermediate cycle in the life history of the parasite.

Also in the matter of the development of daughter cysts on which there has been some differences of opinion Dr. Dew considers that the daughter cysts may be derived from scolices developing directly into cysts but they are more commonly formed from pieces of germinal membrane, which become separated from the wall of the parent cyst by trauma. The peculiarities of hydatid cysts in bone and in muscle are stated to be dependent on the two factors, trauma and the character of the tissue.

In country districts in Australia the infestation of dogs by the tapeworm, toenia echinococcus, is 18 per cent. The proportion of dogs to man in Tasmania is stated to be 1 to 8.6 and in Victoria 1 to 17. In the Melbourne Municipal abattoirs 25 per cent of all cattle slaughtered show hydatid disease; in New South Wales 37.2 per cent. The percentage of infected sheep at the Melbourne abattoirs averages 35 to 40 per cent; in certain parts of Victoria as high as 70 per cent; in the country districts an average of 35·7 per cent. Dr. Dew has laid emphasis on the point that the incidence of the disease in man depends directly on its incidence in the animals of the country. It is for this reason that the disease is common in man in Iceland, Australia, Algiers, New Zealand and South America.

Dr. Dew gives a table showing various countries whose population and number of sheep are shown. In the column, sheep per head of population, Australia and New Zealand rank foremost, showing 13 and 15.3 sheep per head of population respectively.

Similar statistics so far as India is concerned have not been gathered. Dr. Dew is fortunate in having a wealth of clinical material in his country and his association with the Walter and Eliza Hall Research Institute, Melbourne, entitles him to be an authority regarding this disease. He lays emphasis on the fact that the only source of hydatid disease in man is the dog infected with the minute tapeworms and has dealt with the prophylaxis both in dog and in man. The rarity of the disease in India is attributed to the intense heat of the direct sunlight, which is

probably an important factor in limiting the life of the ova and scolices. The rare incidence in China is explained away by the scanty food supply even for man, who is not likely to keep dogs which he cannot feed. Evidently Dr. Dew does not consider that India is equally poverty stricken. The explanation probably lies in the fact that the religious customs and habits of the people in India and in China fortunately do not bring about that close relationship of the dog to man, which is an important factor in the incidence of the disease.

Chapters 8 and 9 dealing with special diagnostic methods and hydatid anaphylaxis respectively are of the greatest interest to the pathologist and to the general physician or surgeon who desires to be up-to-date. The immunity reactions are well explained, the diagnostic value of eosinophilia, when other causes for the same are not present, is to be remembered. Precipitating test complement deviation test, and Casoni's intra-dermal test are all well described.

The inefficacy of any medical treatment and the danger of aspiration of the cyst have been clearly stated. The surgical technique of exposing the cyst, packing round it and injecting it with formalin before incising and evacuating its contents, is fully described.

Hydatid disease in practically all the internal viscera is described in the last seventeen chapters. The book is profusely illustrated with plates, diagramatic sketches and radiograms. Each chapter is documented with references to the literature on the subject. At present Dr. Dew's work on hydatid disease is a standard book, which should be in every medical college library and which should be read by all medical men, practising in the countries, where the incidence of the disease is high.—*T.S.T.*

Rickets, Osteo-malacia and Tetany.—By A. F. Hess, M.D Published by Lea and Febiger, Philadelphia.

Such a comprehensive treatise on the subjects of rickets, osteomalacia and Tetany was long overdue and Prof. Hess has now supplied the want. It is fascinating to read the history of rickets as told by Dr. Hess in a clear and felicitous language. Dr. Hess can talk with authority on these subjects, as he was associated with Dr. Rosenheim and others in the important discovery that the pro-vitamin D. is ergosterol. The diciency theory and the defective sun-light theory regarding the etiology of rickets were harmonised by this important discovery. According to Prof. Hess, heredity plays little part in the etiology of rickets. But there may be a constitutional predisposition to it. More stress is laid on the absence of sunlight than on the absence of Vitamin D. from food. It has, however, been conclusively shown that rickets can be completely prevented independently of sunlight, if the diet is sufficiently rich in the vitamin--D.

The divergent views on these diseases are impartially stated. On the subject of pathogenesis of Tetany, Dr. Hess is of the opinion that a tendency towards alkalosis plays an important part in the causation of tetany.

That tetany is a complication of rickets, that rickets increase the susceptibility to pneumonia and renders the prognosis much graver, and that rickets is an important factor in the maternal and infantile mortality, leading to operative procedures incident to child birth, are sufficiently brought home. That the eradication of the disease does not consist only in the stamping out of clinical rickets but should also completely wipe out all the minor manifestations of the disease is stressed.

The investigation into rickets has proved the immense value of the association of the basic sciences with clinical medicine.

This book would, therefore, interest not only pathologists and those who treat children, but also research workers in other lines of investigation, as in it the methods by which our knowledge might be extended are indicated.

On page 43 is a table giving the yearly average number of hours of sunshine in cities in various countries. Indian cities do not find a place in the list. It is of interest to know that Glasgow and London show the lowest figures. In China recent investigations show that rickets is of common occurrence and of moderate degree. In India, however, it is said that rickets may be rarer in Southren India than in Northern India, where the climate is colder. It is a pity that very reliable statistics regarding the prevalence of rickets, osteomalacia and tetany are not available for India. There are, however, reasons to believe that there is a higher incidence of rickets among Mohammedans compared to the Hindus and among the well-to-do compared to the poor, as has been shown by a few recent papers on the subject of osteomalacia. In the city of Bombay, Huchison and Patel found about 5% of osteomalacia among the well to-do Mahommedans and about 1% among the Hindus. As to the influence of osteo-malacia in the mother on the off-spring, Prof. Hess still reserves judgment.

Any one who takes the book to skip through will read the book from cover to cover, as presentation of an up-to-date knowledge on these diseases, in which a great deal of research work has been and is till being done in various countries, is attractively made :—*T. S. T.*

The Medical Comrade.—An international monthly journal devoted to all branches of medicine, surgery and Public Health and News. Edited by S. C. Anand M.B.B.S (Ex. I.M.S). Annual subscription—Rs. 4-8-0. Single copy—8 as. As the knowledge of medical science advances and medical men are growing in numbers, the need for more medical journals is keenly felt and our new friend and ally, 'The Medical Comrade' which was ushered into being at Delhi in April last, is intended to impart 'unbiassed and up-to-date information collected from current medical literature and presented in as suitable a form as might be of some practical utility to the average member of the Profession at sufficiently distant but regular intervals." We welcome its publication and wish it a bon voyage in the deep waters of medical journalism in this land.—*S.T.*

The Indian Medical World.—(The Journal of the Indian Medical Association)—Editor-in-chief Sir Nilratan Sircar Kt., M,A.M.D. D.C.L.,—This is another welcome addition to the medical journals in India, published monthly at Calcutta. The objects of the journal are to keep before the medical profession its onerous duties and heavy responsibilities in the matter of Education, Sanitation, Research and Medical Relief, to chronicle the Association's activities and efforts for bringing about a greater harmony and closer cooperation among the members of the medical Profession in India, for protecting their interests and also for setting on foot a strong movement for the improvement of the National Health and National Welfare. The objects are indeed praiseworthy and are certain of realization under the distinguished guidance of Sir Nilratan Sircar, its Editor-in-chief. We hail its advent and wish it a long and prosperous career:—*S. T.*

Books Received.

The following books have been received and the courtesy of the publishers in sending them is acknowledged. Reviews will be published from time to time.—[*Ed. A.*].

Varicose Veins.—By Ronald Thornhill M. B. C. H. B, Published by Messrs. Baillere Tindall & Cox London 2nd Edition. Price 5/.

The clinical Aspects of Immunity.—By H. Gideon Wells, P.H.D.M.D. Published by Messrs. The Chemical Catalog Co., 419, Fourth Avenue, at 29th Street, New York, U.S.A.

Clinical Methods in Tropical Medicine.—By G. T. Birdwood, M.A.M.D., D. P. H. Lt. Col. I. M. S. Published by Messrs. Thacker Spink & Co., Calcutta. 4th Edition Rs. 8-8-0.

Medical Directory.—Published by the National Medical Association of China.

Synopsis of Surgery.—By E. W. Hey Groves M.I.S. B.Sc. (Lon,) F.R.C.S. (Ed), Published by Messrs. John Wright & Sons Ltd., Bristol, 9th Edition Price 17/6.

A Review of Artificial Light Therapy.—By R. King Brown B.A., M.D. D.P.H.—Published by the British journal of Actino-Therapy and Physiotherapy, 17, Feather stone Building London W. C. 1.

Creatine and Creatinine.—By Andrew Hunter M. A. M. B., F. R. S., (Cam). Published by Messrs. Longman's Green & Co., London. Price 14/.

Leprosy, Diagnosis, treatment and prevention.—By E. Muir, School of Tropical Medicine and Hygiene, Calcutta. Published by the Indian Council of the British Empire Leprosy Association, Delhi and Simla.

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NOTICE

HARVEY MEMORIAL FUND.

An appeal has been issued to the medical profession by an influential Committee whose Chairman is Sir John Rose Bradford, for funds to restore the tower of Hempstead Church in Essex, which collapsed in 1882. Here lie the remains of William Harvey, whose family was long associated with the church, a fourteenth-century bulding of considerable interest. The estimated cost of this £5,700, of which about £1,000 has been subscribed. We feel sure that the medical profession in India will be glad of this opportunity to do honour to the memory of William Harvey, who did so much to establish the study of medicine on a basis of truthful and accurate observation. *Donations can be sent to Lt. Col. W. G. Bradfield I. M. S., General Hospital, Madras.*

PRIZES FOR YOUNG MEDICAL WOMEN.

At a recent meeting of the Council of the Association of Medical Women in India held in Bombay, it was decided to offer prizes for essays on professional subjects to young medical women. Two prizes of Rs. 150 and Rs. 100 are offered to women medical graduates, and two prizes of Rs. 100 and Rs. 50 are offered to women sub-assistant surgeons or holders of the L. C. P. & S. The subject prescribed in both cases is "Puerperal Sepsis", and it should be illustrated by not more than three clinical cases; and entrants must have completed their professional training within the preceding 5 years. The essays should not exceed 2,000 words in length and must be sent to the Hon. Secretary, Dr. Farrer Hospital Bhvani, Punjab, before September 1st, 1930. The best of the Essays will be published in the Journal of the Association.

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CONTENTS, MAY 1930 ISSUE.

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JUNE 1930.

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A Monthly Medical Journal

EDITED BY
Dr. U. RAMA RAU
AND
U. KRISHNA RAU M.B., B.S.

CONTENTS

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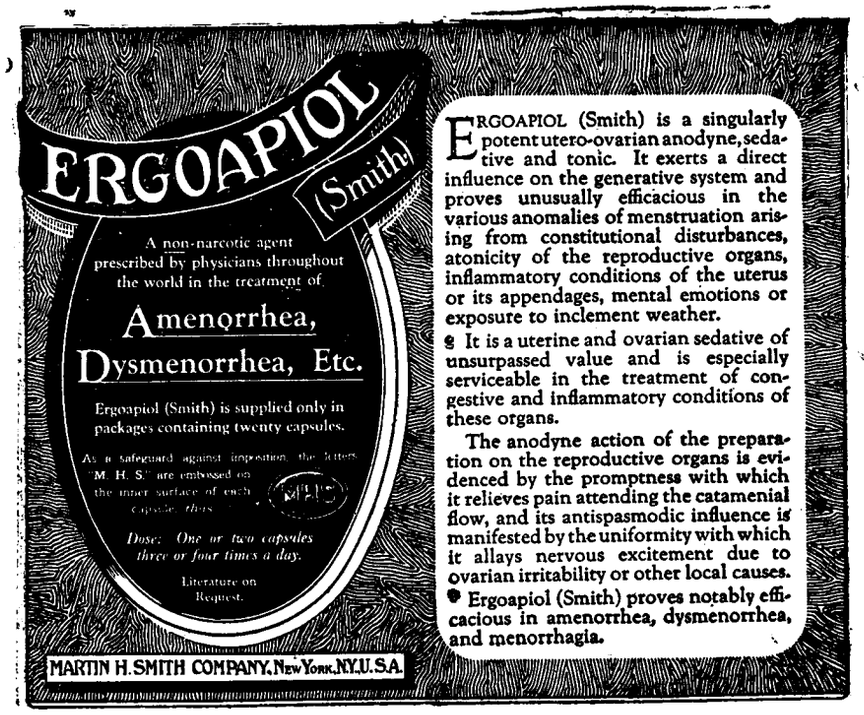

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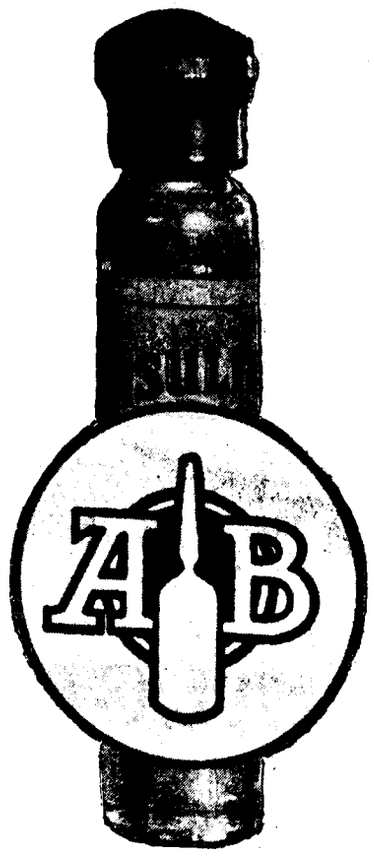

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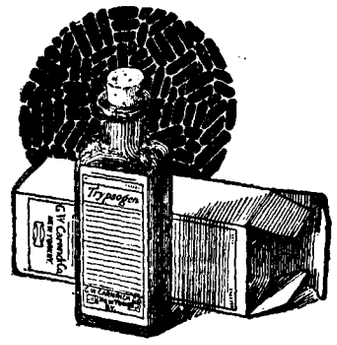

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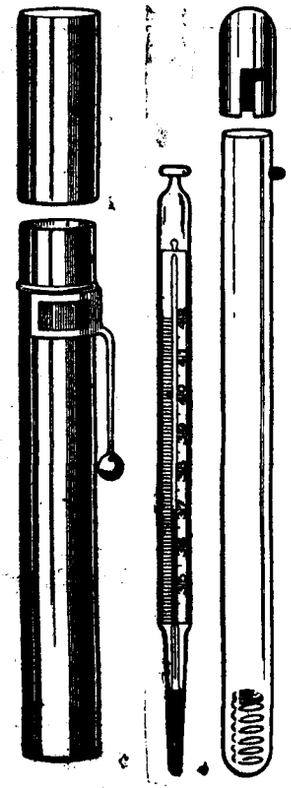

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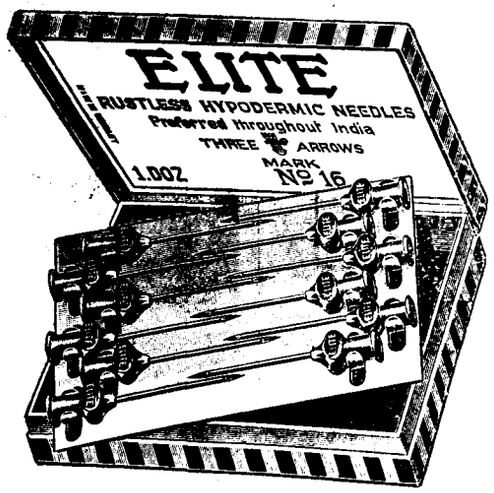

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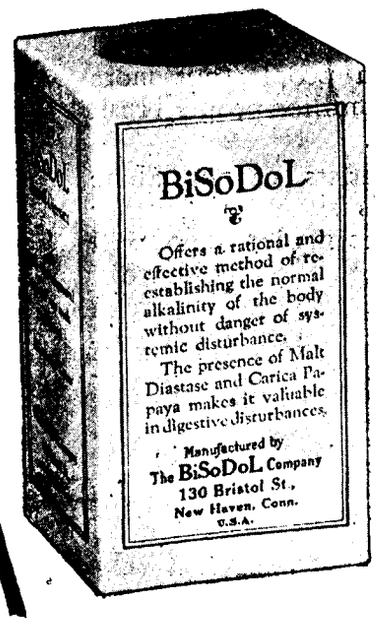

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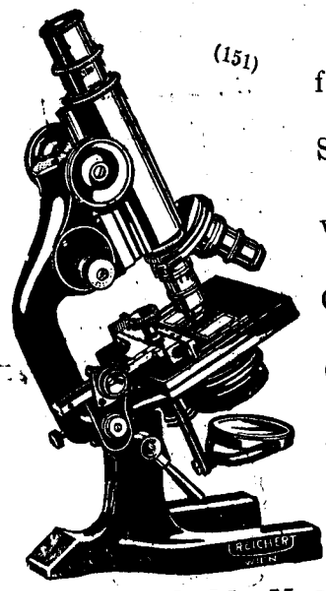

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Original articles

THE USE AND ABUSE OF FORCEPS.*

BY

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The use and abuse of forceps may seem a very common subject indeed for the student population to be thrilled at. Nevertheless, I feel that there is far more in this particular obstetric operation than in all other operations put together. The commonest obstetric operation which, most of you will be called upon to face at a very early stage of your career, is undoubtedly the application of forceps and a great deal of your success then, and subsequently, will depend upon the reputation that you build up consequent upon that single delivery with forceps. I have in mind several instances where the reputation of practitioners has been ruined consequent upon a case of forceps which was doubtless not due to any other fact but the lack of sympathy on the part of the general public and a defect in the realisation of the difficulties of the situation. But apart from that, there is absolutely no doubt

* A clinical lecture delivered at the Giffard School of Obstetrics Madras on 22nd February 1930.

that although forceps is such a common operation, it is still one of the most abused of operations in obstetric surgery. I had an occasion to speak at the Obstetric and Gynæcological Society in Edinburgh. I put the question to some of those assembled there: "How comes it that while in the field of surgery we don't have a failed appendicectomy or a failed Nephrectomy or any failed operations sent over to the Specialist in Surgery to complete, we speak of the failed forceps coming over to the Specialist in Midwifery? How comes it that the practitioner is more keen or more eager to tackle a case of forceps than he would be to tackle the other operations?" The reason for that must be that the forceps has been abused and its proper uses have not been rightly appreciated. It is for that reason more than for anything else and because we see in this hospital a large number of cases sent to us perhaps after attempted forceps deliveries outside and perhaps after the woman and the child have been subject to an amount of injury which is almost irreparable, it is because of these factors that I thought it worth while this evening to speak to you on "The Use and Abuse of Forceps."

The first thing that the medical student, when he passes out, asks is—"What is the type of forceps that I should possess in my Obstetric armamentarium?" Speaking frankly, I tell you that I have come to realise more than ever that if you are wise, you would rather wish to have your obstetric deliveries conducted under more natural conditions and if possible without the essential aid of the forceps. There were days some years ago when perhaps you would have seen such head lines on the notice board —"Confinements conducted with the aid of instruments." I remember very well walking through Popham's Broadway and gazing amazed at a particular doctor who had this board prominently displayed. I am afraid, however, that those days are long past, and if anybody should now advertise himself or herself stating that the method of delivery that will be adopted is by use of instruments, he or she will have little to do in the domain of obstetrics apart from any possible action taken for breach of medical ethics.

With regard to the choice of forceps, undoubtedly the forceps of a good make is an essential. It does not mean that you are going to advertise any particular company, but certainly there is such a thing as a good make in forceps. The amount of care that is taken on the minute details is so very essential for the success of a forceps application and subsequent delivery. We all use only all-metal instruments now-a-days and the forceps should satisfy some conditions—it must be of steel of a good quality so that the forceps will not bend and will not easily break either. Then the

next thing is that there are certain dimensions that are necessary for the proper application of forceps. The distance between the blades should not be more than 3" and if you were to take the forceps and keep it on a level table, the height from the table to the top of the cephalic blade should not be more than 3½."

My own impression is that the obstetric forceps suitable to European countries is a little too big for Indian conditions. It is obvious that when we are dealing with women whose pelvis is decidedly an inch shorter than what you find in the women of western countries and with children whose cephalic diameters are certainly shorter and whose weight and general development is certainly a pound less than what you find in England and other western countries, you can easily imagine how a big forceps suitable to European countries may be found to be a little too big for the common type of Indian girl mothers that occasionally come into this hospital. From that point of view especially, there is a necessity for the evolvement of a forceps better suited perhaps for this type of pelvis than the one used in the Continental countries.

