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Original Articles

Non-Tuberculous Respiratory Infections*

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Calcutta.

INFECTIONS of the respiratory tract may vary in degree from the very serious and fulminating types of pneumonia to the very mild and often disregarded bronchial catarrh associated with common cold. While pneumonias are most dramatic in their onset and in their course, holding the fate of the patient in the balance in a matter of days, or frequently showing a change of picture from a very acutely ill patient to that of quietly relaxing patient in a matter of hours, the mild upper respiratory catarrh or a mild bronchitis is frequently neglected not being sufficiently incapacitating. Nevertheless, the latter are very important in that they lead to a number of very chronic and obstinate morbid conditions causing considerable incapacity in the long run.

A large number of organisms may cause infection of the lungs or the bronchi. Some of them are frequently found as normal inhabitants of the nasopharynx in healthy people. When they find conditions congenial to their growth, they invade the lower respiratory tracts and cause disease. On the other hand, there are others which are more pathogenic and are not usually present as normal inhabitants in the nasopharynx. During periods of epidemics of respiratory infections, a large number of healthy persons are, however, found to harbour such organisms. Thus, streptococcus viridans, micrococcus catarrhalis, pneumococci of Group IV etc., are commonly found in the nasopharynx of

*Specially contributed to THE ANTISEPTIC.

many healthy persons and are relatively non-pathogenic. But streptococcus haemolyticus, pneumococci of types I, II or III, or some filterable viruses are not normally present. They are found in persons with a persistent septic focus in the tonsils or nasal sinuses keeping up the depot of infection or in healthy persons during a prevalent epidemic in the locality. Persons who harbour these organisms and are apparently healthy are called 'carriers.' These carriers serve to keep up the infection and are frequently the starting points of epidemics of respiratory infections, when conditions of spread are favourable as in large group of men living together under insanitary conditions.

The spread of infection is by inhalation of droplets sprayed during coughing, sneezing, laughing etc. Overcrowding and lack of ventilation favour such spread.

In all infective diseases, it is important to consider not only the seed but also the soil. The soil must be favourable for the growth of the seeds. In respiratory infections it is therefore frequently found that during periods of epidemics or at other times as well, large number of people harbour even virulent organisms in their upper respiratory tracts but do not suffer any illness. Normally the defences of the respiratory tract and of the body in general prevent the spread of these organisms into the bronchi or lung or into the body tissues. If however these defences are undermined by any cause then the organisms readily invade the tissues and multiply.

In considering the etiology of infections, therefore, we speak of certain predisposing factors besides the causative factor. These are the factors which serve to weaken the normal defences of the body.

In respiratory infections predisposing factors are many, such as: (1) Age :—Extremes of age, as infancy and childhood or old age are susceptible to respiratory infections. (2) Heredity—certain children inherit a susceptibility to catarrhal infections. (3) Surroundings and climate—Unhygienic, damp and cold dusty surroundings are likely to predispose to respiratory infections. It should however be remembered that children brought up in overcautious and sheltered surroundings in extreme luxury and comfort are often found to be more susceptible to bronchial or pulmonary infections than their less fortunate brethren who are hardened by less favourable circumstances and are well seasoned. If the latter get proper nourishment, they develop better resistance. (4) Physical deformities of the chest, nasal obstruction or abnormalities etc. (5) Exposure to cold, privation, exhaustion, alcoholic excesses or other debilitating conditions. (6) Chronic constitutional diseases like diabetes mellitus, cardiovascular diseases, nephritis, gout, etc., (7) Acute specific fevers—Some of these as measles, are always ushered in with acute catarrhal symptoms of the respiratory tract.

Bronchitis, bronchopneumonia frequently complicate these fevers. (8) Occupational hazards—Working in atmosphere containing irritating dust and fumes without proper ventilation predispose to respiratory infections besides specific changes due to silicosis etc. (9) Bronchial stasis—Obstruction in the bronchial tubes due to foreign bodies, growths, plugs of sticky mucus etc. interfere with normal bronchial drainage. Stasis of secretions behind the obstruction predispose to infections.