Now you all know the functions of the forceps. I need not dilate upon them. Forceps may be used for several purposes—as a tractor, as a rotator, as a compressor, as a dilator, as a lever and as an irritator. But the common and the most justifiable use of the forceps is as a tractor, first and foremost. It is because it helps you to apply traction upon the fœtal head that you have of necessity to apply an instrument such as a forceps.

Certain uses of the forceps may be condemned straight away. The compressor effect of the forceps—you should try and avoid. It is not desirable to use the forceps as a compressor; and under certain circumstances where an inevitable amount of compression is necessary, care is to be taken that compression is reduced to a minimum and for the shortest possible time.

Better methods of dilatation of the cervix and the genital passage being now available, forceps is never used as a dilator.

As an irritator also, it has completely gone out of vogue. We have, fortunately for us, several better methods of stimulating the uterus to contract and it is therefore unnecessary to introduce the forceps into the vagina or cervical canal to produce such contractions of the uterus.

As a lever, perhaps, under certain circumstances, it may still be used, but even this is scarcely called for.

So, the main uses of the forceps today are that of tractor and rotator. The use of forceps as a rotator is considerable, but it requires a great deal of caution if harm is not to result both to the

mother and the child. We will deal with it a little later and at more length when we come to Occipito-posterior presentations.

You will then realise that the main function of the forceps is as a tractor, and as a tractor it has certainly stood the test of time and will continue to do so, provided a wise choice is made of the case and the conditions under which it should be applied are carefully observed. If these two preliminary conditions—fundamental conditions are not followed the forceps, far from being an instrument of help will be a weapon of murderous intentions almost bordering on wilful murder of the child and sometimes of the mother. This is where the chief difficulty comes in, by a not judicious use of the forceps.

You may next ask the question—"When should the forceps be used?" It is all right to speak about the abuse of forceps, but one should really like to have a clearidea as to what are the uses of forceps and when the forceps is indicated. In one sense, it is easy enough to answer, but, in another perhaps, it is one of the most difficult of questions to state when the forceps should be used. I can say with considerable amount of experience, that it is not so easy as people imagine to judge whether a forceps should be used or not and I shall confess this evening that I have used forceps on occasions when the results have proved that the choice was not altogether correct. But such occasions must be rarer and rarer. I am quite prepared to admit that what is possible with one who has had considerable experience of forceps deliveries, may not be altogether possible with a junior practitioner just struggling in life. My sympathy has always been and will continue to be with the practitioner who has muddled in his first forceps, because I myself realise how much more I might have muddled through the first delivery that I have performed, if better facilities had not been available.

The two chief indications for forceps are the fœtal and maternal indications—to save the life of the foetus, or to improve the prognosis so far as the mother is concerned. These must be the fundamental reasons for the application of forceps. Nothing else should come into the field. It is unfortunate that occasionally side considerations, as it were, creep in, as the necessity to save time—which is one of the most pernicious influences dominating the unwise choice of a forceps delivery. The frequent solicitations of relatives and the importunate cries and wailings of the patient herself, are other unfortunate causes that lead to the abuse of the forceps. It requires more than a cool head, sometimes a callous heart, to prevent either of these considerations from overmastering your own sense of choice and experience—perhaps a certain amount of sad experience—will make you feel that the wiser

choice is to turn a deaf ear to these importunate cries. I may tell you that the main indication of forceps is the sign of foetal distress. You are doubtless aware of the five text-book signs of foetal distress and I am sure more than 90 per cent of you assembled here know what those conditions are.

The first and foremost sign that gives you an indication is undoubtedly the foetal heart. The foetal heart is a very valuable sign to denote the exact condition of the foetus and it has been said—text books have repeated it—that if the foetal heart slows down below 110 or rises above 150 or 160, it is almost a sure sign of foetal distress. My own experience has been that a fast foetal heart is much graver than the slow one. Opinion is very much divided on this subject and I am free to confess again that there is a school of thought which believes a slow foetal heart is fundamentally more significant than a fast one. I am of the opinion however, that a foetal heart of about 110 or so may be of no significance whatsoever under certain circumstances, and I have myself often allowed a foetal heart to slow down to a 110 or even less under certain circumstances, i. e., the foetal heart should be clearly audible, and there should be no caput formed upon the head. If these two conditions are available, and there was no escape of meconium, provided the condition of the mother was good and there was no other sign of foetal distress, I have not been very much in earnest to deliver the child, simply because the foetal heart is below 110. But it requires very careful watching and at any time it may be necessary for instrumental aid, because the foetal heart may slow down or may suddenly become faint. Either of these conditions is of serious significance.

The next sign of foetal distress is the escape of meconium unmixed with liquor amnii in a presentation that is not a breech presentation. I may tell you that every one of these conditions is important. A mere escape of meconium sometimes with liquor amnii is of practically no significance, but often it happens that the uterine contractions compress one part of the foetus more than any other and you can realise that if the compression is about the abdomen, some of the contents of the intestines may be squeezed into the amniotic cavity and thus the liquor amnii is stained with meconium. On the other hand, in a breech presentation, it is almost inevitable that meconium should escape unmixed with liquor amnii, because, it is not the uterus that contracts and forces meconium out, but it is the pelvic cavity through which the breech has to pass. When, however, you have these circumstances in a head presentation, viz., the escape of meconium without liquor amnii, then it certainly means

that the uterus is contracting so tightly that it squeezes the foetus. The result is the circulation of blood to the foetus is restricted; in the second place the blood circulation through the umbilical cord as well as the action of the foetal heart are interfered with: so that the amount of arterial blood to the foetus is very much less than it ought to be and the child easily shows signs of asphyxia.

The third sign of foetal distress is tumultuous movements of the child. The tumultuous movements of the child are really evidence of deep asphyxia just as convulsions in the adult in the second stage of asphyxia. There is no difference whatever. The child works into convulsions and you can see occasionally the limbs kicking about, so that you see that the tumultuous movements of the child mean as early and as quick a delivery as possible.

There is one sign that I have reserved for the last because it is of considerable significance, and a sign which textbooks have not, at any rate, given the emphasis due to it—and that is a large caput succedaenum. I am convinced that far more than all the other three signs, a large caput succedaenum almost always means that the child will be born deeply asphyxiated and may not be able to revive. The reason for that is that a large caput succedaenum can only be produced when there is prolonged, continuous, sustained and rather severe pressure on the head. Now if that pressure is prolonged, continuous and severe, it means that the effect of the pressure must be felt upon the vital centres. You will realise that the foetal head, so unfortunately circumstanced so far as the pressure effects are concerned, is not very hard. We can submit our head to a certain amount of pressure, but in the case of the foetal head owing to the fact that there are the membranes and sutures, the effect of this pressure is very easily felt upon the vital centres—the respiratory centre, the circulatory centre, the vasamotor centre etc,, which as you are doubtless aware, are situated close to each other. Of all these centres, the one centre which suffers most is the respiratory centre, and you will therefore find that although the foetal heart is between 132 and 144, you may take it that the child will be born asphyxiated, more or less, if there is a large caput. Besides this, there is another effect of which we are not quite so familiar: but we have had within recent years opportunities of examining the brain post-mortem and we have noticed that in every case where the child has been asphyxiated and a large caput has been present, there has occurred severe internal hæmorrhage in the brain,—tentorial tears and haemorrhage into the ventricles—so that you have here another additional reason why you should never allow a foetus with a large caput to be left undelivered.

You are doubtless aware of another cause of foetal distress that is—prolapse of the cord. A case of prolapse of the cord obviously means that one of two things should be done. The cord should be replaced or the child should be delivered-otherwise the cord will be compressed and the child asphyxiated. Which of the two things you should do, and which method of delivery you should adopt will depend upon circumstances of the particular case.

Next the signs of *Maternal Distress*. There are occasions when it may be necessary for you to interfere not because you have all the text-book signs of foetal distress, but because you have certain signs of maternal distress which necessitate immediate interference. There are certain conditions of the mother where it is impossible for her to stand the strain of the second stage of labour—conditions associated with diseases of certain internal organs particularly the heart and lungs or acute infectious fevers and similar conditions. In these cases immediate interference on behalf of the mother is necessary. Eclampsia is one of those conditions where we think it is necessary to deliver the child as early as possible in the second stage for two reasons. Firstly, owing to the weak heart and the rise in blood pressure, the mother is not in a position effectively to pass through the second stage of labour. Secondly, the longer the child is allowed to remain after the membranes have ruptured, the greater we think is the chance of the foetus dying on account of toxaemia in cases of eclampsia.

Now there are a number of causes which may influence the application of forceps. You have, for instance, occasionally a woman coming into labour: the pelvis is perfectly normal, the position is quite good; the child is not too big; the uterus is contracting and yet the final effort is not made and the child is not delivered. You have then to look for other causes; you have to look for conditions which may interfere somehow or other and in a large number of these cases where the pelvis is normal and the foetus is normal, you will find certain accessory factors such as a distended bladder, a loaded rectum, cord round the neck, short cord, dextroversion of the uterus, a pendulous abdomen, a neurotic temperament on the part of the mother, and hysterical outbursts on the part of the company around. There is absolutely no doubt and every one of us can cite cases where a woman in labour is sorely tired and her patience exhausted by the weeping and wailing tones of all those around, that the depression has been enough to speed off the uterine contractions and when the doctor is called on, and this motley crowd is turned out of the

room, it is possible that the woman can go on and a delivery effected naturally.

Weak pains.—May be due, as I said, to undue stimulation of the uterus at times so that the uterus is stimulated far more than is necessary and when it ought not to be so stimulated. It is a common occurrence that as soon as the membranes are ruptured, it is the practice with a certain class of midwives, to go on constantly massaging the uterus and to tire it out long before the next pains of labour can set in—that is an unfortunate state of affairs.

Other causes of weak pains, you are doubtless familiar with. Weak pains are due to general debility, on the part of the patient, anæmia, impoverished nutrition. Although perhaps, it is wonderful how in many of these so-called impoverished conditions, the uterus at any rate, does not lose much of its force. Often and often you will come across cases where although the condition of the patient is serious, the uterus has acted with remarkable energy.

I shall now come to the preparation of the patient for the operation. One should be thoroughly familiar with the conditions that should be fulfilled before you think of a forceps. When the patient shows signs of foetal distress, let me again warn you that when you are convinced that there is an indication for immediate delivery, it does not by any means suggest that that delivery should be with the forceps. The question that you have got to decide is the best method of delivery and the conditions which will be present at that time will largely regulate your choice of the method.

Before applying forceps, certain conditions must be satisfied. I think most of you are familiar with what those conditions are. The cervix should be fully dilated. That is a condition that can be brought about sometimes when there is an indication for delivery. It is not often that the cervix is fully dilated: sometimes we have artificially to dilate the cervix before applying forceps. The result of the non-dilatation of the cervix is very often disastrous. You produce, in the first place, the risk of severe laceration of the cervix and secondly an unfortunate tendency for hæmorrhage, thirdly a certain amount of shock, fourthly an inevitable tendency for sepsis, and fifthly cicatrisation of the cervix leading to greater amount of risk in subsequent deliveries, erosion of the cervix incidentally paving the way for malignant growths of the cervix. You have therefore to guard against these bad effects that may follow any precipitate effort on your part before the dilatation has been completed.

The second condition is that the membranes should be ruptured. There are two reasons why the membranes should be ruptured. One is that I do not think it is wise to apply the forceps unless the membranes are ruptured for some time and the uterus has had its own share in trying to do its duty. You are not treating the uterus properly by rupturing the membranes and straightaway putting the forceps. I can conceive of very few occasions when such a necessity will arise. At one time I thought the necessity would never arise, but I am now convinced that there are very rare occasions when the foetal distress is too much in evidence even before the rupture of the membranes. But as I said those occasions are very very rare.

The third condition is that the bladder should be emptied and preferably the rectum. I do lay greater emphasis upon the bladder being empty, because if the bladder is not empty there are two things likely to happen. First, a certain amount of injury of the anterior vaginal wall which may result in sloughing, and later on, the formation of that troublesome complication of a V. V. F. Second, it is a distended bladder which will give rise to greater amount of difficulty in pulling the head through than if the bladder is completely empty. The third reason is that if you do not relieve the bladder, that itself will prevent the proper expulsion of the placenta in the 3rd stage of labour and sometimes cause post-partum hæmorrhage after the delivery. It is for these reasons that the bladder should be emptied.

If the rectum is not empty and you are going to apply forceps do not give an enema, because I think the giving of an enema in the later stages when the result is not satisfactory, makes it more dangerous for the patient. When forceps is applied soon after the enema which has been ineffective, the fluid contents of the rectum will more easily wash into the vaginal cavity and will give rise to a greater chance of sepsis than if the rectum were full of hard faecal matter. I think it is a great disservice you are doing both to the patient and to the Obstetrician, if at the last stage, a hurried enema is given.

The next condition is that the greatest diameter of the head should have passed through the brim of the pelvis. Now every body repeats it, but if as many people as repeat it have observed this, there will be less catastrophe in the application of forceps. The forceps is not the instrument that is called for; it is not the method of delivery at all one should adopt if the head is above the brim. I would stop at that because I know if I were to say there are exceptional circumstances and exceptional cases where you can apply forceps and succeed, the inevitable consequence

will be for people to imagine that such chances are always in their hands.

The fifth and the last condition is that the uterus should be contracting. I think it is a very necessary condition indeed, because if the uterus is not contracting as well as it ought to the result of the application of forceps will be that immediately after delivery the uterus will practically be inert and severe post-partum haemorrhage will result.

Then we speak of the floating forceps, the high forceps, the mid forceps and the low forceps. As I have told you, the floating forceps is absolutely out of the question. Even the high forceps should be used with the greatest amount of judgment and care.

Coming next to the preparation for the operation, all that I can say is that the one fundamental factor is often forgotten—I hope none of the present company will ever forget it—and that is the realisation of the fact that forceps is a major operation and as such, should be performed with all the aseptic and antiseptic precautions that you will muster unto yourself in dealing with any major surgical operation. In one sense, even a greater amount of care is needed. You may imagine everything has gone off all right. The third day the temperature rises step by step, it mounts up day by day and finally you find that you are the unfortunate person who has carried puerperal sepsis into a woman that was otherwise all right.

Some people perfer to shave the parts and clean them up, then paint some antiseptic–it might be Tincture. of iodine, it might be picric acid. A sterilized sheet is put upon the patient. The patient should be under chloroform. 1 do not think it is justifiable to attempt the forceps unless the patient is under chloroform. There is however this fundamental consideration that nothing requires a more judicious judgment than the administration of anaesthetic for patients in labour. It is no use blaming the anaesthetist, and I have stopped that game for a long time now. But I am convinced that if a patient should have a severe post-partum haemorrhage, it is not the unfortunate man at the other end that is responsible.

The anaesthetic that is given to a patient for a forceps should be such that as soon as the forceps is finished, the patient should be coming round from the chloroform—that is the ideal anaesthetic. On the other hand, the anaesthesia that results in the violent kicking of the patient, when you are applying the forceps, which you suddenly find pass over into a deep comatose sort of breathing when you are delivering the head, is the most fatal type and it is this type that results in severe post-partum

hæmorrhage. Give enough to get the patient under and just enough to keep the patient under when the forceps are being applied. Otherwise, there is a certain amount of difficulty.

In the matter of the application of forceps,—perhaps I have repeated it very often, and I will still repeat it—everything depends upon the technique of your operation.

Having relieved the bladder, it is easy for you to apply the blades of the forceps, the left blade first and the right blade after. I cannot go into the details, but I hope you are familiar with them.

Having got all the preliminaries, if you want to introduce any instrument into a woman's vagina, there are one or two things to note. You must see the instrument as it is introduced and when you cannot see, you must feel it and guide it. Secondly you should apply the forceps with no force; it should in fact slip in easily and to guide the forceps into proper position, it is necessary to insert but one or two fingers into the vagina. Why on earth four fingers or the whole hand should be used! I don't see any reason.

Thirdly, you should see that the forceps is conducted without injuring the maternal tissues. All that is necessary is to separate the labia, introduce the two fingers and guide the forceps. In locking the forceps the right or upper blade should *always* be made to meet the lower blade, and never the lower should meet the upper.

The rule that I have always kept in view is the rule of obeying the Law of Curves. If a curved object is to be introduced into a curved canal, it can only be introduced in a curved manner. It is absolutely simple. You cannot straightaway introduce a curved forceps into a curved canal by digging into it. If you attempt it, you will obviousy cause serious injury to the foetal head and certainly to the maternal tissues and inevitably it will induce an amount of hæmorrhage which will be very difficult to control.

I now come to the *methods of traction.* We speak of the aristocratic pull, the hunch-back pull, and the tug-of-war pull. I don't know whether you are familiar with all of them. I must emphasise the fact that the delivery with forceps is not a trial of strength. If it were so, perhaps, Eugene Sandow and Prof. Rama murthi would have had the best qualifications for the Obstetrician's posts.

There is one thing you should know with regard to the application of forceps in an occipito-posterior presentation. A considerable amount of skill is necessary in this case. You can diagnose an occipito-posterior not only by palpation and vaginal

examination, but even when the forceps is applied. You know that occipito-posterior presentation can be diagnosed by feeling the limbs, by noting the fœtal heart, by noting the anterior and posterior fontanalles. But more than that if you have not been able to focus your attention on these points, perhaps owing to the case coming at a late stage, you can decidedly make out that it is an occipito-posterior while applying the forceps. In these cases you find the blades slip in with greater difficulty. Locking is more difficult. Lastly, there is a greater risk of the forceps slipping.

Let me repeat that Walcher's position is advantageous under certain circumstances, but it is not altogether such an easy method of delivery. First, because, before you try Walcher's position, unfortunately a good deal of traction has already been applied and that traction leads sometimes to fatal injuries of the foetal head and sometimes a certain amount of injury on the maternal side. The common indication for Walcher's position is a flat pelvis. In Walcher's position you bring the woman to the end of the bed. The two extremities should hang down freely because the weight of these two extremities bring the symphysis pubes down and it increases the true conjugate. Before the woman is brought into Walcher's position, you can apply forceps, for the simple reason that if you have not applied at that stage, the vaginal outlet will become considerably narrrow and you cannot apply forceps later. The next thing is that you should apply direct downward traction with the obstetrician seated down till the head passes through the brim.

In a large number of cases, particularly multipara, where there is no disproportion of the pelvis to the head, it is a wise thing to perform a version. We have done it with extremely good results. It is so popular with us that some of the Lady House Surgeons prefer version to a hard pull with the forceps.

It is not possible for me to go into the details of the essential considerations that may weigh with you in the performance of a version. I do not think it is necessary for me to deal with forceps to the after-coming head either. It has been advocated by some; some people do practise it; and I myself have always been against it and have not had opportunities of applying forceps to the after-coming head on more than two occasions. For my own part, I do not propose to apply forceps to the after-coming head.

I shall lastly deal with some of the injuries to the foetus during the application of forceps. Little do we realise when we apply forceps, what an amount of damage can be done by that simple instrument both to the mother and to the child. With the mother, I have told you, you can produce a V. V. F., or a recto-vaginal fistula, laceration of the cervix, laceration of the lower uterine segment, laceration of the vagina and the perineum, with all the associated symptoms. So far as the child is concerned, forceps can produce severe damage, sometimes very severe damage to some of the vital organs and the cerebral cavity. Little's Disease has now been established to be due to a congenital defect rather than to acquired causes during delivery. But there are other conditions chiefly resulting from forceps. You may know what are known as cone-shaped deformities which undoubtedly result from forceps. I have known of cases where the eye-ball had come out consequent on the application of forceps on more than one occasion. Fortunately for the Obstetrician, the child could not be revived and it was a good thing, for otherwise the entire reputation of the doctor would have gone so far as that child was concerned.

Tentorial tears, cerebral haemorrhage, injuries to the brain haemorrhage over the brain, particularly in the ventricular region, and the base of the brain, are some of the common damages resulting from an injudicious use of the forceps.

All these injuries may sometimes result in spite of yourself but the large majority of them can be generally controlled by a wise and *judicious* use of the forceps.

I have told you enough about the use and abuse of the forceps so far as I can see. I shall end by quoting an invaluable paragraph from an article by Prof. B. P Watson, M. D., F. R. C. S. Professor of Obstetrics, Columbia University:

> "There is a greater need to day than ever there was to preach against "Meddlesome Midwifery" because with our increased hospital facilities, the attendance of trained nurses, and the ease with which a 'set up' for the operation can be made, there is a greater temptation to interfere. Do our students in their long hospital training see too many instrumental deliveries in proportion to normal deliveries? Speaking from my own experience, I think they do and that they are likely to go away with a wrong impression unless the teacher is at pains to discuss fully with them the indications for every interference. They see the skilled obstetrician emerge successfully from a difficult forceps case or version and breech delivery and do not always realise that his success is due partly to the ideal conditions under which he is working as regards 'set up' and assistance and partly to his individual skill, and that if they attempted the same procedure

in the home of one of their future patients they would be lacking in both. They do realise this in the case of a major surgical operation and from this point of view it must be driven into them that operative obstetrics is surgery and very often major surgery and that before they can undertake these operations they must have more training than they can possibly receive in their undergraduate courses".

*THE PLACE OF SALPINGOSTOMY IN THE TREATMENT OF STERILITY.

BY

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In the investigation of a case of Sterility, after going fully into the history and excluding the husband as the defective partner, the patient is submitted to a careful physical examination of the whole body and then of the pelvic organs.

Next, in the absence of

1. Menstruation or pre-menstrual congestion,
2. Septic conditions of the genital tract,
3. Tubal inflammation,
4. Severe general disease,

it is necessary to test the patency of the Fallopian tubes.

The test applied for this purpose should be that of insufflation of the tubes, as introduced by Rubin ten years ago, by any suitable modification with which the operator is familiar.

In a large percentage of cases of sterility it is found that the tubes are sealed, and if the test is repeated again a fortnight later usually the same result is recorded. In a few cases this second test will reveal that the tubes are now open.

We shall now consider the further investigation and the treatment of these cases of sealed tubes.

Investigation.—First it is necessary to find out the spot at which the tubes are closed because this influences the prognosis considerably as will be seen later.

For this purpose, the patient is put in the dorsal position with the legs well flexed on the abdomen. A canula fitted with an acorn stop is passed into the cervical canal and 20 cc. of Lipiodol are injected slowly and without excessive pressure. The patient is kept lying down and after 4 hours (or better still next day) X-ray pictures of the pelvis are taken which are compared with pictures taken before the injection.

*Specially contributed to the Antiseptic.

It is to be particularly noted that this test with Lipiodol should not be performed until it has been positively ascertained by the air test that the tubes are closed because the Lipiodol is distinctly irritant to the pelvic peritoneum and might lead to adhesions involving the abdominal ostia.

The Lipiodol is very opaque and a good shadow is given by it of the vaginal fornices, cervical canal, uterine cavity and fundus and of the tubes up to the point where they are closed. If by chance they are open, a little is seen down in the pouch of Douglas. By careful examination of the X-ray picture it is usually possible to say whether the tube is sealed at the abdominal or at the uterine end.

Treatment.—It is advisable only to perform salpingostomy on those cases in which the tubes are patent as far as the abdominal ostia, in which the closure is probably due to fimbrial adhesions. In these we have some grounds for believing that the tubal mucosa will be healthy, whereas if the tubes are sealed at the uterine end the mucosa will either have been already injured by an infection, or rendered impassable by a congenital abnormality, or it is so likely to be damaged by attempts at canallisation or reimplantation that a successful functional result is highly improbable.

Certain cases will occur however in which doubt is felt as to the state of the tubes and the exact spot at which they are sealed, and in these it may be desirable to open the abdomen to give the patient the benefit of any possible chance. In such a case, the uterus is hooked up with a small sharp double hook and the tubes carefully inspected. It may be found that they are bound externally by fine peritoneal adhesions and that when these are freed a flexible silver probe (with a round point) can be introduced through the ostium and passed without difficulty into the uterine cavity. In other cases and these are more common the fimbriae around the abdominal ostium are adherent to each other and if they cannot be satisfactorily separated the end must be split up or amputated.

There is nothing new in these procedures at operation, but the special point, it is desired to bring out. is this: at the operation insufflation of the tubes should be carried out via the cervix in the usual way, and this procedure must be repeated every day for the first four days so as to maintain their patency; if this is not done it is very probable that the tubes will become sealed up again immediately after they have been opened by operation.

Used in the above manner and in suitable cases entirely free from active or latent inflammation, the results of salpingostomy are much less disappointing than has been the case in the past.

SAURASUKTAS IN THE LIGHT OF MODERN SUNLIGHT THEPAPY.

By

Dr. B. V. Joshi, M.B.B.S. (Bombay).

"चित्रं देवानामुदगादनीकं चक्षुर्मित्रस्य वरुणस्याग्नेः । आ प्रा द्यावापृथिवी अन्तरिक्षं सूर्य आत्मा जगतस्तस्थुषश्च" ॥ (ऋ. १-८-७.)

"Here hath arisen the beautiful army of the Luminous (देवाः=द्योतमानाः Luminous Sun's rays (सायनभाष्य), which is the eye (i. e. the source of light, energy and guidance) of Mitra (मित्रम्=प्रमीतेस्तारयितारम्= one who saves from Death and thus prolongs Life), of Varuna (वरुणः=पापान्निवारयति इति= One-who removes all faults, bodily and mental) and of Agni (The source of all heat). Filling with its splendour, Heaven and Earth and the atmosphere, the Sun is the SOUL of all the animate and the inanimate world."

This hymn is a clear proof of the great faith which the ancient Aryans had in the supreme healing and enervating properties of Sunlight. They recognised in Sunlight a powerful source of light, heat and all other forms of energy essential for human life. They discovered it to be a really potent agent for combating all sorts of diseases affecting the human body and they even regarded it as one of the most reliable remedies for prolonging life and deferring old age. They even went so far as to regard every form of life and energy seen in this world as different manifestations of one and the same Energy derived from sun and hence they described the sun as the soul of the Animate and the Inanimate world.

Though it is not possible in the present light of our knowlege, to trace the origin of every form of life and energy to sunlight, the recent experiments on the physiological effects of sunlight, carried out by pioneer workers in Heliotherapy, have proved beyond all doubt that Sunlight is one of the most essential requisites of animal and plant life. Sunlight has been proved to influence most favourably the important metabolic changes in the Biological cell, essential for animal and plant life. It is known to increase all the internal secretions, controlling the physical as well as mental development. It is found to produce favourable changes in the blood and it is considered to be one of the most powerful and enervating tonics. It has also been found that sunlight activates the green colouring matter-Chlorophyll—of plants, and with the energy derived from Sunlight, this pigment, can

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convert the simple components of air and the salts derived from the water sucked along the roots, into most complex chemical compounds such as starch, sugar and protein. Even the earth and planets are supposed to rotate and revolve owing to the energy derived from the Sun according to some theories in Astronomy. Taking all these facts into consideration, the sun may be regarded as one of the greatest sources of energy even in the light of the present state of our knowledge, and one cannot but admire the wonderful power of acute observation of our ancient Aryans, when they hail the Sun as the soul of the Universe.

It may be contended that the Aryans were in the habit of regarding every deity as the source of all life and energy, and that they might have called the Sun, the Soul of the Universe without actually knowing the physiological properties of sunlight. Agni, Indra, Mitra, and Varuna and other Vedic deities have been praised in a like manner and one may rightly doubt if in the Vedic times they actually knew and utilised the properties of Sunlight. But if one studies closely the text of the Saurasuktas one is easily convinced that the Vedic Sages knew well some of the properties of Sunlight and that their attribution of life and energy to Sun is not simply an exaggerated form of praise uttered in ignorance. References to particular diseases like heart disease and the anaemias cured by Sunlight, the beneficial effect of Sunlight on eyesight, the influence of sunlight on prolonging life and deferring old age, and the soothing and enervating properties of Sunlight have been so unmistakably described in the saurasuktas that one cannot but admit that Aryans knew some of the properties of sunlight.

From the Vedic descriptions, one is inclined to believe that the Aryans were great believers in Naturopathy and utilised Sunlight, heat and hydrotherapy to combat disease and keep up their health. But when the Aryans descended into the tropical planes, they found Sunlight less powerful as healing agent than on the snowy mountains where they formerly lived, and as drugs were found to produce quicker effects and were more pleasant than the scorching tropical sun, they gradually came into prominence and naturopathy was thrown into background. During the Muhammedan ascendancy the Unani system of Medicine came into great repute, and drugs monopolised the whole field of Medical Practice to the detriment of every other mode of treatment in the hands of Apothecaries who found it easy to make most money by keeping their drugs secret. As days passed on we forgot almost everything about Naturopathy and the beneficial effects of Sunlight

and a few days back we were in such utter ignorance about the physiological properties of Sunlight that even when we came across in the Vedas passages aptly describing the same, we passed them over as **अर्थवाद्**, that is exaggerated forms of praise, and if they were found to be exceptionally beautiful, we admired them as marvellous poetical ideas!

It is time now, however, to reconsider closely the Vedic text pertaining to Sun, Fire and Water, in the light of the results obtained by Western Pioneer workers in Naturopathy. Even in the West, Massage and Hydrotherapy held the field for a long time, but now the researches of Finsen, Rollier, Quincke, Bernhard, and other workers have brought Heliotherapy to the forefront, so much so that large Sanatoriums have been started on the Alps to cure Tuberculosis and many other diseases which were so far considered to be almost incurable. Roused to the importance of Sunlight on noticing how it was utilised to cure chronic and the then 'incurable' wounds by certain peasants residing in the Alps, these pioneer workers carefully worked out the Physics and Physiology of Sunlight and proved by actual experiments that it could be used as a powerful agent to cure certain diseases affecting the human body. The Physics of the Solar Spectrum and the physiological and pathological changes produced in the animal organism by exposure to Sunlight have now been worked out in detail. and it is in the light of this recent research that I intend to consider a few hymns occuring in the Saura-suktas.

SUNLIGHT AS AN ENERVATING AGENT.

The very first thing which strikes the careful reader of the Saurasuktas is the names ascribed to the Sun, for each one of them indicates an important property of Sunlight. For instance the name **सूर्य** means **सर्वेषां प्रेरकः**, that is one who gives energy to all. **सूर** another name given to the Sun means the same. Because the Sun is supposed to be the source of all life, and energy, he has been hailed as the father and the progenitor of the Universe and hence the name **सविता**.

The fact that the Sun gives life and energy to all is very often expressed in the Saurasuktas, as in the following hymns,:— **"नूनं जनाः सूर्येण प्रसूताः** 'All people are born of the Sun' **उद्वेति प्रसवीता जनानां महान्केतुरर्णवः सूर्यस्य।** 'Here ariseth the progenitor of the people and a great ocean of energy **'उदगादयमादित्यो विश्वेन सहसा सह। (ऋ. १-४-७-१३)'** 'Here ariseth the Sun

with all the might of the Universe.' **"येन सूर्य ज्योतिषाबाधसे तमो जगच्च विश्व मुदियर्षि भानुना।"** 'The brilliant light by which thou, O Sun, banishest all darkness, and upliftest (activatest) the living Universe' **'यस्यते विश्वा भुवनानि केतुना प्रचेरते।'** 'You by whose light all the Universe becomes activated.' There is one particular hymn which names most of the forms of energy derived from the Sun, which runs as follows,:—**हंसः शुचिषद्वसुरन्तरिक्ष सद् होता वेदिशदतिथिर्दुरोण सद्। नृषद्वरसदत सद्व्योमसदब्जा गोजा ऋतजा अद्रि जा ऋतम्॥ (ऋ. ३-७-१४).**

'One who *penetrates* everywhere **(हंसः)**, one who resides in *light* **(शुचिषद्)**, the *wind* that fills the atmosphere, **(अन्तरिक्षसद्)** and the *breath* that gives life to all, **(वसुः)** the sacrificer and the sacrificial fire on the sacred pyre **(होतावेदिषद्)** the *fire* that knows no time (i.e., heat always present in some form or other) **(अतिथिः)**, and the fire that cooks the food and warms our homes **(दुरोणसद्)**, the energy that is manifested as the *life of men* **(नृषद्)**, the one residing in the Luminous (i.e, stars and planets) **(वरसद्)**, in truth **(ऋतसद्)**, and in the sky **(व्योमसद्)** and the one borne in *water* (i.e.) lightning and Vadawagni) **(अब्जा)** in rays **(गोजा)**, in Truth **(ऋतजा)** and on mountains **(अद्रिजा)** are all forms of one and the same eternal Truth.'

The properties of Light, Heat and Penetration of Sunlight have been unmistakably expressed in this hymn; the influence of Sunlight on wind, breathing, and human life has been pointed out; the origin of the luminosity of stars and planets and of lightning has been traced to Sunlight; and the powerfulness of Sunlight on the mountains has been hinted at. Most of these are established scientific facts in one sense or the other and this hymn further goes to assert that all forms of life and energy are different manifestations of one and the same eternal principle. Taking into consideration the bearings of the Electronic theory of matter on this point, the trend of modern scientific thought is driving at a similar conclusion, and perhaps within a few years scientists will tell us that life, energy and matter are but different manifestations of one and the same Supreme Force as a definite scientifically proved fact.

The Aryans believed firmly that life and matter are but different manifestations of one and the same Eternal Principle which is the Root of the Universe, and which they called Brahma. It is on account of this firm belief that they used for the Sun, the

names, **इन्द्र, मित्र, अग्नि, मातरिश्वा** etc, which are all names signifying different forms of energy such as Vitality (**इन्द्र**) Life (**मित्र**), Heat (**अग्नि**) and breath (**मरुत्**) and vice versa. They knew that each one of these forms of energy could be transformed into any other form and they have expressed this clearly in the following hymns :—

"तन्मित्रस्य वरुणस्याभिचक्षे सूर्यो रूपं कृणुते द्योरुपस्थे ।"

"The Sun ascending the Heaven gives the form to Mitra (prolonger of life) and Varuna (one who relieves from faults, bodily and mental.)"

"इन्द्रं मित्रं वरुणमग्निमाहुरथो दिव्यः स सुपर्णो गरुत्मान् । एकं सद्विप्रा बहुधा वदन्त्यग्निं यमं मातरिश्वातमाहुः ॥ (ऋ. २-३-२२).

"To Indra (Vitality) Mitra (prolonger of life) and Varuna (one who saves from faults) and Agni (heat), they called the heavenly, well-penetrating, and great Sun. Wise men call the same Eternal Truth by different names viz, Agni, Yama, and Matarishva (Wind and Breath)."

The Saurasuktas state that all human *activity* is dependent on Sunlight and this has been well expressed in the hymn, **"तत्सूर्यस्य देवत्वं तन्महित्वं मध्या कर्तोर्वितंतं संजभार । यदेदयुक्त हरितः सधस्थादाद्रात्री वासस्तनुते सिमस्मै ॥"** Therein lies the greatness and divineness of the Sun in as much as he takes back his horses (rays) from the chariot and takes back (the energy spread everywhere) from the doer in the midst (of his action), and brings on night with its rest." The same has been expressed in other forms in many of the hymns quoted above. That the beasts also derive benefit from Sunlight is expressed in the following hymn: **"अस्मा इं देवा उभयाय जन्मते शर्म यच्छत द्विपदे शं चतुष्पदे ।"** "O Luminous rays, bestow good upon both of us, two-legged as well as quadrupeds." That Sunlight activates the Chlorophyl of plants and is beneficial to them is expressed in the following hymns: **"अथो हारिद्रवेषु मे हरिमाणं निदध्मसि ।"** "And you put my greenness in the green parts of plants" **"धिनः सहस्रं शुरुधो रदन्तु"** "May you give us 1000 herbs" etc. All these statements go to prove that Aryans knew and utilised the great enervating property of Sunlight, and their attribution of all energy to Sunlight was not blind praise uttered in ignorance.

SUNLIGHT AS A RELIABLE REMEDY TO CURE CERTAIN DISEASES.

The Aryans had great faith in Sunlight as a reliable remedy in curing many diseases, which were difficult to cure by any other

means. Hence the name **तरणिः** was ascribed to the Sun. "Tarani" originally means a "boat" and Sayana says that that name is ascribed to the Sun because just as the boat is the only means of crossing impassable rivers and ocean so is Sunlight useful in getting over difficulties, especially diseases which cannot be cured by any other remedy. As a proof he quotes the verse, **"आरोग्यं भास्करादिच्छेत्"** "One should wish for health from the Sun." The Aryans regarded Sunlight as an essential requisite for human health and it is quite true in the light of what we hear from the modern Heliotherapists. Bernhard says that Rickets is a disease due to deficieney of sunlight, and we read that Tuberculosis and diseases of malnutrition are rarer in the high mountains where Sunlight is powerful. The Aryans knew that Sunlight is useful in curing many diseases and we read in the Saurasuktas that Sunlight was definitely known to be of use in *diseases of the heart and anæmias,* as may be inferred from the hymn **"हृद्रोगं मम सूर्य हरिमाणं च नाशय" (सौ. १-११).** "Destroy my heart-disease and yellowish green discolouration." A lemon-yellow discolouration of the skin is characteristic of what is known as Pernicious or Addisonian Anaemia, and we know today that Liver extracts and Sunlight are the most efficacious remedies for it. Sunlight and fresh air have been proved to be useful in all sorts of secondary anaemias also. The Sunlight is useful in *diseases of digestion* and improved appetite has been hinted at in the hymn **(तेनासिद्विश्वामनि रामनाहुतिमपामीवा दुःष्वप्न्यं सुव (ऋ. ७-८-१२-४)".** By that remove for ever our anorexia (**अनिरां**) absence of fire-worship (due to ill-health) (**अनाहुतिं**) and our diseases (**अमीवा**) and our bad dreams". It has now been proved that Sunlight increases all the digestive juices and helps to allay the inflammation of the digestive organs and is therefore very useful in diseases of the Alimentary tract. Vagbhat and Charak-samhita say that Sun is the deity presiding over Pitta (**पित्त**), which shows that they knew its value in diseases of the digestive tract, especially those due to derangement of Liver. In the Saura suktas we often come across passages which request the Sun to improve the complexion, such as **"चक्षुर्नो धेहि चक्षुषे चक्षुर्विख्यै तनूभ्यः"** 'Give the light to my eyes and the light to light our bodies.' These passages suggest that the Aryans knew and utilised the usefulness of Sunlight in some diseases of the skin. In the light of all these important facts expressed in the Saurasuktas, we think that the words **पाप, आगस्** etc., are used to include all sorts of diseases and derangements affecting the body and the mind. The meaning which is popularly ascribed to these words

as "unrighteous or immoral deeds which lead one to hell" is too narrow and hypothetical. Neither the Puranic Paradise nor the Puranic Hell have been described anywhere in the Saurasuktas, and in most of the prayers a long happy and healthy active life is what is prayed for and not a stay in paradise after death. We therefore think, that the words **पाप, आगस्** should not be taken in the narrow sense to mean what is signified by the word "sin," but should be interpreted in a much broader sense to mean all sorts of physical, mental and moral perversities and derangements. It is far more probable that the Aryans prayed the Sun to remedy diseases and defects which actually hampered them in life and which Sunlight was actually known to cure, than to avert the imaginary fruit of wicked or unrighteous deeds that were already performed. It has now been shown that immoral tendencies such as those seen in cases of cleptomania and other mental diseases are possibly due to some derangement in the internal secretions and it is quite possible that immoral tendencies are developed in otherwise normal persons also on account of a similar change in the internal secretions. We know today that Sunlight has the effect of bringing to normal most of the important internal secretions, and it is quite possible that Sunlight if properly used, may help to remove immoral tendencies and mental perversities by influencing the internal hormones. So the popular interpretation of **पाप, and आगस्** as sinful or immoral tendencies is also included in the broader sense in which we have proposed to take it. However even if we leave aside this evidence, there is strong direct evidence in the Saurasuktas that Sunlight was known to cure many diseases, such as "**अनमीवा अनागसः**" free from all diseases and sinful tendencies "**विनसहस्रं शुरुधो रदन्तुः**" 'may Sunlight give us a thousand herbs' etc.

THE INFLUENCE OF SUNLIGHT ON THE HUMAN EYESIGHT.

As sight is of no use without light, and as the Sun is one of the greatest sources of light, the Aryans naturally hailed the Sun as the eye of the world (**विश्वचक्षुस्**) and the whole world was supposed to derive its power of seeing from the Sun, as is expressed in the following hymn, **प्रत्यङ्देवानां विशः प्रत्यङ्ङुदेषि मानुषान्। प्रत्यङ्विश्वं स्वर्दृशे** "Thou arisest in front of the luminous (**देवाः**), in front of deities presiding over wind and breath, (**विशः**) in front of men, over the Universe and in Heaven for bestowing sight." But it was not only in this narrow sense that the Aryans valued Sunlight. They knew perfectly well that Sunlight if used very carefully has a beneficial effect on the human eyesight and that

it is very useful in curing many diseases of the eye. This is beautifully expressed in the following hymns,:—**मा. शूने भूम सूर्यस्य संदृशि।** "May you bring good to my eyes" "**सुसंदृशं त्वां वयं प्रतिपश्येम सूर्य।**" "We shall see thee, who art good to the eyes" "**चक्षुर्नो धेहि चक्षुषे चक्षुर्विख्यै तनूभ्यः**" Give the eyesight to our eyes and the light to light our bodies "**विपश्येम नृचक्षुसः**" "With human eyes we shall see more acutely," The physiological and pathological effects of Sunlight on human eyes have been recently worked out by eminent Heliotherapists, and it has been conclusively proved that.