It is evident, therefore, that sources of infection and the infecting organisms are widespread and are always present. Whenever the predisposing factors sufficiently render the local conditions suitable infection takes place. As to what form the infection will take and to what extent it will spread, that is, whether it will be a localised superficial inflammation of catarrhal type limited in the bronchi or extending into the bronchopulmonary segments and peribronchial tissues, or of a croupous type as a lobar consolidation, will depend on the general and local resistance of the individual and on the virulence of the organisms. Thus according to Maxwell the results of infections in relation to resistance can be expressed as follows :—

Resistance		Result
General	Local	
Good	Good	Pneumonitis (Localised pulmonary inflammation of a benign character)
Good	Bad	Lung abscess
Bad	Good	Pneumonia
Bad	Bad	Septicæmia

The acute non-suppurating conditions in respiratory infections are acute bronchitis, bronchopneumonia and pneumonia. Acute bronchitis and bronchopneumonia are usually secondary conditions occurring specially in children with or after acute specific fevers as measles, whooping cough etc. In very young infants and the aged these may also occur as primary conditions. In adults they mostly occur secondary to conditions like influenza, enteric fever or in chronic deblitating diseases like malaria, kala-azar, bacillary dysentery, chronic nephritis etc. Broncho-pneumonia frequently occurs as a terminal infection in such chronic illnesses or in old age. Aspiration of septic materials during anaesthesia or vomiting in unconscious patients also cause bronchopneumonia.

Lobar pneumonia is a specific primary infection caused by pneumococci of different types. Infections with streptococcus, H. influenza, P. Pestis, staphylococcus, Feidlander's bacillus may rarely cause extensive pneumonic consolidation in the lung, but

they usually produce a lobular pneumonia or bronchopneumonia. In secondary bronchopneumonia infection is usually a mixed one.

Recently extensive use of radiography in more or less mild respiratory symptoms have revealed a group of illness characterised by transient radio-opacities in the lung. They have been variously described as pneumonitis or atypical pneumonia. Their etiology and pathology are uncertain. Some of them may be secondary to non-specific catarrhal affections, others may be of virus origin. In some cases these shadows have been shown to be due to localised changes in the lungs of the nature of an interstitial bronchopneumonia with congestion and œdema in the bronchi. They undergo complete resolution.

DIFFERENTIAL DIAGNOSIS.—*Acute infections*:—Acute bronchitis offers little difficulty in diagnosis in most cases. Bilateral diffuse signs with mild respiratory and constitutional symptoms or characteristic enough. It is, however, important to determine whether acute bronchitis is primary or secondary. In most cases acute bronchitis is secondary to some other acute infectious fever, specially the exanthematous fevers.

In "common cold" there is running from the nose, congestion of the fauces and pharynx and a husky voice. In cases of children when the onset is with such catarrhal signs, one should look for Koplik's spots for the diagnosis of measles in the pre-eruptive stage. These spots are seen on the inner side of the cheeks opposite the premolar teeth and may be single or multiple.

In children acute bronchitis may give rise to serious signs and symptoms as in bronchopneumonia, and it is often difficult to distinguish them.

In lobar pneumonia, the sudden onset of high fever with severe symptoms of illness and toxæmia resembles the onset of other acute specific fevers. Therefore in those cases where general constitutional symptoms, muscular aching, delirium etc. are prominent and local signs, like chest pain, are not prominent enough, mistake in the diagnosis may arise. Distinction has to be made from influenza, dengue, smallpox, meningitis, septicæmia, etc. In all these conditions the general constitutional symptoms of bacterial toxæmia are common. Signs of localisation should therefore be sought for.

In the early stages, signs which will help in the diagnosis of pneumonia are the altered pulse/respiration ratio, working of the accessory muscles of respiration with dyspnoea, restricted movement over the affected side and diminished breath sounds over the area. At this stage no dullness is expected and adventitious sounds may be absent. Fine rales or a localised pleural rub over the affected lobe are not uncommon. Later on signs of consolidation, such as dullness, tubular breathing etc. develop, usually after the second day.

In cases with severe meningism a lumbar puncture is necessary to exclude meningitis. In meningism associated with lobar pneumonia, the spinal fluid is under pressure but clear.

When local signs are prominent lobar pneumonia has to be distinguished from pleural effusion, massive lobar collapse, infarction of lungs, bronchopneumonia, pulmonary tuberculosis and lung abscess.

In pleurisy with effusion, the onset is not so acute as in lobar pneumonia and the general symptoms of toxæmia are less severe. The dullness on the chest is more absolute, breath sounds are absent and vocal fremitus and vocal resonance are diminished. Most important diagnostic point, however, is the evidence of mediastinal shifting in pleural effusion. The apex beat of the heart is shifted to the opposite side as the dullness, and the trachea at the jugular notch will be felt to be also deviated to the opposite side.