(1) Sunlight helps greatly to improve the eyesight by profoundly influencing the rods and cones and the pigment cells in the Retina if judiciously taken in very small doses.

(2) Prolonged exposure to Sunlight gives rise to severe conjunctivitis, and if taken for many days, exposure to Sunlight may give rise to degeneration of the fibres of the Lens, producing opacity.

(3) That Sunlight can be utilised very well to cure many diseases of the eye, especially those which are caused by malnutrition or a scrofulous condition, such as Phlyctenular Conjunctivitis and Keratomalacia.

(4) That Sunlight and even diffused daylight falling on the Retina increases to a considerable extent all the Metabolic changes taking place in the animal body.

We cannot say from the text of the Saurasuktas, whether the Aryans knew in detail all these physiological and pathological effects of Sunlight, on the human eyesight, but we must admit that the conclusions they have drawn are perfectly correct in the light of our knowledge. The Aryans believed that the eyesight of those taking Sunbaths remained unimpaired all throughout their life, as is expressed in the hymn, "**पश्येम शरदः शतम् जीवेम शरदः शतम्।**" 'We shall see for hundred years and we shall live for hundred years.' We don't know how far this is true, but it is certain that as Sunlight helps to prolong life and defer old age, it may help to keep the eyesight unimpaired for a longer time.

SUNLIGHT IN MENTAL DISEASES

The soothing effect of Sunlight on the general nervous system, and its usefulness in enhancing the acuteness and imaginative power of human intellect have been extolled by all the modern workers in Heliotherapy. A famous Novelist of Vienna writes that most of the beautiful ideas expressed in his novels, occurred to him only in the powerful Alpine Sunlight while on a pleasure trip in the Alps, and he was so much impressed with the stimulat-

ing effect of Sunlight on the human mind that he made it a point to visit the Alps every year and jot down all the beautiful ideas occuring to him during the tour for his future novel. The Aryans also believed that Sunlight enhances the acuteness of the intellect and stimulates the imaginative power as is expressed in the following hymn,:—"**तत्सवितुर्वरेण्यं भर्गो देवस्य धीमहि। धियो योनः प्रचोदयात्।**"

We think of that great lustre of the Sun, which stimulates our intellects. Also in most of the prayers offered to the Sun, a peaceful mind and an acute intellect are prayed for. Sunlight has a great influence on the internal secretions which are responsible for mental development and it has also a direct soothing effect on the nerves. It is therefore found to be very useful in some nervous and mental diseases. Owing to its soothing effect on the nerves, Sunlight is very useful in bringing on sound dreamless and undisturbed sleep as is expressed in the hymn, "**अप दुःष्वप्न्यं सुव।**" "Remove all bad dreams."

REJUVENATION AND PROLONGATION OF LIFE

That the Sun helps to prolong life and defer old age is beautifully expressed in many hymns of the Saurasuktas. The name Mitra, which means "saviour from shortness of life," clearly shows that the Sun was believed to prolong life. As a proof we quote the following hymns,—**भद्रं जीवन्तो जरणामशीमहि।** "Living happily we shall defer old age" "**पश्येम शरदः शतम्। जीवेम शरदः शतम्॥**"

"We shall see for hundred years and we shall live for hundred years." It has now been proved that Sunlight helps to increase the secretions of the testes, ovaries, and thyroid and helps to defer old age and prolongs life in this way. Dr. Lorand in his book titled "Old age Deferred" very strongly recommends Sunlight in conjunction with organotherapy as a powerful remedy for rejuvenation. It seems that the Aryans knew the stimulating and rejuvenating effect of Sunlight on the sexual glands, for we come across in most of the prayers in the Saurasuktas, a request for healthy progeny and many of the Mantras included in the Honeymoon Ceremony (**गर्भाधान**) are addressed to the Sun.

THE ANCIENT PHYSICS OF THE SOLAR SPECTRUM.

Now let us see how far the Aryans knew about the Physics of the Solar Spectrum. According to the Puranic Theory, the Sun drove in a chariot, drawn by seven horses, which were managed by a charioteer named Aruna, and that he drove from East to West every day. But if we read carefully the hymns in

the Saurasuktas, we can easily see at a the glance that though words अश्व, हरित्, etc., which we at present take to mean ordinary horses, have been used as synonyms for Sun's rays, they are not used in the Saurasuktas in the ordinary sense of a horse but they are used only to signify the great velocity of Light rays. That the Aryans did not believe that actual horses were yoked to the Sun's Chariot, can be evidently seen from the following hymn.

"भद्रा अश्वा हरितः सूर्यस्य चित्राः एतग्वा अनुमाद्यासः। नमस्यन्तो दिव आपृष्ठमस्तुः परि द्यावापृथिवी यन्ति सद्यः॥" (सौरसूक्तः वर्ग २–ऋचा ३).

The good (भद्राः) fast travelling (अश्वाः) rays (हरितः) (the rays chief among which are green) of the Sun, variegated (चित्राः) and approaching the violet colour (एतग्वाः) praised *in order* by us (अनुमाद्यासः) ascend the top of the sky and *immediately* traverse the Heaven and Earth. The word अश्व in this hymn cannot be taken to mean an ordinary horse, because an actual horse cannot be supposed to traverse the Heaven and Earth immediately and that too while dragging the supposed chariot of the Sun along a set path. It is the Sun's rays alone that can fill Heaven and Earth immediately after the Sun rises in the Sky, and the description in the above hymn carries some sense only if the word अश्व is taken to mean "fast travelling rays', (व्यापनशीलाः) Sayana in explaining this passage first tries to explain it by taking अश्व to mean a horse and एतग्वा to mean "going by a prescribed path," but later, perhaps being dissatisfied with his first explanation for the reasons we have mentioned above, he has given a second explanation as a better alternative wherein he takes अश्व to mean fast travelling (व्यापनशील) and एतग्वा to mean approaching the violet colour (नीलवर्णं शबलवर्णं वा प्राप्नुवन्तः). The word अनुमाद्यासः has been translated by Sayana as "praised in order" (अनुक्रमेण स्तूयमानाः) which suggests that some different things have been described in *serial order*, and we are led to infer that the properties of the colours of the Solar Spectrum have been mentioned in order in this hymn. If we try to explain the hymn in this light, we see that the word अश्वाः which means "travelling long and fast" may have been used to signify the penetrating power of red and infra-red rays, which are known to have longer wave lengths and therefore greater penetration. The word हरितः occurring next and explained by Sayana as रसहरणशीलाः that is "one that takes away the juice" and which is now taken to mean a mixture of yellow and green rays may be inferred to signify the profound metabolic

changes brought about by the yellow and green rays on the biological cell. The word **चित्राः** "variegated" may have been used for the remaining rays of spectrum except the Violet and the Ultraviolet rays which are expressed by the word **एतग्वाः**. The word **एतश** which is very similar to **एतग्वाः** occurs in three or four places and Sayana gives different interpretations of it in different places, the chief of which are (1) a horse (2) of green colour and (3) of violet colour. Looking to the order in which the word **एतग्वाः** appears in the hymn quoted last and taking into consideration the fact that the enervating and antiseptic properties of Sunlight are often expressed in the Saurasuktas wherever the word **एतश** occurs, we think that the words **एतश** and **एतग्वाः** are probably used to signify what are today known as Violet and Ultraviolet rays. Even if the inferences that we have drawn so far may be considered to be too far fetched, it is certain that the Aryans knew that the Solar Spectrum was composed of seven colours, because the colours of the Solar spectrum are seven and the Ashvas of the Sun have also been supposed to be seven only. (cf **"अयुक्त सप्त शुन्ध्युवः सूरो रथस्य नप्त्यः।" "सप्तश्चसारः सुविताय सूर्यं वहन्ति हरितो रथे।** etc.)

As has been mentioned before the ancient sages knew well that Sunlight activates the green colouring matter chlorophyll of plants. **"अथो हरिद्रवेषु मे हरिमाणं निदध्मसि॥"** "And you put my greenness in the green parts of plants'.' Going even further, it seems they had some idea that Sunlight affected the pigment cells in coloured birds, as is expressed in the hymn, **"शुकेषुमे हरिमाणं रोपणाकासु दध्मसि।"** "You bestow my greenness on parrots and coloured birds **(रोपणका)**."

The fact that the heat of the Sun, causes evaporation of water, formation of clouds and subsequently rainfall, has been beautifully expressed in the following hymn, **"कृष्णं वियानं हरयः सुपर्णा अपो वसाना दिवमुत्पतन्ति। त आववृत्रन्त्सदनादृतस्यादि घृतेन पृथिवी व्युद्यते॥" (सौरसूक्त वर्ग ३ ऋचा २).**

"The fast falling **(सुपर्णाः)** absorbent **(हरयः)** rays of the Sun fly back into the sky to the black clouds **(नियानं)**, bearing water with them, as they return from the home of water **ऋता**, and then only the Earth is sprinkled with the water held by them.

THE ANTISEPTIC PROPERTY OF SUNLIGHT.

There are two hymns, which make one suspect that the Aryans knew of the antiseptic property of Sunlight. The one runs as follows,: **"सूर्यो नो दिवस्पातु वातो अन्तरिक्षात्। अग्निर्नः पर्थिवेभ्यः" (ऋ. ८-८-१६)** May the Sun save us from the world or light. He is presiding over wind from the atmosphere, and may fire save us from material objects" We all know at present that fire and heat in various forms are the best sterilisers for material objects, but Sunlight is the most powerful agent to kill the pathogenic bacteria in the air. We have already shown before that **सूर्य, वात, अग्नि** have all been used as synonyms and this hymn serves as a very strong evidence that the sterilising effect of Sunlight on air was known in ancient times. The other hymn, which roused in us a similar suspicion, is as follows, **"न ते अदेवः प्रदिवो निवासते यदे तशेभिः पतरै रथर्यसि।" (सौ. ७-८-११-३)** "No **अदेव** can stand against thy light when thou travellest with thy fast falling violet rays **(एतशेभिः)**". Here we prefer to take the word **अदेव** to mean "One that cannot stand light" in preference to the meaning "Demon" ascribed to it according to the Pauranic conception. The word **देव** is used in the sense of "Luminous" in the Saurasuktas as in **"चित्रं देवानामुदगादनीकं"** "Here hath arisen the beautiful army of the Luminous" **"(देवाः=द्योतमानाः)"** The Pauranic idea of personal gods residing in Heaven is not found in the Saurasuktas and therefore the words **असुर, अदेव** etc., should not be taken to mean the Pauranic Demons. We think that these words are used to signify all evil influences acting from outside, and the word **अदेव** is probably used to indicate those evil influences which cannot stand light, possibly the pathogenic bacteria that are killed by Sunlight. The word **एतश** used in the above hymn lends strength to our inference, because as we have stated before it probably stands for violet and ultraviolet rays, bactericidal property of which is well known at present.

STUDY OF VEDIC LITERATURE.

We have so far put forth some of the statements occurring in the Saurasuktas, which we found to agree with the results arrived at in Heliotherapy by actual experiments and experience. We do not expect to find everything in the Vedas, nor do we proceed with the presupposition that the Vedas contain every possible knowledge, empirical as well us transcendental. We have therefore tried to judge impartially as far as we can, and in most of the passages quoted we have closely followed the interpretations, given by Sayana. In some places we have differed from Sayana, but at every such place we have given our reasons for doing so, and a different interpretation is offered in all these places only because we think that it explains the words in the text in a more satisfac-

tory manner. We are led to believe from what we have studied that, even the physical Sciences were well developed in Vedic times, but most of the Vedic theories were forgotten or distorted during the Pauranic and later periods and the significance of many of the technical words used in the Vedic text could not be made out. Hence the great difficulty in interpreting some of the Vedic hymns and the apparent self contradictions or impossibilities occurring in the vast Vedic literature. Great advances have been now made by Western Scientists in the realm of Naturopathy, and it is possible to find out the significance of the various Vedic passages, describing the beneficial effects of Sunlight, Fire, Water and Air. We have only mentioned herein a few passages that struck us at the first glance, and a closer study of the Saurasuktas is sure to yield much more valuable information. It would be a very interesting work indeed if all the hymns pertaining to अग्नि (fire) आप् (water) मरुत् (wind), and सूर्य (Sun), were sorted out and classified, and an attempt be made to see how far they tally with the results obtained in Naturopathy at present. But for this the Vedic research scholars and medical men must cooperate and make a combined effort.

CONCLUSION.

In conclusion we have only to say that Sunlight wisely utilised is one of the greatest sources of energy and health and is the most powerful agent which bountiful Nature has kindly kept at our disposal for combating all sorts of diseases that affect the human body. Its antiseptic and bactericidal power, its beneficial influence on the metabolism and the activity of the biological cell, its extreme usefulness in increasing most of the important internal secretions, and its utility in prolonging life and deferring old age, have all been now proved beyond any doubt, and if properly used Sunlight may rightly be expected to fulfil the following beautiful prayer offered to the Sun by ancient Aryans:—

"विश्वाहा त्वा सुमनसः सुचक्षसः प्रजावन्तो अनमीवा अनागसः।
उधन्तं त्वां मित्रमहो दिवे दिवे ज्योग्जीवाः प्रतिपश्येम सूर्य॥"

(ऋ. ७-८-१२-७).

"For ever shall we praise Thee, the source of all energy and the prolonger of life, rising in the sky day after day, with happy minds and acute intellects, with good (i.e. powerful and unimpaired) eyesight, possessing healthy and intelligent progeny, free from all diseases and free from all mental defects and sinful tendencies, with life glowing with a vigour within us".

Cases & Comments

MASSIVE DOSES OF DIGITALIS ON THE HEART.

BY

Dr. M. N. PAI ADHI L. M. F.,

M. O. Tapovan R. K. Hospital, Himalayas.

Padli, a Bhatia lady of 18, came to my Hospital for the treatment of the following complaints.—

(1) Laboured respiration with suppression of breath off and on.
(2) Oedema all over the body specially marked on the face, abdomen and feet.
(3) Sharp pain over the Hepatic region with enlargement of the Liver.
(4) Amœbic Dysentery.

Previous History.—The lady suffered from dysentery with pain in the hepatic area for three months which remained in suspension for 6 months by the administration of some patani medicines. Now she got the recurrence of amœbic dysentery with liver pain two and a half months ago which was left without any treatment till she got the Oedema all over the body specially marked on the face, abdomen and feet.

Present Symptoms:—

(*a*) General anasarca.
(*b*) Dyspnoea.
(*c*) Look-anxious.
(*d*) Finger tips showed no signs of blood in them and of blue pale colour.
(*e*) *Temperature*—97·5° Fah.
(*f*) *Respiration*—120 per minute.
(*g*) *Pulse*—Feeble almost imperceptible.
(*h*) *Liver*—enlarged about 4 or 5 inches below the costal margin.
(*i*) *Spleen*—Slightly enlarged.
(*j*) *Heart*—upper border was in the 2nd left intercostal space.
Left border—2 inches outside the left nipple.
Right border—on the right para-sternal line.

Apex beat—2½ inches outside the left nipple line on the 6th Inter costal space.

On auscultation a systolic murmur with the 2nd sounds nuffled at the apex.

(*k*) *Lungs*—Crepititions on both bases.

(*l*) *Tongue*—Dry and coated.

(*m*) *Teeth*—Tartar deposited and the patient had pyorrhoea alveolaris of moderate degree.

(*n*) The patient evacuates 5 or 6 times mucous stools daily with streaks of blood off and on. Tenesmus present.

(*o*) *Urine*—Scanty and of dark yellow colour with a large quantity of albumen in it. Phosphate—small in amount. Chloride—1 per cent. Specific gravity—1030. Reaction—acid.

Treatment—I prescribed 2 mixtures to be taken alternately

(1) ℞

Tr Digitalis	ʒi
Aqua Distillata	ad ℥i

Fiat. Mist.
Sig ℥i T. D. S.

(2) ℞

Liq ammon acetatis	ʒii
Pot acetas	gr x
Urotropine	gr x
Ammon Chloride	gr v
Ext purnanava liq	ʒi
Sodi Sulph	ʒii
Vinum Ipecac	m v
Aqua Chloroform	ad ʒi

Fiat mist. Sig. to be taken three Doses per day.

Treating on this line for a week the patient was relieved a great deal of her Dyspnoea, Hepatic pain and oedema of the face, abdomen and feet. Now I decreased the dose of Digitalis from ʒi to m xx. Continuing the treatment for another 10 days the patient's condition was better. I stopped Digitalis and administered the mixture no. II for a week. Next Digitalis was continued in m x for another week after which it was totally stopped with the continuation of the Diuretic mixture with syrupus Haemoglobin. The patient was totally cured after two months and discharged from the Hospital.

A CASE OF MIGRAINE.

BY

Dr. J. C. BAGCHI, L. M. F.,

Medical officer, Durgaganj Ch. Disppy. Purnea.

In July 1929 a woman of about 30 came to me for the treatment of Migraine. She was suffering from this since 4 months. She was treated by Kaviraj and Vaids but no relief was found. I prescribed the following mixture for 3 days :—

(1) ℞

Oleum Ricini	℥i

To be given immediately.

(2) ℞

Pot Bromide	gr v
Ammon Bromide	gr v
Sodii Bromide	gr v
Tr Hyoscyamus	m xxx
Tr Cannabes Indica	m ii
Aqua Chloroform	ad ℥i

Mft. mist. Send 12 such doses. Each mark to be given 4 times a day.

The woman came to me on the 4th day. She said that she got no relief by using these medicines except that bowels moved. Then I tried Genasprin, Aspiro, caffiaspirin and other sedative drugs—chloral Hydras etc., but found no good effect. Besides these drugs I advised her to take snuff by the affected side of the nose. (Sometimes "Snuff of powdered, "Common salt," acts marvellously in any kind of Headache and I have tried in many cases). This trouble began every day from sunrise and lasted up to 4 P. M. She was very restless owing to excruciating pain. Sometimes cold water taken by one nose closing the other during each deep inspiration, lessens headache. This was also tried. Finding no other remedy blister was formed on affected side of the temple with Canthardis but to no effect. Suddenly I remembered a case of migraine which I read in the Antiseptic, was cured by the injection of Pituitrin once in a week. I at once gave her an injection of Pituitrin 1 cc., intramuscularly and advised her to come again on the 7th day. She was consoled that the injection would cure her. Accordingly she again came to me on the 7th day and on enquiry I came to know that her troubles were almost cured by one injection. The second injection perfectly cured her. I am very glad to inform my fellow brethren that I have

been successful in curing 12 cases of same nature only by the injection of Pituitrin. I request my fellow brethren to let me know direct or through the Antiseptic, how and why Pituitrin acts marvellously in migraine.

A CASE OF HEADACHE

BY

Dr. J. C. BAGCHI L. M. F.

Medical officer, Durgaganj Ch. Dispy, Purnea.

About 2 years ago a man of about 45, Hindu by caste came to my Dispensary for the treatment of Headache. On enquiry I came to know that he had been suffering from it for the last one year. As an out-patient I prescribed medicine but he strongly refused to take it. He said that he would be cured only by injection and found no good effect from the beginning of his illness by medicines which he took in different places. In the meantime I remembered that chloral Hydras in ½ to 1 gr. doses in 10 cc. may be given in headache by the intravenous route. This I read in a quarterly medical magazine published in America (I forget the name of journal and its address). Then I injected the man intravenously ½ grain of chloral Hydras dissolved in 10 cc. distilled water. The injection was given very slowly. The man waited for 2 hours after the injection. Just after the injection his troubles began to lessen and he was cured by only one injection. Recently I met the man on the way and made an enquiry of his headache and he said that he has had no headache after the injection and is doing his household duties with great energy.

INSULIN IN INDIA.

BY

DR. RABINDRANARAYAN GANGULY M. Sc.,

Demonstrator of Pharmacological Chemistry, Carmichael Medical College, Calcutta.

Insulin is today, one of the most indispensable drugs in the treatment of diabetes especially if attended with coma. This hormone was quite unknown to the people of the last century. The reason was not only due to the imperfect knowledge of chemistry of the past centuries in the field of proteins, but also due to the imperfect knowledge of practical and experimental pharmacology.

The real cause of diabetes mellitus was sought in vain, till Von Mering and Minkwoski in 1899 showed that diabetes mellitus

was the direct outcome of the dificient pancreatic secretion. They proved that the extripation of the pancreas in dogs was followed by persistent glycosuria. Later on it was shown that acinar secretion is not responsible for the diabetic conditions but it is the secretions of the group of cells known as the islands of langerhans that control the sugar content of the blood. With the advent of the use of the endocrine products in medicine many attempts were made to use pancreatic extracts in diabetes. At first such attempts were all of no avail as the real active principle of the pancreatic extracts decomposed during the process of preparations. The defective knowledge of protein-chemistry and of the pancreatic enzymes was the real cause of such failures. At last O.P. Banting of Toronto in 1920 suggested the avoidance of Tryptic digestion and in 1922 Banting and Bert under the direction of J.J.R. Macleod showed that the extract of the ligated pancreas lowered the blood sugar of the depancreatized dogs. Vigourous investigations went on to isolate the active hormone in a purified form and J.B. Collip for the 1st time presented to this world a product from the pancreatic glands of the mammalia "which will save and has saved the lives of a number of diabetic patients and many in a state of coma."

The name Insulin is the protected name of the Toronto's and was given to it, for, it is the secretion of the islands of langerhans or the inular portion of the gland.

Later on in 1923 Bert and Scot showed the presence of alike hormones in kidneys, spleen, and muscle tissues of dogs and cattle. H.H. Dale obtained the hormone in yeast; and the same product was obtained from certain fishes, potatoes, rice, beetroot and celery etc.

Some were of opinion that the Indian climate is not favourable for the isolation of this hormone. The idea of isolating this active principle in India was perhaps originated with Dr. P. Nandi M.D. the professor of pharmacology, Carmichael Medical College, Calcutta some six years ago. The failure at that time did not dishearten him. The writer at his instance began a series of experiments with different processes, for the isolation of the hormone and at last in 1928 succeeded in isolating a quantity of very concentrated Insulin which when injected into the rabbits even in 1 cc. strength gave such severe hypoglycaemia that they died of convulsions, within a few minutes of injection. (Vide The report of the Council of the Medical Education Society of Bengal 1928–29.)

The merits and demerits of several processes were tried and it was found out that the trypsin mischief can be eliminated by storing the fresh pancreatic glands in specially prepared acid

alcohols of which one containing 10 parts of alcohol absolute, 3 parts of distilled water, and ½ part of Merck's chemically pure hydrochloric acid gave the best results. The glands thus preserved did not require to be preserved in cold storage chambers. The glands were cut into thin pieces and then macerated in a mortor and then warmed with acid alcohol ior 10 minutes. The contents were then pressed through a meat expressor, the expressed liquid filtered, neutralised at below 10°C, Concentrated under reduced pressure, and then precipitated by absolute alcohol. The precipitate was taken up in water and precipitated by a saturated watery solution of picric acid. This picrate was then transformed into the hydrochloride.

We are trying processes to isolate the hormone in a manufacturing scale and in a potentised and standardised form.

The products obtained by the above mentioned process gave all the chemical tests of Pure Insulin and was found to be free from ordinary proteins.

ASCARIASIS SIMULATING BRIGHT'S DISEASE

BY

DR. F. G. P. DIAS

Dramapur Salecte Goa.

S. B. act 17 came to me with complaints of slight œdema of feet and face.

A trace of albumen was detected on boiling his urine; accordingly he was put on diuretics, but there was no promising response for two days.

Suddenly it flashed upon me that ascariasis might well light up a condition of the kind. Immediately, calomel-santonin was given over night and the next morning, a dose of Castroil brought out eleven worms to clinch my diagnosis.

More santonin and more worms, until they numbered 32 that day.

Now the œdema and urine cleared, yet the tongue did not, remaining coated.

Tried on with Oil of chenapodium, the boy released another eleven tiny round worms and thence marched on to recovery.

The Antiseptic

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MEDICAL EDUCATION IN THE MADRAS PRESIDENCY.

The report of the Committee appointed by the Madras Government, referred to in our Editorial of Feb. 1929, has since been published. The inordinate delay of more than twelve months in bringing out this report is inexplicable and by the time the Government begin to consider it, the present Ministry will have dissolved and if, perchance, after the next elections, a new Ministry should come into power, there is the risk of further delay and further postponement of its consideration, if not, of its being actually pigeon-holed. We trust the Government will lose no time in taking up this question for their earnest consideration and pass final orders thereon, at least before the next elections.

The personnel of the Committee consisted of the following:—

1. Major General J.W.D. Megaw, C.I.E., V.H.S., I.M.S. (President).
2. The Superintendent of the General Hospital, Madras.
3. Dr. M.L. Kamath. B.A., M.D.C.M.,
4. Rao Bahadur T.M.K. Nedungadi. L.M. & S.
5. Dr. B.S. Mallayya M.B.C.M., M.L.C.
6. Dr. (Miss) G. Findlay. M.D.
7. Miss H.M. Lazaras W.M. E.S., F.R.C.S.E.
8. Dr. K.B. Bhujanga Rau. L.M.P.,

The terms of reference were:—

1. The need for a uniform minimum standard of medical education.

2. The extent to which medical education should be concentrated in Madras city and the location of medical colleges and schools.

3. The training of specialists, professors and teachers.

4. The transfer of the Raja Sir Ramaswami Mudaliar lying-in Hospital from the Madras Corporation to the Government.

THE PROBLEM OF UNEMPLOYMENT AMONG MEDICAL MEN.

We have already discussed in our February, '29 issue, alluded to above, the questionnaire issued by the Committee and we need not therefore cover the same ground over again here. The first question that had engaged and perhaps, rightly engaged, the serious attention of the Committee was the growing unemployment among medical men. On this point, the Committee observes: "The general consensus of opinion both in the answers given by medical practitioners as well as by the lay bodies showed that there was evidence of an increasing difficulty in earning a reasonable livelihood, especially among the junior members of the profession, and that even in some rich districts like West Godavary where opportunities for private practice might be expected to exist, as many as 50 medical men were leading a hand-to-mouth existence. The fact that 378 applicants appeared for vacancies before the Committee which sat recently to select sub-Assistant Surgeons is ample evidence of the difficulty which is being experienced by medical men in finding suitable employment. This is not confined to juniors but is also felt by men who have settled down in practice for seven or eight years."

THE ECONOMIC STRUGGLE.

The Committee is convinced that the economic prospects of the medical profession are rapidly deteriorating and are having an adverse effect on the quality of applicants for admission into medical schools and colleges. It is feared that the ultimate effect will be a deterioration in the quality of medical aid available to the public in this Presidency.

RURAL MEDICAL RELIEF.

As regards rural medical relief, which was intended to solve, in a way, the present unemployment problem among medical men, the Committee has found that this hope hat not been justified.

The chief reasons, for the unpopularity of rural practice according to the Committee are:—

1. Lack of opportunities for private practice. 2. Absence of social amenities. 3. Lack of facilities for the education of families. 4. Anxiety as to fixity of tenure owing to appointments being dependent on the pleasure of the local bodies. This last factor has been mentioned in a large number of replies from the members of the medical profession and the Committee feels that the subsidised practice would be more attractive if the rural medical practitioner's tenure of appointment depended on the report of the District Medical Officer instead of on the pleasure of the local body and strongly recommends that the subsidy be paid direct by Government on the production of a certificate from the D. M. O. to the effect that the rural medical practitioner has been doing satisfactory work. We have already expressed ourselves in almost the same strain on this subject in our Editorial of November 1928. We then said "Secondly, we come to the question of the treatment of these rural medical practitioners. At present, they are under dual control, the Presidents of the Taluk Boards and the D. M. O's. So far as we can see there is nothing in the terms of agreement to warrant unnecessary interference on the part of the Presidents of the Taluk Boards with the working of the rural dispensaries. The D. M. O. should be the channel through which all correspondence should pass and the opinion of that officer should always prevail in dealing with this class of officers. Otherwise, the rural practitioners will become the play-things of party factions and politics, much to the detriment of their work and status. Such a state of affairs cannot certainly lead to the success of the scheme." We, are glad the Committee has realized the extreme importance and absolute necessity of divesting the Taluk Boards of their control over rural practitioners and we hope the Government will unhesitatingly accept this recommendation.

PRIVATE PRACTICE.

The Committee has ascertained that annually about 100 medical practitioners can obtain a living wage by unaided private practice, about 50 may be required for subsidized dispensaries, and 35 for Government service making a total of 185, which may be expected to be absorbed annually. Adding a margin of 15 for other forms of employment, the maximum number of medical men and women who have reasonable prospects of employment is about 200 a year. The Committee is of opinion that instead of turning out an unlimited number of qualified Doctors, the policy of the Government should be to educate only the number of medical men and women who can reasonably be expected to earn a modest income. It is only under such circumstances, the Committee considers that the tone of the profession can be maintained. "The need of Madras is not so much for more Doctors as for better Doctors." It is all well so far as it goes but the committee has failed to consider

two important points which have a close bearing on the question viz,-(1) the withdrawal of Government servants from private practice and (2)-the closer association of private practitioners in the State Hospitals as Honorary physicians and surgeons. On this subject, we have observed in our issue of February 29 as follows:— 'The question of medical men and women being absorbed in private practice in larger numbers depends on the Government men withdrawing from private practice altogether, except a few as consultants only and the closer association of private practitioners in the State Hospitals as Hony. physicians and surgeons. The private practitioners are handicapped in many ways. Even the King Institute at Guindy and the Medical Laboratories are shut against them and naturally intricate cases requiring Laboratory test go to the Government Doctor who can have free access to them. In a killing competition like this where all the Government resources are at the command of Government medical men, the chances of private medical practitioners thriving are remote indeed." Further comment is needless.

DECREASE IN THE NUMBER OF APPLICANTS FOR ADMISSION TO MEDICAL SCHOOLS.

The number of applicants for admission to the medical schools have fallen off during the past few years, the chief cause being the diminution in the prospects of earning a livelihood while another factor is the growing dissatisfaction with the diploma (L. M. P.) which is granted at present. The committee considers that 200 is a very liberal estimate of the number of medical men and women practitioners who can be absorbed annually and adding 50 for wastage during the period of study, the Committee recommends that 250 admissions should be made annually into the medical schools and colleges, which is more likely to be an over estimate than an underestimate. With regard to the educational qualifications of students gaining admission into the medical schools and colleges, the Committee is of opinion that there is not much indication of a falling off in the quality of students in the colleges, whereas the educational qualifications of students for admission to the medical schools have deteriorated very greatly during the past 2 or 3 years.

CONCENTRATION OF STUDY IN MADRAS.

The general consensus of public opinion both lay and medical is in favour of concentration of medical studies at Madras both for collegiate as well as school education. Madras possesses unrivalled clinical material as well as facilities for instruction to students. The Committee is not however, prepared to close

down all the medical schools in the moffussil but only recommends that the Coimbatore school be closed and that the proposed Guntur School be abandoned. The rest of the schools and colleges which the Committee wishes to retain with the maximum annual strength in each is given below :—

1.	Madras Medical College	75	
2.	Vizagapatam Medical College	35	
3.	Royapuram Medical school	60	
4.	Tanjore Medical school	40	*The continuation of this school depends on the policy of the Government with reregard to the expansion of the system of subsidizing rural parctitioners.
5.	Lady Wellington Med. school	20	
6.	Vellore Medical Schooi (Subsidized)	25	

(Two of the members of the Committee Drs. Nedungadi, and Bhujanga Rau are strongly of opinion that the Vizagapatam Medical College has not justified the large expenditure involved in its maintenance).

THE COMMITTEE AND THE L.M.P'S.

We are glad to note that this vexed question of L. M. P's. has been satisfactorily solved by the Committee. Our contention has been completely upheld and for the elucidation of our readers, we give below in extenso the Committee's findings and recommendations and our own opinions already expressed in our Feb. 29 issue and in the previous issues. The Committee observes: 'Considerable dissatisfastion has been expressed with regard to the existing L. M. P. qualification especially by holders of the diploma. At present, there is no provision for higher education for L. M. P's. in this country and those who aspire for a higher qualification are compelled to proceed to England and take up a continuous course for at least two years. So long as they remain in India it is impossible for them to obtain a qualification which is registerable in the United Kingdom unless they are prepared to go through the University course from the very beginning. L. M. P's. also demand a higher standard of professional education. The Committee agrees with them, and advises (*a*) that the minimum course of instruction should be of 5 years' duration. (*b*) for the present there may be two standards of qualification, one being the University degree and the other, a diploma which will entitle the holders to registration in the Madras (British ?) medical register. (*c*) The lower standard of qualifications should be raised as soon as possible with a view to attaining the ideal of uniform high-

standard of training with a single high minimum standard qualification. (*d*) It is recommended that the diploma be granted by a licensing body which should control the examinations, curriculum and instruction for the diploma. (*e*) The prescribed minimum standard of preliminary education should be the University entrance Examination with science as the optional group. This standard should not be lowered because of a paucity of candidates or any other consideration. (*f*) The selection of students should be purely on merit and should not be on any communal basis. (*g*) Admission to all these schools as well as to the colleges at Madras and Vizagapatam should be by open selection, no territorial restrictions being applied, so that, for example, students resident in the Andhra country would have equal chances of admission to the medical college while students from the south would be permitted to seek admission to the Vizagapatam college. (*h*) Students of the medical colleges should be allowed to appear for the examinations for the diploma so that those who fail in the University Examinations may have an opportunity of obtaining a qualification. (*i*) Those holders of the diploma who possess the minimum educational qualification which is prescribed for admission to the medical colleges should be eligible for recruitment to the Government service on the same terms as the University graduates.

Here are our own recommendations on the subject made from time to time in the Antiseptic, which correspond to the recomendations made by the Committee :—

(*a*) Now that the L.M.S., degree has been abolished, the need for intermediate qualification between the M. B. B. S., and the L.M.P., is keenly felt even by those who advocated the abolition of the L.M.S. This qualification must possess the minimum necessary for recognition by the G. M. C. and must be obtained after a 5 years' course of study and instruction. (*b*) To gain this end, we suggest that a state faculty of medicine, such as a college of Physicians and surgeons must be started in Madras and the existing medical schools with suitable modifications may be utilised for the purpose of imparting the necessary instruction. All that is required is to so arrange the syllabus as to conform to the requirements of the G. M. C, and to restrict the course of study to 5 years. (Antiseptic April 1925). (*c*) The L. M. P. course must be abolished and with them must go all the medical schools and the present caste distinction among medical men. There should be one minimum registerable qualification for all medical men of Allopathic School (Feb. 29 Antiseptic) (*d*) The faculty will conduct an examination and award diplomas at the end of the term to successful candidates corresponding to L.R.C.P. and M. R. C. S. of England.

(*e*) So far as the general educational qualification of the candidates seeking admission into medical colleges is concerned, the minimum intermediate grade is amply sufficient. But efforts should be made to secure graduates and Honours' men in science and where they are available they should be preferred to intermediates, irrespective of any communal disability that may exist. In the case of medical schools the educational qualification is decidedly low and should be raised to the intermediate. (*f*) With regard to admission to colleges, merit has been sacrificed at the altar of communal interest. The best intellects are excluded to the detriment of the profession. (*g*) This is necessitated by the creation of the Andhra University and the establishment of the Vizag College. (*h* & *i*) We heartily approve.

The other reco mmendations of the Committee are summarized below :—

1. Recruitment of professors and teachers should be made by advertisement and the selection should be by the Madras Service Commission after competitive examination, members of the Madras Medical Service being also allowed to compete. Changes from service to teaching cadre and vice versa are deprecated.

2. There should be separate cadre for teaching and research. Teaching cadres should be constituted or continued in the following subjects :—Anatomy, Physiology, Pathology, (including Bacteriology, and Bio-Chemistry) and pharmacology. Admission to these cadres shall as a rule be restricted to candidates, from the Madras Presidency and ordinarily lecturers in the Medical Schools and assistants to professors in the medical colleges should be selected from among the members of the respective cadres, if they are considered to be suitable in every respect for these appointments. The following scales of pay are recommended :—

Group I. Teachers of Chemistry. Physics, and Biology Rs. 200–500. These need not necessarily be Medical graduates.

Group II. Professors of Anatomy and Physiology Rs. 1500-2000
Professor of Medical Jurisprudence at the Madras Medical College } Rs. 1000–1500
Lecturers and Professors belonging to the above groups 1 & 2 are debarred from private practice of any kind.

Professors of Medicine, Surgery and Midwifery who do not belong to one of the services should be paid Rs. 1200—2000 with permission to do consulting practice in their specialities. In the case of the members of the services the salaries should be grade pay and a teaching allowance of Rs. 250 irrespective of the service

to which they belong, the same restrictions in the matter of practice being insisted on.

Group. III. Director of the Pathology Institute and Professor of Pathology.—Rs. 2000 to 2500.

Group. IV. Professors of Bio-Chemistry, Hygiene, Ophthalmology, and Pharmacology—Rs. 800-1200 if held by non-service men. The grade pay and teaching allowance as recommended above if held by service men. Except in the case of Ophthalmology, in which consulting practice is allowed, practice in the case of Groups 3 and 4 should be restricted to Laboratory service.

(3) Greater facilities should be given to the members of the teaching profession to go abroad for training and to qualify themselves for teaching and reasearch work.

(4) There should be a whole time professor of Medical Jurisprudence in Madras to conduct all Medico-legal Postmortems and to teach Medical Jurisprudence at all the city Medical educational institutions.

(5) A number of scholarships should be given to deserving students in medical schools solely on the grounds of merit, 5 scholarships of Rs. 25 per mensem to be awarded for each year to women students in Lady Willingdon Medical School with all the other privilages they now enjoy and in the case of male students at Medical Schools, 10 scholarships of Rs. 15 per mensem with exemption of school-fees for each year thus providing 50 scholarships for the five years classes. In the case of colleges, 5 scholarships, three to Madras and 2 Vizagapatam may be granted of Rs. 25 per mensem and exemption from college fees in each year. Poverty and merit should be the sole criterions.

(6) The Government should take over the Raja Sir Ramaswamy Mudaliar's Lying-in-Hospital, at Royapuram and equip it suitably for clinical instruction to the students of the Royapuram Medical School.

The report is on the whole unanimous and based on progressive ideals. But there is one important dissenting note which we must not fail to record here.

With regard to the recruitment of professors and teachers the original recommendation of the Committee runs thus :—"The Committee after careful consideration of all the evidence is of opinion that the present system of providing teachers and professors is far from satisfactory and that the only remedy lies in recruitment from open market. They recommend that this recruitment should be made after advertisement of the appointments and that the selection should be made by the Public Services Commission solely on the grounds of merit and suitability. In the case of persons whose domicile is outside the Presidency,

the tenure of appointment should be limited to a period of not more than five years in the first instance".

To which Dr. Nedunguadi has suggested the following modification: "The Committee, after careful consideration of all evidence is of opinion that the present system of recruiting teachers and professors should be greatly improved by appointing men with special qualifications from the open market by advertisements *until such time as a sufficient number of Indians well trained and qualified are found to fill their places.* The selection should be made by the Public Service Commission, *if necessary assisted by one or two experienced medical men purely on grounds of merit* and should be for a term of five years in the case of those coming from outside the Presidency". While agreeing with the main principles enunciated above, we would however like to add that the Public Service Commission do insist on a minimum of 7 years teaching and clinical experience in a recognized Medical Institute in India or outside as a neeessary condition for appointment.

We are satisfied that the Committee has laid a strong and stable foundation for the future of Medicel Education in this Presidency and we trust the Government will take early steps to give effect to its recommendations.

DR. A. LAKSHMANASAMI MUDALIAR. B.A., M.D., HONOURED

We are glad to note that Dr. A. Lakshmanasami Mudaliar, B.A., M.D., has been elected a foundation fellow of the British College of Obstetricians and Gynaecologists. Dr. A. Lakshmanasami Mudaliar is a household word in Madras and his name and fame as an expert obstetrician and Gynaecologist have spread not only throughout the length and breadth of India but also the entire medical world. The fellowship is on lines similar to the fellowship of the Royal College of Physicians or surgeons. The distinction that has since been conferred on him is an indication of the extreme regard in which he is held in the British Medical circle. At a time when the Medical Council of Great Britain has refused to recognize the Indian medical qualification, solely on the ground of lack of obstetric training among Indians, that they should have found at least one Indian Obstetrician who is fit for fellowship in the British College of Obstetricians and Gynaecologists is some consolation to India indeed.