Massive lobar collapse usually follows operations on the upper abdomen or thorax or on the upper respiratory tract. There will thus be a history of such operation. A lobar pneumonia may also be a post-operative complication. In massive lobar collapse the mediastinum is drawn towards the affected side, and this should carefully be looked for.

Infarction of lungs is due to an embolus lodging in the branches of the pulmonary arteries. The onset is sudden with chest pain and haemoptysis. Fever and constitutional symptoms follow the onset. Certain predisposing conditions are present, such as chronic valvular heart disease, thrombophlebitis, etc.

Bronchopneumonia like bronchitis usually complicates other diseases. It occurs in the course of other infective fevers like measles, enteric fever, kala-azar, etc., or in persons debilitated by such diseases like chronic malaria, chronic or sub-acute nephritis, etc. The onset is therefore uncertain. If the patient is already running a temperature, there may be a sudden increase in the level of fever with signs of respiratory affection. In others the onset is less acute than in pneumonia. Dyspnœa and rate of respiration are likely to be more pronounced than in lobar pneumonia, cyanosis is more common, expectoration is less tenacious and the temperature is of a remittent character rather than a high continuous as in lobar pneumonia. The signs in the chest are more widely distributed over both sides of the chest. The patchy areas of consolidation may not be clinically detectable unless they are confluent because of emphysema of the surrounding areas. When bronchopneumonia occurs apparently as a primary condition in healthy individuals such rare types of infection as influenzal pneumonia, plague pneumonia etc., should be thought of. Tuberculosis also may have a bronchopneumonic onset. It is frequently wrongly diagnosed as enteric fever with bronchopneumonia. The sputum therefore should be examined in all cases of doubt. Whenever a case of bronchopneumonia

is prolonged over three weeks tuberculosis should be thought of and sputum examined carefully for acid fast bacilli.

Sometimes, at the onset of pneumonia, the pain is felt in the abdomen rather than in the chest, specially in cases with basal pleurisy. In such cases the sudden pain in abdomen not infrequently associated with vomiting has often led to a diagnosis of acute abdominal conditions and laparotomies have been done wrongly. A reflex rigidity over the right side of the abdomen in such cases causes further confusion. Careful examination of the lungs in all cases of acute abdomen is therefore necessary to avoid such unfortunate errors. Points which will help in the diagnosis of pneumonia are altered pulse respiration ratio, cyanosis, acting alae nasi, absence of pallor or pinched expression of acute abdomen, diminished movement and diminished breath sounds over the base of the lung or other obvious signs of consolidation.

Pneumonia and bronchopneumonia in elderly people frequently occur insidiously and without high fever. There is however severe prostration with muscular and mental asthenia. In old people such a picture may occur in several other conditions besides pneumonia or bronchopneumonia, such as coronary thrombosis, slowly developing cerebral thrombosis, or uræmia. In fact the respiratory infection may co-exist or may be a terminal feature in these conditions. Careful consideration of the previous history, physical signs and laboratory help are necessary for a diagnosis. At extreme old age, a sudden respiratory infection may severely tax the poor cardio-renal reserve of the patient and cardiac failure or uræmia may set in along with pneumonia.

In lung abscess, the onset may be sudden as in pneumonia, with pain in chest, high fever and cough. Before the abscess bursts in a bronchus, expectoration is scanty and not characteristic. The signs are however more localised, the temperature is of a more swinging character and pulse respiration ratio is not much altered. With the onset of purulent expectoration, the toxæmia abates and other diagnostic signs appear, such as copious foul smelling and purulent sputum, hectic fever, clubbing of fingers and radiological evidence of cavity with a fluid level.

Subacute and chronic conditions.—These conditions may be classified under several clinical groups: (1) Those which start with an initial brief period of more or less acute symptoms and signs like fever, cough, expectoration, or catarrhal signs and often hæmoptysis, and then continuation of the respiratory symptoms in subacute course of a comparatively short duration; (2) cough and expectoration of long duration running a chronic course with or without periodic exacerbations; and (3) chronic respiratory catarrh of children.

Under the first group are several conditions which are sometimes very difficult to distinguish without laboratory investigation and

prolonged observation. These conditions are, pulmonary tuberculosis; sequelæ of acute bronchitis; pneumonia or bronchopneumonia; pneumonitis or benign localised pneumonia; atypical pneumonia etc.