We heartily congratulate Dr. A. Lakshmanasami Mudaliar on the unique honour he has obtained and wish him many more laurels of this kind in the future.

Medical News and Notes

NOTES

BY

MAJOR LABERNADIE, M.D.M.S., P.E., (*Paris*).

SURGERY.

The Electric Scalpel.—Prof. Heitz-Boyer insists upon the usefulness of "*The electric Scalpel.*" The electric current which runs through it, causes an instantaneous and lasting hæmostasis, as soon as the tissues are cut in. Also the process of healing is impelled. Prof. Guneo says that this method cannot be too much extolled in the surgery of liver, kidneys, lungs and other viscera. —*Society—of Surgery* (*Paris*)—*12th March 1930.*

Spontaneous rupture of an accessory spleen in a malarial subject.—This man was suddenly seized with a shivering and an acute pain in the left hypochondriac region. Fortunately, he could be operated at once. The spleen was found enlarged but sound. In a peritoneal fold adjacent to it, big clots of blood were swept away and the hemostasia was secured. Histologically, the structure seen in the fragments found in the clot was identical with that of a normal spleen.—*Brocq and Caine in Society of Surgery—19th March '30.*

MEDICINE.

The Tuberculous Virus (pibacillar granuoemia and Bacillosis.—We will give a detailed account of this report which has been looked upon, here in Europe, as an historical event.

As we have already (see our issue of January 1930) noted, T.B. can face a form invisible, filterable and virulent, for which Prof. Calmette proposes the name of "tuberculous ultra-virus."

This form can be isolated from organs, pus, sputum, blood, urine, milk, pleuretic fluid of tuberculous subjects and also from young cultures of T. B. It secretes a toxin (different from tuberculine). The tuberculous ultra-virus can run through the placenta of pregnant females, killing the foetus either by infection

or by intoxication. It is able to resume progressively the characters of T. B. (acid fast). Prof. Calmette says: "We must henceforth trust that the bacillus discovered in 1882 by Robert Koch figures only a stage of the evolution and a form of resistance of the tuberculous virus."

Two groups of tuberculous affections are then to be differentiated. (1) A group of the affections caused by the T. U. V., generally of acute evolution and characterized by the absence or the rarity of T. B. (acid fast), i.e. increased exudations in the pleural, peritoneal cavities, in the subdural space, the pericardium, the joints; hydroceles; certain erythemes and certain forms of tuberculosis of the skin; some septicaemia (as the typho-bacillosis of Landonzy); at last, the acute miliary tuberculosis. In all those affections, T. B, (acid fast) is seldom seen; on the contrary, T. U. V. is easily detected.

(2) Another group of affections, chronic now, consists of (a) those which are the terminal stage of an infection caused at first by T. U. V. and after by T. B. (acid-fast) bred from them (*b*) the infections caused at the first onset by T. B. (acid-fast) entering the body.

In this second group only, it is matter of real BACILLOSIS with histologic tubercles and giant cells containing many T. B. (acid fast) virulent and inoculable in series to guinea-pigs.

In the first group, on the contrary; it is a matter of GRANULAEMIA, as contagious as Bacillosis and, moreover, able to cause a transplacental infection.

Therefore, the methods of prophylaxis, either individual or social, must be extended to the first group of affections.—*Prof. A. Calmette in Academy of Medicine* (*Paris*)—*18th March '30.*

Medical treatment of pulmonary suppurations.—The chronic suppurations of the lungs belong to Surgery. Let us see what Medicine can do against acute suppurations. At first, it is to be noted down that spontaneous cures are numerous (20 to 40%).

The treatment consists of (*a*) antiseptics of the respiratory system (gomenol, eucalyptol, sodium hyposulphite etc.) (*b*) intravenous therapeutics: colloidal metals, urotropine; trypaflavine (solution at 2% in water: 10 to 20 cc daily); (*c*) Alcoholic tincture of garlic= XX to XL drops daily; or oily solution of garlic (2%) 1 cc to be injected, intramuscularly, daily, during a week; (*d*) discharging puncture followed by antiseptic injections in loco. [The antivirus of Besredka could be used]; (*e*) if the microbe (often gangrenous) in cause are known, to use specific vaccinotherapy and serotherapy; (*f*) arsenic=N.A. B., Sotrvarsol, Trepparsol; (*g*) at last, the emetine

(4 to 6 centigrammes, daily, hypodermically during 10 days) is very useful even in non amoebic cases.—*R. Mignot in Presse Medicale (Paris)—9th March '30.*

The regional vaccination at the point where the microbes have entered the body (case of Salpingitis).—If gonococcus is in cause, as usual, the antigonococcic Vaccine is to be injected, not in the vent, but into the mucous membranes of the urinary meatus and of the cervical canal. From ¼ cc. at the beginning, to inject ½ cc. and after ¾ and 1 cc. A general reaction after each injection is usual; it is followed by an improvement. To wait till the end of these reactions and improvement for going on with the next injection. The authors have succeeded in getting complete cures of severe salpingitis without any other treatment at the same time.—*Basset and Poincloox in La Presse Medicale (Paris)—22nd March '30.*

Treatment against intestinal parasites with Benzo-meta-cresol.—This new drug (named Cresentyl as a patent medicine) is absolutely painless and without any danger for the patient. It acts as an anthelmintic at high doses (4–5 grammes daily for adults, 2–3 grammes daily for children) and also as an intestinal antiseptic at lower doses (2–3 grammes daily for adults, 1–2 grammes daily for children),

Treatment to be continued for a week. After a week's rest, it is sometimes necessary to take up the drug a week more.—*Schwartz, Azam Yovanovitch in La Presse Medicale (Paris)—9th April '30.*

NOTES

BY

COL. PROF. FROILANO DE'MELLO, NOVAGOA.

PATHOLOGY

On the influence of fixation and staining on the vitality of plague bacillus. Berdnikow (*Revue de Microbiologie, d'Epidemiologie et de Parasitologie* Saratov 1929).

Four, even five times, repeated fixation by flame, short fixation (up to 2 minutes) in ethyl alcohol or in alcohol ether, does not kill the bacillus in smears and so the results are uncertain.

Short fixation (30 seconds) in ethyl alcohol with the subsequent burning of the remaining alcohol almost invariably kills the bacillus as well as short fixation (10-15 seconds) in methyl alcohol.

Ziehl fuchsin diluted 1/10 is much stronger factor than Loffiers blue and can kill the bacillus even in non fixed smears after a minute's exposure, though not always so.

Variations on the lytic activity of the bacteriophage Alessandrini and Sabatueci (in *Annals d'Igiene* X 4 1-Jan. 1930).

The bacteria can be divided into two groups vis-a-vis of their sensitiveness to the bacteriophage: those which are always dissolved by the bacteriophage, whatever may be the strain used, *homogenous* and others from which some strains resist to the lytic action of the bacteriophage, *heterogeneous*.

To the first group belong the following species: Hiss; Shiga, Flexner, pseudodysenteric, typhus avium, plague.

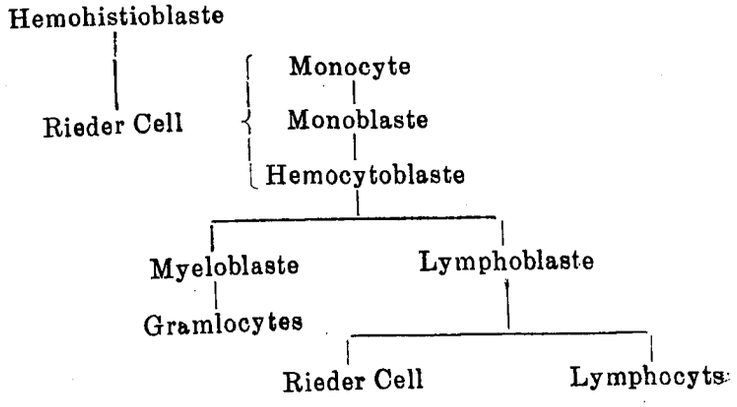
To the second group, the species typhocoli, proteus, Klebs-Loffler, cholera, staphylococcus, streptococcus, enterococcus.

In the first group the bacteriophage therapy gives its most brilliant results. In the second these results are most variable.

A bacteriophage cultivated in symbiosis with various strains of the species of the second group will perhaps change the failures of the bacteriophage therapy in this group of diseases.

Rieder cells in syphilitic bloods Miss Adelaide Estrada in *Compt Rend. Soc. de Biologie Section of Oporto*—C II. 251.

The presence of Rieder cells is constant on syphilitic bloods, but it does not allow any diagnostic or prognostic meaning. The author gives the following seriation, as far as the genesis of white cells is concerned, following the school of Aschoff.



A method of functional exploration of the liver in azotaemia : The Coefficient cholesterine versus residual azote-Remond and Colombies—XX *Congress of Medicine at Montpellier*: 1929.

The coefficient above quoted allows the measurement of the functional value of hepatic parenchyne. The numbers vary according to the analysis made on blood serum or in total blood. Normal rate in first case 16.5 to 18; slight trouble of liver gives 11 to 14; serious prognostic 5 to 7; rapidly mortal near 2. In the second case, normal rate 8-6; slight trouble 5; serious prognostic 3.5 to 4; rapidly mortal under 2.

Antitoxic and hepatotonic medication (parathyroid, hepatopotherapy, phosphorated medication) ameliorate the coefficient and the clinical state. This coefficient has relatively to hepatic parenchyme the same value as the coefficients of Ambard and Balavoine vis-a-vis of kidneys.

Pathogeny and Hepatotherapy of Biermer pernicious pregressive anaemia-Bianchi and Acevedo *Rivista de la Sociedad de Biologia de Buenos Aires* Vol. V 212-220. 1929.

The pernicious anaemia of Anglo-American authors (Addison's disease) does not correspond exactly to Biermer anaemia. Since the studies of Ehlrich Lazarus, Grawitz, Naegeli and Ferrata, the first one is toxi infective without fundamental differences vis-a-vis of other secondary anaemias. Biermer's anaemia is a primitive systemic affection of myeloid organs and its type is embryonnary megaloblastic. However Anglo-American authors unify the treatment in all anemias. For the authors hepatotherapy has no action totally different, according to these forms: brilliant in secondary anaemias, ephemerous in Biermer's type and not superior to other method.

The hematopoietic role of bilirubin explains the reason why the affection is a metaplastic hyperplasia with excess of stimulation and the curative action of hepatotherapy is perhaps of a fixative roll as suggested by Ferrata. One case, showing no result of hepatotherapy,

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Whipple's method in anaemias with azotemia—Lian and Heimann. (*Bull et mem de la Soc. med. des Hop. de Paris n° 2 Jan.* 1929).

A slight and even middle azotemia (blood urea near 1 gr) does not contraindicate the method of Whipple. The anaemia is ameliorated and azotemia reduced. In strong azotemias the extract of liver is preferable to liver *in natura*.

THERAPEUTICS.

Treatment of pulmonary Tuberculosis by the method of Walbum (preliminary note) M. A. Manas & J. Mateos, *Vida Nueva Habana* 15. IX. 29; *Revista de Hygiene Tuberculosis* Valencia 258 30—XI- 29.

Studies made on 20 patients duly examined (clinical, radiological, bacteriological examination). Injection of manganese chloride, dessicated during 24 hours in a sulphuric acid dessicator and kept in ampoules containing O. 1187, sterilised at 80°. According to the Scandinavian authors, solutions were used at concentration of O. 03N. This is practically obtained dissolviag O. 1187 of manganese in 20cc of distilled and sterilised water. To obtain a concentration O. 02N the solution should be made on 30 cc. Use smaller concentrations on patients having toxic conditions. Begin with 2cc. increase from 1/2 cc. to 4 or 5 cc,

The interval between the injection should be regulated according to the reactions. 5 to 6 days are necessary when the reactions are strong. Duration of treatment: 20, 24, 30 inj. for Hehus and Frederiksen, the effects beginning after 12: for Lunde 12 to 30 injections. The writers have used 20. The injection is intravenous and should be given very slowly. The Scandinavian authors give also intramuscular injections diluting the solution in three vols of normal saline.

Reaction: congestion of the face, conjunctiva etc, coming immediately cephalalgic, epigastric pain, sometimes fever, vomiting and diarrhœa once only hemoptises.

Metallotherapy in tuberculosis. L. E. Walbum (in *Zeilschr fur Tuberk* April 1929).

Experimental researches conducted on large scales with 42 metals.

Only cadmium and manganese possess a definite action on tuberculosis; cerium, Barium, Aluminium, lantanium, molibdenium, platine, nichelium, samarium have a very slight action.

The intravenous injection of 1/10000 mg of virulent Koch B. in rabbit is followed by fever and tubercular lesion one month after. Metallotherapy with cadmium or manganese in such state cures the animal.

Lunde (ibid July 1929) reports 600 cases of human tuberculosis treated by Walbum's method at Lyster Sanatorium during four years. Wonderful cures, specially associating cadmium and manganese. In cases of secondary infections these authors recommend the use of berillium.

Caloncoba with antileprous properties in Cameroun—Peirier (Compt. *Rend des deances de l'Acad. des Sciences* 23, Sept. 1929).

Two African Flacourtiaceae give seeds whose oils are analogous to Taraktogenos; they are *Caloncoba glauca* and *Caloncoba Welwitschii*. At 26° the rotatory power of these oils is plus 40° for the first and plus 47.7 for the second.

Hepatotherapy in Biermer anaemia and its neurologic syndrom—Stafieri and Giacosa in *Revista medica del Rosario* 1929 n° 6.

Three cases. The neuropsychic syndrom has not been modified by the treatment even when the blood formula has shown great ameliorations.

Some forms of staphylococcia treated by local immunisation method—J. Avendano. *La cronica Medica Lima Aug.* 1928.

Filtration of the culture six days old by vacuum made with watery pump, and afterwards with Hearson apparatus. Intradermic injection or local application. 2 tuberous abscesses, 1 gluteal anthrax, 1 ostemyelitis, 1 generalised pemphygus foliaceus, six months old, 1 baby's febrile pyodermitis cured.

On a case of post arseno benzolic agranulocytosis—Jacquelin, Celin Langlois (*Bull. et Mem de la Soc Med. des Hop de Paris I Jan 1929*).

Arsenobenzolic intoxication may produce pernicious anæmia and the agranulocytosis of Schulz, even in the best controlled treatment. The appearance of a fuso spirllar angina in the course of treatment is a capital symptom to call the attention of the doctor and to suspend immediately the drug.

As a measure of precaution hematological examinations should be made during such treatments.

Two cases of agranulocytosis have also been recorded by Aubertin, Blancstein & Lehman (ibid No. 18 June 1929) in syphilitic treated by acetylarsan and bismuth.

MEDICINE.

Ganglionnary fever Blechmann (in *La medecine* August 1929). Known also as *angina monocitica*, *mononucleosis acuta*, *lymphadenitis acuta*. Average incubation 10 days; sudden invasion with fever and angina; slight splenomegaly, liver sometimes enlarged and icteric.

On the 2nd to 3rd day the cervical glands are tumefied and slightly painful. Mononucleosis in blood. Duration 8 to 15 days.

Recovery. The adenopathies may be observed in inguinal, axillary. abdominal and other regions.

Complications: nephritis, otitis, suppuration of the affected glands. Differential diagnosis in children with tubercular adenopathias, adenites & parotitis; in adults with *leucemia lymphatica acuta*.

Treatment: local-antiphlogosis; general-arsenobenzol salicilate.

Peculiarities of plague among spermophiles—N. A. Gaisky. *Rev de microbiology, epidemiologie in parasitologie de Moscow* (resume in French).

In spring, among spermophiles which have finished their hibernation period sporadic cases of typical plague are found. At the same time some of these animals show a disease resembling plague by their clinical symptoms and anatomopathological leisons. The term *similipestis lesions* has been created by Russian pathologists.

It would be interesting to study in India the plague in different species of wild rodents to know whether they will not contribute to a certain extent to the endemicity of this disease in Hindustan.

Modern achievements in Experimental yellow fever—H. de Beaurepaire Aragao in *Archivos de Hygiene III* n° II 1929.

Macacus Rhesus highly susceptible. *M. cynomolgus & speciosus* are equally susceptible; *pseudocebus* develops fever but survives. *Saimiri siusreus* dies after injection; *cebus* does not react but maintains the virus in blood (inapparent infection). Although the African and American virus are analogous, certain difficulty has been met in raising the virulence of Brazilian virus for *Rhesus* vis-a-vis to that observed for the African strain.

Blood and organs of yellow fever patients taken at early autopsy in rapidly fatal cases proved to be non-virulent for *m. rhesus*.

Yellow fever is a typical virus disease. The virus is but slightly resistant to heat and to antiseptics but may be preserved for about 20 days in ice and for several months in dried blood in vacuum.

The virus may be transmitted by *Aedesaegynti*, *A luteocephalus*, *A specoaunrelatus*, *Eureturodites chrysogaster*. The virus is filterable in the blood but not in the mosquito which is able to transmit the infection at the end of 9 days. Excreta of mosquitoes are

infectious five days after the infecting meal either by inoculation or by simple contact in the skin of normal *Rhesus*.

It has been possible to infect male stegomya by allowing them to feed on blood of infected monkeys. Such infected male mosquitoes when confined in cages with non infected females transmit the infection; also non-infected males confined in cages with infected females acquire the infection: hence the possibilty of the passage of yellow fever virus from mosquito to mosquito without man as intermediary reservoir.

No serological method of diagnosis hitherto available. Strong protective properties of convalescent human serum even in the mildest cases: Serotherapy with either human convalescent or immune animals serum practically with no results. Vaccination hitherto insufficient perhaps owing to small doses. Concentrated vaccine has not been widely used in order to express a definite opinion on its value.

Remarks on a case of acute leukaemia, Leucosarcomotosis of Sternberg—Mazza, Bianchi, Heindenerich and Prini (*Boletin del Instituto de clinica Quirurgica 1929 n° 38,*)

Clinical history of a man aged 45 and suffering since three months from asthenia, anorexia, cough, abundant expetoration, dysponea. He has lost 12 K. Some painful tumours are noticed in the anal region; they are not haemorrhagic and remain stationary with every treatment tried. Gradually the patient becomes very, very pale, Splenomegaly. Biopsy of tumour does not show a myeloid structure and there is absence of every sign of haemorrhoid. Hepatomegaly, cervical adenopathias, micropolyadenia inguinalis, retinal haemmorhges, epistaxis, splenic pains. Blood formula: 22 to 40% undifferentiated cells, 9 to 23% myeloid embryonic cells, 40–42%. Rieder cells. The authors classify this case as something more than a leucemia of medullary type, as it belongs to the *leucosarcomatosis* of *Sternberg*. Excellent microphotographs of hystological sections showing abundant heterotopic proliferation on non hematopoietic organs by metaplasic mechanism. The large cellulary elements suggest a certain relation between the Rieder cells and the hyperplasic tissues.

On a case of leucemic testicles Lesne, Heraux, Benoist, Corbillon (*Bull. de la Soc. de Pediatrie XXVI 1928*).

Child 4 years old, cough, asthenia. First symptom: increase of size of right testicles. 8 days after increase of the left testicle. Leucemic blood, with immature cells and giant leucocytes, normal cells almost disappeared. Antisyphylitic treatment with no result,

Sections of the testicle showing adult lymphocytes and immature cells, in a stage of hyperdiapedesis, due perhaps to a transformation *in situ*, a kind of metaplasia of the tissulary system.

Congenital malaria (*Bull. de la Soc. de Pediatrie de Paris XXVI*).

Alarcon from Tampico (Mexico) reports 2 personal cases where the infants showed plasmodia in blood 40 hours after being born in one case, 96 hours in the second, this being fatal and having shown nystagmus, trismus and contractines of extremities. Congenital malaria is very dangerous and difficult to diagnose. Arseniate of quinine (0.05 to 0.10 *prodie*) gives excellent results.

Langeron and Van Nitson have studied this problem in Negroes at Harit-Katonga and Pouda. On three dead born schizonts were recorded in spleen. On 25 living children examined till the 12th day, 14 showed plasmodia.

Mothers in all cases positive for malaria.

The question of congenital malaria is full of controversies. The authors claim to give evident proofs of such pathological condition.

Gleanings from Medical Press

MEDICINE AND THERAPEUTICS.

The Medical Management of Gastric or Duodenal Ulceration.—In the *Lancet* (June, 1929) J. H. Anderson reviews the medical treatment of gastric or duodenal ulceration of which he considers the essentials: 1, cooperation of the patient; 2, removal of septic foci; 3, rest; 4 diet; 5, alkalis. He stresses the removal of septic foci and has seen, for instance, the removal of a chronic appendix lead to permanent healing of a gastric ulcer without any operation on the stomach. He thinks that even when a surgeon has been called in, the medical after-treatment should be in the hands of a physician. Points of interest in his paper are the importance he attches to rest in bed for at least four weeks, the body lying on the back, shoulders resting on the bed, and head on one or two small pillows. Daily massage is advisable to keep up muscular nutrition. Aperients are avoided. At first an enema is given on alternate days and later liquid paraffin if necessary. His diet is graduated in 26 steps, starting with olive

oil and alkaline water and working up to a light diet. On the first day, for instance, he gives at hourly intervals alternately 15 c.c. of olive oil and 60 c.c. of alkaline water, making a total food value of approximately 770 calories. Where olive cannot be taken he uses a milk-cream mixture made by mixing 180 ccm. milk, 60 ccm. lime water and 60 ccm. cream. The alkaline water is made up of 10 grams of bicarbonate of soda in one pint of water. On the third day he gives an egg and milk mixture (I egg in 100 ccm. milk three hourly with a dose of olive oil one hour before each feed. Alkaline water is provided and sips are taken when required for thirst at intervals of not less than 15 minutes. The olive oil is gradually reduced and the egg and milk mixture increased. On the seventh day boiled rice is added, on the eighth day minced or pounded chicken. On the twelfth day he already gives four light meals with olive oil in between and from then on gradually increases and varies the diet. He emphasizes that in all cases variations are necessary to meet personal likes and dislikes. He mentions most alkalis generally used but seems to favour bismuth oxychloride which is given three times a day in water as a routine. Another useful powder is equal parts of bismuth oxychloride, sodium citrate and magnesium carbonate. For the latter, calcium carbonate may be substituted if there is looseness in the stools. The mouth is cleaned after each feed and sleeping helped when required with small doses of medinal or dial Ciba. For wakefulness a small feed through the night is often more useful than a hypnotic. Smoking is discouraged. Under this treatment pain is generally gone by the sixth or seventh day, though intermittent discomfort may still be present. The instructions given to patients when they leave the hospital are sensible that we reprint them here in full:

EXAMPLE OF INSTRUCTIONS.

The diet should consist of simple foods, avoiding beef, pork, pastry, vinegar, pickles, twice-cooked foods, and foods containing shreds and hard pieces. Hot fats and raw fruit should be taken sparingly and all fruit and greens should be passed through a sieve.

For the present rest a full hour in the middle of the day and in the evening. Bed not later than 10 p.m.

Exercise daily in the open air, increasing the time gradually but not to the point of fatigue.

The return to work should be gradual; at first not more than two hours a day, gradually increasing as strength is regained. Work should be so planned as to avoid long-continued effort or hurry. Enough time must be allowed for meals.

Alcohol is not advised. Smoking is not advised for the present, and when resumed should be limited to the half hour immediately after a meal.

Continue the liquid paraffiin, dose modified as required, and the olive oil before meals. Half a tea-spoonful of bicarbonate of soda or of the prescribed powder, in water, should be taken an hour after meals.

The return to full strength will be gradual and no alteration in the regime must be made without medical advice.

This method has been in use at Duff House and Ruthin Castle for fifteen years and has given satisfactory results.—*International Journal of Medicine and Surgery.*

Contraindications to a Saltless Diet in Nephritis.—P. DELA FONTAINE (*Paris Med.*, December 7th, 1929, p. 506) states that though a diet from which salt is excluded is of remarkable efficacy in nephritis, there are cases in which such a regimen is contraindicated. An azotaemic syndrome of hypochloridation due to a lack of sodium chloride may occur in certain nephritic patients. Blum, van Caulaert, and Grabar divide cases of nephritis into two groups—those with and those without oedema. In the former the adoption of a saltless diet is definitely indicated, but in the latter it is necessary to distinguish azotaemic and non-azotaemic forms. In the latter of these there is no chloride deficiency, and a saltless diet is not contraindicated, though the reduction of salt must be governed by the degree of chlorine retention. In the non-oedematous types with azotaemia, salt should not be prohibited. The diagnosing of hpyochloridation is not always easy, and laboratory examinations of the serum or plasma chlorine are indispensable, and also of the alkaline reserve; if this reserve is normal there is a chloride deficiency. Should the acidosis be very marked, with only a moderate chloride diminution, the chloride is to be considered excessive; if these conditions are reversed there is a chloride shortage. In certain cases additional tests are necessary, such as the establishing of the ratio between the whole blood chlorine and the plasma chlorine. Blum believes that the lowering below normal of the chloride titre of the cerebro-spinal fluid is a certain indication of hypochloridation. Delafontaine states that salt should be given in nephritis whenever a chloride deficiency can be proved, but that its administration should be controlled by careful observation and repeated laboratory investigations.

Treatment of Cerebro-spinal Syphilis—E. C. MENZIES (*Canadian Med Assoc. Journ.*, November, 1929, p. 534,) describes the active treatment of cerebro-spinal syphilis as carried out at

the Verdun Protestant Hospital, Quebec. Before the introduction of tryparsamide in 1923 practically all cases of this disease terminated fatally. Of 11 patients treated with tryparsamide and mercury from 1923 to 1925, 9 are still progressing satisfactorily; and of 40 patients treated by means of malaria followed by tryparsamide and bismuth, 16 show improvement. Malaria followod by tryparsamide is a much more adequate treatment than the latter alone, as it is much quicker, and in some cases forestalls hopeless degeneration; the danger of optic atrophy is much less; and a much higher percentage of patients obtained satisfactory remissions. Though the use of tryparsamide alone is to be deplored, it has distinct value when used subsequently to fever therapy and may possibly be beneficial when the patient's physical condition is clearly such that malarial inoculation would be fatal. Induced malaria is easy to stop, and is not infective. In the present series the improvement among women was, if anything, better than among men. The results have been so marked that Menzies maintains that no patients suffering from any form of neurosyphilis should be certified before malaria is tried. Nonspecific therapy succeeds not so much because of a direct spirochaeticidal action, but because it enlists and stimulates the natural resistive forces of the patient—the same means whereby any infection is overcome. The value of careful nursing, good food, fresh air, and sunlight must be remembered in connexion with treatment—*B.M.J.*

Luminal in epilepsy—In all forms of epilepsy, whether the disease be traumatic or idiopathic or based on a disturbance of the blood chemistry or of the endocrine balance or on any other factor, luminal has proved a very efficient means of curtailing and often of preventing convulsions. In this manner, excessive stain on the nervous system of the patient is avoided and his chances for improvement and (sometimes) recovery are much increased. Writing on the therapeutic uses of luminal Dr. W. Russell Brain (*Lancet*, Oct. 26, 1929, p 867) quotes J. Tylor Fox (*Lancet*, Sept. 17, 1927, ii, p. 589). who recorded the effects of treatment of 167 epileptics with luminal. He found that 30 per cent showed permanent benefit, 31 per cent. temporary benefit 33 per cent. were unchanged, and 6 per cent. were made worse. Among the 30 per cent. who were permanently benefited, 5 per cent. were completely (and probably permanently) freed from the cunvulsions. Dr. Fox finds that major attacks respond to luminal better than do petit mal.

Dr. Brain has found that once luminal has been employed, it is difficult to withdraw it. In about 50 per cent. of cases, it was found that after being treated with luminal for a limited period of

time, the patients actually had more fits if the drug was stopped than they had before it was begun, and that there is a risk of status epilepticus supervening if luminal was suddenly withdrawn. He offers certain rules for the use of luminal in epilepsy, which are as follows:

"1. Begin treatment with bromide alone, and add luminal only when the fits are not controlled by 30 gr. of bromide, a day.

"2. In this event, give luminal in addition to bromide, beginning, with ½ gr. night and morning and increasing to 3 gr. a day.

"3. If preferred, the same doses of luminal sodium can be combined with bromide in the mixture. In this case the mixture should be freshly made, preferably once a week.

"4. When the fits are nocturnal, the main or even the only dose should be given at night—*e. g.*, 1 or 2 gr.—and when the fits are diurnal, in the morning as soon as the patient awakens.

"5. When the fits occur at regular intervals—*e. g.*, at one stage of the menstrual cycle—it is still necessary to give luminal throughout the months, as otherwise the fit may be merely postponed a few days.

"6. If luminal is to be withdrawn, increase the dose of bromide; and warn the patient at the beginning of the treatment against stopping the drug without advice.

"7. Perseverance and regularity are the twin watchwords in the treatment of epilepsy. I tell my patients when they begin treatment that they may require medicine in some form until they have been free from fits for three years. Relapses and failures to respond to treatment are often due to irregular dosage or to suspending treatment when the patient has been free from attacks for a few weeks. If all patients were treated thoroughly from the very beginning, I am confident that the results of treatment would be very much better than they are.

"8. Status epilepticus may be treated by 2-gr. doses of luminal sodium in 20 per cent. solution subcutaneously."

The Therapeutic uses of Luminal.—After considering the use of luminal in epilepsy, Dr. W. Russell Brain whose article was mentioned in the preceding abstract, took up various other uses of luminal. In migraine, various indications for treatment exist, all of which require attention. However, after dietetic and eliminative measures have been taken care of, it is still necessary to overcome the cerebral disturbance that is so important a factor. In Dr. Brain's opinion we may hope to abolish the attacks of

migraine if we can eliminate the cerebral response to various abnormal conditions in the patient. He considers it probable that this is the mode of action of luminal and the reason for its effectiveness in the treatment of migraine. It is usually sufficient he finds, to give a dose of ½ gr. night and morning for a few weeks, and then to continue the nocturnal dose alone for a time. Very few patients fail to respond with a marked reduction of attacks and many become almost completely freed from headaches.

Luminal is an excellent soporific, and the small dosage required is a convenience. From 1 to 1½ gr. given at bedtime will suffice in most cases of insomnia to produce a good night's rest, and few patients complain of dullness the next day. Dr. Brain has found luminal especially useful in two types of insomnia: (1) depressed patients, and (2) patients with organic disease—for instance, high blood- pressure.

In aural vertigo, two types are distinguished clinically, one of them being found in the patient who suffers from recurrent attacks of vertigo associated usually with deafness and tinnitus. Most of these patients have not had purulent otitis media, but the condition is commonly secondary to blockage of the eustachian canal, with deflected nasal septum, polyps, infected air sinuses, chronic catarrh, or dental infections. In this group, luminal is an exceedingly valuable drug, and Dr. Brain cannot remember a patient who was not greatly relieved by it. In mild cases, complete freedom from vertigo is often produced in a few days. Dr. Brain gives ½ gr, of luminal three times a day at first, and later reduces the dose. At the same time, the cause of the vertigo is sought out and properly treated.

Luminal is especially valuable in cutaneous affections in which a neurotic factor plays an important part, such as pruritus ani. Used in ½ gr. doses and combined with appropriate local treatment, it greatly diminishes the pruritus and so helps to break the vicious circle in which scratching keeps up an abnormal and irritated state of the skin.

Luminal is useful also as a sedative in chorea, whooping-cough, and exophthalmic goiter; and other uses will, no doubt, suggest themselves.—*Medical Herald.*

PATHOLOGY.

A New Index of Intestinal Putrefaction. Mutch, N., *Lancet* 1: 1034, May 18, 1929.

The writer claims that the indicanuria test for intestinal putrefaction is too delicate for clinical use, in that very slight variations from normal digestion may result in indicanuria, such variations not rising to the level of an abnormality. The reason for this finding is that indican, being a tryptophane derivative is liberated as a terminal product of ileal digestion and very minor disturbances prevent the few final steps being completed. Tyrosine, on the other hand, is liberated at a very early stage of digestion, and if intermediate products of tyrosine digestion, appear in the urine, it can be assumed that a great part of protein digestion is abnormal. The most important of these products is an acid-p-hydroxyphenyl-acetic.—for which a test in the urine is outlined:—

Take 50 c.c. urine; add 5 c.c. of 25 per cent sulphuric acid and 15 c.c. ether. shake, remove 2 c. c. ether; evaporate over warm water. Add Millon's reagent drop by drop and boil. A positive reaction is indicated by a red colour. (Quantities approximate).

The eating cheese within twenty-four hours prior to the test or the taking of salicylates will cause a false colouration. Three factors are found to be of great importance in the production of a positive reaction—ileal stasis, *B. coli* infection of the ileum (as determined by cultures at operation), and gastric hypochlorhydria. A negative finding is of doubtful importance but a positive one is always significant. The incidence is about 50 per cent as high as a positive indican test.—*Canadian Medical Association Journal.*

OPHTHALMOLOGY.

Eye Symptoms and the Parkinsonian Syndrome.—L.J. GOLDBACH (*Arch. of Ophthalmol.*, November, 1929, p. 555) states that in some cases a clear association can be defined between ocular symptoms and the Parkinsonian syndrome, while in others this seems extremely difficult. Encephalitis is very varied in its symptomatology; in certain phases it has a predilection for ocular muscles, in others it ignores the ocular syndrome. None has made the following classification of ocular changes in relation to encephalitis: encephalitis with bulbar symptoms; premature paralysis agitans, but without an inclination to sleep; and bulbar paralysis without ocular changes. According to recent researches, four more syndromes associated with the region between the commissural mesencephalic nuclei and the globus pallidus are recognized: (1) mesencephalic, characterized by oculomotor para-

lysis and diplopia ; (2) metathalamic, characterized by ocular crisis, upward or downward, and absence of oculomotor paralysis and diplopia ; (3) syndrome of the hypothalamus, manifested by lateral and not rotary deviations ; and (4) simple lateral deviation. Goldbach classifies the ocular symptoms as follows: ptosis, permanent, transient, or partial ; diplopia, crossed and homonymous ; rotary nystagmus; paresis of the external and superior recti and superior oblique muscles; attacks of paresis on looking upward ; paralysis of both the muscles of accommodation and of convergence, or of either; inequality of the pupils, long-lasting or temporary, and sluggishness of the pupillary reactions. In some cases there remain permanent disturbances of the cerebral nerves, and among the most important are the reflexes and absolute paresis of the pupil. The Argyll Robertson pupil can no longer be considered as pathognomonic of neurosyphilis, and the conception that impaired accommodation or paresis is associated with a diphtherial toxicity must be held in abeyance.—*B.M.J.*

Treatment of Trachoma.—D. D. MCHENRY (*Journ. Amer. Med. Assoc.*, October 26th, 1929, p. 1291) believes that many cases of trachoma respond readily to treatment, and that 99 per cent. are curable. The basis for the treatment of this affection should be surgical in all but very acute cases; proper surgical procedures will shorten the treatment by many months, and in many instances years, as compared with treatment by drugs alone. In the great majority of cases of well-advanced trachoma the caruncle is involved, and must be included in surgical procedures if successful results are to be obtained. Any surgical method that will entirely eradicate the trachoma follicles and their contents with a minimum destruction of normal mucosa is adequate. Usually treatment is commenced by a radical operation. In acute cases, under good anaesthesia, McHenry rubs off the follicles with the finger covered with gauze, saturated with either boric acid powder or 2 to 5 per cent. copper sulphate in glycerin. This is followed by the application of copper sulphate (2 to 5 per cent.) or silver nitrate (1 per cent,) daily or two or three times a week; the patients subsequently apply at home mercuric oxycyanide, in from 1 in 5,000 to 1 in 3,000 solution, two or three times daily. Most chronic cases show a decided hypertrophy of the orbicularis muscle with, often, a blepharophimosis due to years of squinting; in these the other operative treatment is preceded by a radical canthoplasty, according to Ziegler's method, care being taken to cut the canthal ligament. McHenry describes his own technique of performing this operation.

Tarsectomy has no place in the treatment, but is of value in cured or nearly cured cases with thickened and distorted lids. The operative procedure should be followed by drug treatment and observation for one or two years before the cure can be regarded as established; any follicles appearing during that time must be destroyed.—*B.M.J.*

Plasmoma of the Conjunctiva.—W. M. JAMES (*Amer, Journ. Ophthalmol.*, September, 1929, p. 731) reviews the literature of the conjunctiva. He places this complication of trachoma in cases as high as 50 per cent,, and discusses the relationship of the two conditions. In the case of one of his patients, a farm lad aged 17, who lived in a district where chronic trachoma was prevalent, there was a chronic inflammatory condition of long standing, involving both eyes ; the patient had a harelip and cleft palate, and was treated for chronic trachoma, being kept under observation in hospital for three months. His health was good during that time, and he reacted favourably to the operative procedures instituted for the repair of the harelip and cleft palate. In addition, excision of the masses of redundant tissue which protruded from the caruncle and fornices, together with x-ray and radium therapy gave hopeful results. There was, in fact, no evidence of a recurrence of the plasmoma where it had been excised,—*B.M.J.*

OBSTETRICS AND GYNAECOLOGY.

Diphtheritic Endometritis.—L. LeFèvre (*Journ. American Med. Assoc.*, p. 1015).- Puerperal infection of the uterus with diphtheria bacilli is very rare. Diphtheritic vaginitis is more common and has been reported by a number of writers. Salman reported the first case —in a woman confined in an institution in which there was an epidemic of diphtheria. During a routine pelvic examination, two small patches were seen on the vulva. Cultures from these and from the throat showed the diphtheria bacillus. There were no symptoms. A few days later similar patches appeared in the mouth, and the patient died in spite of antitoxin treatment. It is not known whether the infection extended up into the uterus.

Van Saun collected 26 cases of diphtheritic vaginitis in children from the literature of 30 years. In many the diagnosis was not confirmed bacteriologically. No mention is made of infection of the uterus in any of these cases.

Lash recently reported two cases of diphtheria of the female genital tract. A woman, aged 44, entered hospital with a diagnosis

of influenza. Abdominal cramps and bleeding from the vagina were noticed on Sept. 22, 1924, after lifting a heavy pail of water. There was relief and four days later she entered the hospital and passed large clots. Next day she felt quite ill, was nauseated, and had severe backache and headache. The temperature was 103°, the pulse 96 and respirations 24. There was a serosanguineous foul discharge, and a greenish gray membrane lined the vagina and left bleeding points on being removed. The diphtheria bacillus was found in smears from vagina and throat. Recovery was rapid under antitoxin.

In the second case a primipara, aged 33, was delivered on Dec. 29, 1923. On Jan. 1. 1924, her temperature rose to 102.4° and there was pain in the abdomen and great tenderness and rigidity in the lower left quadrant. The uterus was firmly contracted. On Jan. 2, a membrane was noticed on the labia and a culture taken from this showed diphtheria bacilli. Recovery took place under antitoxin.

The infection probably extended beyond the internal os, because of the pelvic pain and abdominal tenderness.

R. H. Beck reported three cases of diptheritic involvement of the genital tract in puerperal women, all confirmed by culture. None of the patients appeared to be very ill. In only one was there a chill, and all had a rise in temperature to about 102° with pulse rates between 110 and 115. All three had a membrane in the vagina from which cultures of the diphtheria bacillus were obtained. In one the "membrane apparently extended into the cervix." In this case the uterus was very tender, as it was not in his other two cases.

It is thus possible to sort out 3 cases of diphtheritic endometritis from 33 cases of genital diphtheria. In all 3 there was great tenderness in the lower abdomen, abdominal pain, and in one case hæmorrhage. These symptoms were lacking in the cases of diptheritic vaginitis.

The writer reports the following case:

A woman, aged 21, was on the sixth day of recovery from an illegal abortion when about a pint of bright red blood gushed from the vagina. A second severe hæmorrhage occurred a few hours later with severe abdominal pain and tenderness. The pulse and temperature were normal. She was taken to hospital, and a large piece of placenta was removed from the uterus. This was firmly packed with iodoform gauze. Next day the temperature rose to 100°, the abdominal pain and tenderness were incresed. The uterus, palpated through the abdominal wall, was very tender, soft and uncontracted and about the size of a grape fruit. The throat did not show any change.

Four days later the packing was removed. The following day moderate hæmorrhage from the uterus recurred. There was no other vaginal discharge and no odour. The uterus and vagina were repacked, but hæmorrhage again occurred when the packing was removed after two days.

During the next 4 weeks the uterus and vagina were packed repeatedly, sometimes twice daily. Hæmorrhage occurred every time the packing was removed and sometimes there was bleeding through the packing. This was taken to indicate bleeding from the cervix, but no bleeding point was found. During this period two blood transfusions were given. There was no improvement. Two blood cultures were sterile. Nevertheless puerperal fever was diagnosed. Five weeks after admission, while the packing was being changed, alarming hæmorrhage occurred which did not cease entirely even after the uterus and the vagina were tightly repacked with gauze. The red cell count dropped to 900,000. The hæmoglobin was 20 per cent and life appeared to be in danger. After consultation it was decided that if a blood transfusion and intravenous injections of saline solution could bring her out of the condition of shock, hysterectomy should be performed. This was done under gas.

The uterus was filled with a thick greyish membrane. A culture from the uterine cavity showed luxuriant growth of diphtheria bacilli and streptococci. 20000 units of antitoxin were administered and a rapid recovery followed.

The origin of the infection is unknown. A next door neighbour had pharyngeal diphtheria for several weeks about three months prior to the abortion. His wife attended the patient.

A review of the cases shows that while diphtheritic vaginitis is fairly easy to recognize and is fairly common; diphtheritic endometritis is difficult to recognize and is not common. Infection of the genital tract with diphtheria produces less severe symptoms than diphtheria of the pharynx or larynx, and less severe symptoms than puerperal fever. In two of four recorded cases there was uterine haemorrhage, but in the present one there was evidence of mixed infection with diphtheria bacilli and streptococci.

Since diptheria in the uterus yields quickly to antitoxin, a culture of the uterine cavity should be made in cases of puerperal infection showing low fever and a disproportionate increase in pulse rate.—*Medical Review.*

Malignant neoplasm is the vaginal scar after total Hysterectomy:—According to Laroyenne and J. Marion (*Lyon Med.*, November 24th, 1929, p. 617) the development of a malignant neoplasm in the cervical stump after subtotal hysterectomy is

much more frequent than in the vaginal vault after panhysterectomy. The case is recorded of a woman, aged 52, who six years after abdominal total hysterectomy for myoma of the uterus complained of vaginal bleeding, and was found to have a projecting non-friable tumour in the roof of the vagina. It was removed by the abdominal route, and the patient, in spite of the appearance of a ureteric fistula, followed by pyonephrosis and nephrectomy, recovered. Microscopically the tumour was found to be a myoma with malignant metaplasia; eighteen months later there was clinical evidence that a secondary growth was present. No microscopical examination of the tumour removed at the first operation was carried out. Ducene has reported a case of malignant tumour appearing in the vaginal vault eleven years after total hysterectomy for adnexal inflammatory disease.—*B.M.J.*

Treatment of Uterine Prolapse:—L. E. Phaneuf (*New England Journ. of Med.*, October 31st, 1929, p. 875) discusses various vaginal operations for uterine prolapse, and refers specially to the Watkins—Schauta-Wertheim interposition operation which he has modified in certain details, employing it for patients whose uteri are normal or hypertrophied and where no pre-cancerous condition of the uterus is suspected. All interposition operations should be preceded by curetting and high amputation of the cervix if laceration, erosion, ectropion, or hypertrophy is present. The technique of the interposition operation is fully described. All patients were examined at the time of their discharge from hospital and again six weeks after the operation. Out of 148 cases 7 recurrences had been reported; five of these were classed as total failures, recurrence being due to the fact that the uteri were too atrophied for the operation to be beneficial. One failure was due to the too early absorption of the upper suture attaching the fundus to the upper angle of the vaginal denudation. These failures were permanently corrected by effecting a fixation of the interposed uterus to the anterior abdominal wall, using three linen sutures in each case. The mortality of the interposition operation was 2.7 per cent., but each of these cases had several operations. The author treats procidentia in young women during the child-bearing period by repairing the cervix, the anterior vaginal wall, and the perineum, shortening the utero-sacral ligaments, and performing a round ligament suspension of the uterus. In old women, where even an extensive vaginal operation is contraindicated, either a subtotal colpectomy (Le Fort operation) or the total colpectomy (Dujarier and Larget) is used. These operations ensure the minimum amount of post-operative shock and are followed by a comfortable convalescence.

Correspondence.

TO THE EDITOR "*The Antiseptic*" *Madras.*

DEAR SIR,

With reference to the notes in "The Antiseptic" April 1930, page 253, entitled, "A case of Typical Migraine, I would like to suggest the following simple line of treatment which I have found useful in some cases similar to those mentioned therein. A few days before the expected time or even after the attack, Calomel and Sodii Bicarb or Ol. Ricini purge given first and then daily in the morning "सरबत Sirbat" (juice of one ordinary Lemon+sugar and water) advised. Hoping this finds useful to such patients.

Yours sincerely,
G. B. PARULEKAR L. C. P. S., (Bombay).
Medical Practitioner,
Bassein.

Book Reviews

The Improved Prophylactic method in the treatment of Eclampsia—By Professor W. Stroganoff. Published by Messrs. E. S. Livingstone, Edinburgh. Copies can be had from Messrs. Butterworth & Co., Calcutta. Price Rs. 7-14 0.

Professor Stroganoff has done a great service to the profession by the publication of this first English edition of his book. His name in connection with the treatment of Eclampsia is very well known. Beyond such catchwords as 'sedative' treatment of Stroganoff or 'Narcotic' treatment of Stroganoff, the profession in general, has had a vague and limited notion of the actual and systematic treatment so successfully carried out by Stroganoff. By this timely and authorised publication of his work, Professor Stroganoff has laid the English-speaking world under a great debt of gratitude. It is not enough to know that the administration of morphia, chloroform and chloral hydras constitute the main line of attack in arresting the fits. There is a good deal of confusion even among the text book writers as to what exactly constitutes the Stroganoff system of treatment of Eclampsia. We are thankful to Professor Stroganoff for this systematisation, detailed description, and authoritative publication of his great achievement whereby he has helped to lower the mortality rate from somewhere above 25% to below 10% on a large scale. He promises us further reduction in the mortality rate down to less than 2.5% if his directions were carried out with meticulous care. It is needless to say that he

has succeeded by his persistent and painstaking work, in combating the 'operative rage' of the obstetric Surgeon of the 'Forcible delivery" school. This book will more than compensate careful perusal by every general practitioner who will gain sufficient knowledge and confidence to successfully combat this dire complication of pregnancy. This simple yet most potent method of combating Eclampsia must appeal to every practitioner in India, as this method can be carried out single-handed in all up country stations.—*P. V.*

Injectio—Therapy in General Practice—By P. K. Kurup, L. C. P. & S., Medical Officer, Taliparamba Malabar, Pages 160. Price Rs. 2. Published by the author.

In this small book the author deals with the practical side of injectio-therapy, and gives a brief description of the injections, official and non-official, which are commonly used by the medical profession in their daily routine work. The dosage, the action and uses, and also the method of administration of the different preparations are also given concisely and completely. Some of the important drugs described are the different preparations of arsenic, bismuth and mercury, colloidal metals, antimony tartrate and ureastibimine, different preparations of chaulmoogree oil, vaccines, sera and many others. The book is purely practical and highly useful for all students and practitioners.—*K.L.R.*

Surgical Pathology.—By C. P. G. Wakely F. R. C. S. (Eng.) F. R. S. (Edin.) and St. J. D. Buxton M. B., B. S. (Lond.) F. R. C. S. (Eng). 1929. P. p. xvi+904 with 392 illustrations, many of which are fully coloured. Published by John Wright & Sons., Ltd., Bristol; Price Sh. 45/- net.

The book under review deals entirely with the pathology of surgical conditions.

The authors have succeeded in their aim "to put forward such an account of the pathological side of surgery as may help readers with their clinical work."

The pathology of the various surgical affections are well written and aptly illustrated as far as possible.

The details of the various controversial theories regarding the pathogenesis of conditions are dealt with briefly and some of the more accepted theories have been fully described. Major portion of the work treats with the special pathology and general pathology is touched upon wherever necessary.

The illustrations are good, and aptly illustrate the descriptions in the text.

As the authors rightly observe the book will particularly help the student if he will link it up with the clinical knowledge, and study specimens in the museum.

We feel quite sure that the book will make an useful addition to the medical library. To those who wish to sit for a higher examination in surgery it is invaluable.—V. C. S.

An Index of Symptomatology.—By various authors, Edited by H. Lethby Tidy, M. A., M. D., (Oxon.) F. R. C. P. (Lond.) 1928, P. p. 710 with one hundred and thirty illustrations, some in colour. Published by John Wright & Sons Ltd., Bristol Price Sh. 42/- net.

This may be called a companion volume to that very popular book 'Index of Treatment,' issued by the same publishers some time ago. In this book an attempt has been made to index symptomatology, a task that is highly difficult to accomplish satisfactorily. The object of publishing this book has been to give a clear and reasonably full description of the clinical manifestations of each disease without dwelling unduly on minor complications and variations.

It covers all branches of medicine including tropical medicine, surgery, gynaecology, and the various special subjects.

The book is contributed to by about twenty six expert clinicians, on the subjects they deal with. It is rather strange to note that the various tropical affections are written by one contributor, who is no doubt one of the leading specialists in tropical medicine. But we would have liked to see, some more contributions by other contemporaries from the various different tropical areas.

The book will be found very useful, and no medical practitioner's or student's library will be complete without this addition.

The editor must be cordially congratulated on the result of his labour; while the publishers deserve all our admiration for the neat and substantial get up of the book.—V. C. S.

Anaesthesia and Anaesthetics.—F. S. Rood M. B., B. S., and H. N. Webber, M. A., B. C. Cantab. 1930. P.p. 277 with 4 black and white plates and 56 illustrations in the text. Published by Cassell & Co., London. Price Sh. 14/- net.

This most useful book is written by Drs. Rood and Webber, anaesthetists of the University College hospital, London.

The book deals exhaustively with the various methods of producing anaesthesia, and anaesthetics in general. The authors have placed the results of their experience in the art of anaesthesia and the methods in vogue in the University College hospital London, in a very instructive way and we are sure it will be useful to the students under training and the freshly passed out practitioners.

There are fourteen chapters in the book and each chapter is full of practical details and plain facts based more on the experience acquired by the authors.

The chapter dealing with the Respiratory aspects of anaesthesia is very instructive, and contains many useful hints and suggestions which are well worth study and deserve to be followed up in actual practice. A good discussion on the consideration of the anæsthetic agents suitable for the more commonly occurring types of cases, the value of atropine, morphine, hyoscine, as preliminaries to anaesthesia has rightly engaged the attention of the authors.

The chapter on a "Typical ether case" in which is described the problem of anaesthetizing the patient with "open ether" rapidly

to allow any operative procedure to be undertaken within about ten minutes from the time the induction is begun and with the minimum of unpleasantness or excitement to the sufferer, is highly practical, and impressive. In this chapter is also considered the value of graduated doses of carbon dioxide in controlling the breathing during both induction and recovery periods of anaesthesia, a procedure that has not found much favour in our hospitals.

The chapter on chloroform administration is full of useful advice.

The indications and contra-indications on the use of Nitrous Oxide and Ethyl chloride as anæsthetics are discussed at some length giving full details as to their mode of administration with proper apparatus. Spinal, regional, and local anæsthesia are dealt with very vividly giving their precise technique of administration as also their use in combination with a general anæsthetic.

The book is highly practical and lucidly written and will be greatly appreciated by the students and post graduate-practitioners in India where the subject of anaesthesia in our various medical Schools & Colleges is not given that amount of legitimate attention which it deserves.—*V.C.S.*

The Intern's Hand book. A Guide to Rational Drug Therapy, Clinical Proceedings and Diets: By members of the Faculty of the College of medicine, Syracuse University, under the direction of, M. S. Devley, A.B., M.D., PP. XIX and 254.
Published by Lippincott & Co., London: 1929. Price 12 sh. 6d.
This book is primarily written for the hospital interns (House Surgeons and Physicians) and gives very good information.

The book is divided into two parts, the first part gives an alphabetically arranged list of many of the standard drugs.

The author advocates the use of the metric system of dosages, and gives the dose of each drug in both the metric system and the routine, minims, grams &c. Hints on case taking, treatment, the use of serus and vaccines and some of the obstetrical emergencies are very lucidly given in a tabular form and form the subject matter for the second part of the book.

The well arranged table of contents and Index make the book invaluable as a ready referencer. We recommend this book with full confidence to all the interns of the hospital and post graduates.—*V.C.S.*

The Prescribing of spectacles.—By Archibald Stanley Percival M.A. M.B., B.C., 1928 P.p. 239 Illustrated. Published by John Wright and Sons, Bristol. Price Sh 15/ net. This third edition of the book contains much valuable information both to the beginner in ophthalmology and student of optics.

The various mathematical principles of optics are well explained and illustrated.

The use of the ophthalamoscope, retinascope etc. are fully explained.

The writer prefers the use of concave mirror to the plane mirror in retinoscopy and is of opinion that the results with a concave mirror are more accurate. Many of the routine methods of examination of the eye are fully dealt with explaining the merits and demerits of each giving ways of eliminating some of the errors that are commonly met with.

The book is sure to be useful to students of optics, and to all those interested in the study of ophthalmology.—*V.C.S.*

Acute Infectious diseases.—By J. D. Rolleston M.A., M.D., M.R.C.P., F.S.A., 419 pages. 2nd Edition 1929. Price 15 Sh. Net
Published by William Heinemann Ltd., London.

Dr. Rolleston has selected, for discussion in this book, only those diseases which are mainly or exclusively treated in isolation hospitals. He has omitted diseases such as Influenza, Poliomyelitis, epidemic encephalitis which are usually treated either at home or in general hospitals. After going through the book one is mainly impressed with the thoroughness with which the author has treated the subject. The bacteriological, pathological, and clinical aspects of such diseases as Diphtheria, Typhoid, small pox are well discussed. Appended to each chapter is a fairly complete bibliography. We however do not agree with the author where he purposely avoids diagrams, illustrations or charts in his book. Though it cannot be denied, that the proper place to study the extraneous lesions of the acute exanthemata and the throat, and temperature charts of fevers is at the bedside we still maintain that the inclusion of illustrations and temperature charts will naturally increase the usefulness of this book. We also wish that the author in his next edition, which we sincerely hope will come out next year, includes the remaining acute infectious diseases. In spite of these two drawbacks, if we may be permitted to call them so, the book is an ideal handbook for all practitioners and students of medicine. We congratulate Dr. Rolleston for his scholarly presentation of the subject and also the medical publishers for their usual neatness in the get up of the book.—*U.K.R.*

Essentials of Physiology:—By Bainbridge and Menzies. Edited and revised by H. Hartridge M. A. M. D. Dsc., F. R. S. 6th Edition, 1929. Published by Longmans, Green & Co., London. Prize 14 sh.

For many years Bainbridge and Menzies' book on physiology has been the book used by almost all medical students in India for the purpose of the last-minute revision. This new edition, revised by Professor Hartridge keeps up the high standard of the previous editions. New chapters have been written on basic principles, muscle, nerve, vision, hearing, liver and the central nervous system. In this last chapter the subject has been treated in the physiological rather than the anatomical way. The diagrams which have been added to this part of the book are very useful and some of them clearly illustrate the paths of afferent and efferent fibres. The special senses are also dealt with in an excellent manner. The book has been well got up and is properly illustrated. We are sure that this edition will be more popular than its predecessors.—*U.K.R.*

The Progress Book:—By W. M. Pilley M. D. Specially printed for Mellins Food Ltd., London S. E. 15 and published by Mears and Caldwell Ltd., Cranmer Road, London S. W. 19.

This book is specially designed for parents to record the development of their children from birth till coming of age and after and must certainly prove an invaluable guide, friend and philosopher not only to them but also to their children in their adult life and their childrens' children, yet unborn, who may be benefitted by a close study and knowledge of their parenthood, especially, as heredity plays a prominent part in the causation of several diseases. This book, if preserved, will also be useful in tracing the genealogy of a family which space, time and distance help to forget, principally among the western nations. The book will also serve as an unerring consultant by the family doctor, who can read the psychology of his patient from the events recorded herein and treat him suitably to his taste and temperament. In short, the book is indispensable to every parent and must be kept in every household, one for each child that is born and brought up in the family. Credit is due to Mellins Food Ltd., London, who are responsible for the production of this neatly printed and nicely bound book, in furtherance of the cause of Infant and Child Welfare.—*S.T.*

Seventh Annual Report of United Fruit Co., Medical Department, Boston, Massachusetts, for the year 1928 :—

This is an exhaustive and interesting report of the medical aid given and preventive measures taken by the Company, during the year, to ensure the efficiency of the labourers in the Company's plantations. Among the various achievements of the medical department of the Company may be singled out the rapid progress made in controlling the incidence of malaria on the plantations. According to the report, " with the exception of 6 cases of leprosy among nationals, no quarantinable diseases have developed in any of our divisions during the year; nor has any infectious disease assumed serious epidemic proportions." This is a proud and healthy record, indeed and the medical Department must be congratulated on its vigilance and watchfulness. The report which consists of 373 pages is replete with illustrations, diagrams. Sketches and statistics and the comments made on some of the more important diseases occurring in tropical divisions will well repay perusal.—*S.T.*

Books Received.

The following books have been received and the courtesy of the publishers in sending them is acknowledged. Reviews will be published from time to time :—(*Ed. A.*)

Catechism series -Psychology—By John E. Ewen M. R. C. S. (Eng.) L.R.C.P. (Lond.) D.P.M. Published by Messrs E. S. Livingstone, 16-17, Teviot Place, Edinburgh. Price 1/6- net Postage 3 d.

An outline of Endocrinology—By W. M. Crofton, B. A. M. D. Published by Messrs E. S. Livingstone, Edinburgh. Price 8/6- net Postage 6 d.

The Cancer Process—By J. J. M. Shaw M.A.M.D, F.R.C.S.E. Published by Messrs E. S. Livingstone, Edinburgh. Price 1/- net Postage 2 d.

New Light on Malaria Causation—By Charles Mathew Thomas, Colombo.

Clinical obstetrics—By Paul T. Harper P.H.B., M.B., S.C.D. F.R.A.S. Published by Messrs F. A. Davis & Co., Philadelphia Price $ 8.00.

Partnership Combinations and antagonisms in diseases—By Edward C. B. Ibotran M.D. (Lon.) B.S. Published by Messrs. F. A. Davis & Co., Philadelphia $ 3.50.

A diabetic manual—By Elliot P. Joslin M.D. Published by Messrs Lea & Febiger, Washington Sq. Philadelphia. Price $ 2.00.

The medical musueum based on a new system of Visual teaching—By S. H. Daukes O.B.E. Director. Published by the Wellcome foundation, Endsleigh court, 33, Garden St., London.

Diseases of the Stomach—By Max Einhorn M. D. Published by Messrs William Wood & Co., 156, Fifth Avenue, New York Price $ 6.00.

Text book of Embryology—By Frederick Randolph Bailey A.M., M.D., & Adam Marion Miller A.M. Published by Messrs William Wood & Co., New York Price $ 7.00.

Human Helminthology—By Ernest C. Faust P. H. D. Published by Messrs Lea & Febiger, Philadelphia. Price $ 8.00.

The Medical Annual 1930—Published by Messrs John Wright & Sons., Ltd., Bristol. Price 20/- Postage 9 d.

The Nutrition of Healthy and sick infants and children—By E. Nobel, C. Perguil & R. Wagner. Publiehed by Messrs F. A. Davis & Co., Philadelphia. Price $ 3.50 net,

Mankind advancing—Published by the American Philosophical Seciety, Philadelphia.

Bacteriology for Nurses—By Harry W. Carey M.D. Published by Messrs F. A. Davis & Co., Philadephia. Price $ 22.5.

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NOTICE

An Indian Committee of the International Microbiological Congress to be held in Paris on 20th July 1930 has been formed with the following members and office-bearers :-

Dr. U. N. Brahmachary, M. A., M. D., Ph. D.,
President, Calcutta.
Lt. Col. R. Row,
Professor of Pathology.
Grant Medical College, Bombay.
Major Shanks, I. M. S.,
Professor of Pathology,
Medical College, Calcutta.
Dr. Khonalker, B. Sc., M. D. (Lond.)
Professor of Pathology,
Seth Govardhan Das Sundar Das
Medical College, Bombay.
Dr. V. Krishnamurthi,
Professor of Pathology,
Veterinary College, Madras.
Dr. A. C. Ukil, M. B.,
Professor of Bacteriology,
National Medical Institute,
Calcutta-Secretary.
Dr. H. Ghosh, M. B.,
Director, Biological Department,
Bengal Chemical & Ph. Works Ltd :
Calcutta.

Dr. H. Ghosh has been elected a delegate of the International Congress of Microbiology to be held in Paris on the 20th July 1930 to represent the Bacteriologists of India.

Any one willing to send original papers on Microbiology to be read at the sittings of the Congress is requested to send his paper with a synopsis to Dr. H. Ghosh, 41, Dharumtolla Street, Calcutta.

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Short articles of about 2000 words from you are also welcome.

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