In all acute non-tuberculous respiratory infections there is usually a complete resolution of the inflammatory changes in the lung or bronchi. But the resolution may not be complete within a reasonable time and in some cases may be followed by chronic inflammatory changes with degeneration and fibrosis. In such cases the symptoms and signs persist beyond the usual course of the disease, raising a suspicion of pulmonary tuberculosis. In all such cases the history of the onset, and the clinical course, previous history of pleurisy with effusion or of contact with tuberculous patient, careful examination of the sputum and X-ray examination of the lungs are necessary for diagnosis.

It must however be remembered that, these *non-tuberculous* affections of the lungs may produce radio-opacities. These are usually of the nature of homogeneous shadows and are localised or well-defined as distinguished from the characteristic, ill-defined, woolly or mottled appearance of typical exudative tuberculous lesions. It is however, sometimes, very difficult to distinguish the nature of the opacities by a single skiagram. Therefore, in the absence of a positive sputum, these cases should be followed up with periodic radiological examination. In the non-tuberculous conditions, the opacities tend to disappear in 4 to 8 weeks time. An unresolved pneumonia or pneumonitis may however cause fibrosis in the lung when the radiological opacity will persist. In such cases repeated sputum examination and prolonged observation are necessary for diagnosis.

It should also be remembered that lobar or segmental collapse of the lung, bronchogenic carcinoma and bronchiectasis may cause radiological opacities in the lung which may be confused with tuberculous or non-tuberculous infections of the lungs.

Long continued cough and expectoration may be due to chronic bronchitis, bronchiectasis or pulmonary tuberculosis. In chronic bronchitis there is usually a history of periodic attacks of acute bronchitis. At first the attacks are short but they gradually become more and more prolonged and finally the symptoms tend to persist continuously with periodic acute exacerbation, when asthmatic attacks may occur. The symptoms may also start insidiously and may follow long years of asthma. Patient's general health is not much impaired compared to the length of the symptoms. The expectoration may vary considerably in quantity and quality, from pure mucoid to frankly purulent. Signs in the chest are diffuse rhonchi and rales. In advanced cases with emphysema, typical barrel-shaped chest, weak breath sounds, prolonged expiration, etc. are present. Sputum should be examined for acid fast bacilli in cases of doubt. X-ray of the chest does not show any

parenchymal changes, but only exaggerated bronchovascular markings.

In bronchiectasis, chronic cough and expectoration develop when there is stasis and infection of secretions in the bronchiectetic cavities. Periodic hæmoptysis may occur. A history of bronchopneumonia or pneumonia or of other respiratory infections which failed to clear up completely may be present. The quantity of expectoration depends on the severity of the condition. In typical cases there is copious purulent expectoration, often of offensive smell. The sputum when collected in a glass cylinder or conical glass, shows separation of three layers. Cough and expectoration are often excited in paroxysms by a change of posture so as to dislodge the secretions from the bronchiectatic cavities with healthier portions of the air tubes. General health of the patient is not impaired except in long standing advanced cases when there may be constitutional symptoms and some emaciation with anæmia. There is clubbing of the fingers, chest signs are usually localised over one or both bases. There is dullness on percussion and coarse and "leathery" rales. Breath sounds are usually diminished and if there is considerable fibrosis, retraction of chest wall and drawing of the mediastinum to the affected side will be found. X-ray appearances are variable. There may only be some delicate "honey comb" appearance at the bases, or small thin-walled cavities with fluid levels, or interstitial fibrosis, or sometimes evidence of lobar or segmental collapse. Diagnosis can be confirmed by bronchography with lipoidol or other iodised oil.

In pulmonary tuberculosis, history of contact, general constitutional symptoms, wasting etc., physical signs more in the upper parts of lungs typical, radiological signs and sputum examination will help in the diagnosis.

Lastly, in the condition sometimes described as chronic respiratory catarrh, specially in children, there is a history of persistent cough in a child with signs of catarrh in the lung. The child is very prone to repeated attacks of cold, often with fever and does not develop properly. Infection in the upper respiratory passages such as septic tonsils, adenoids, sinusitis etc. may be associated. In many such cases radiological examination reveals areas of collapse in the lungs. This is believed to be due to obstruction of bronchi with sticky mucus following respiratory infections. The symptoms may ultimately disappear or may develop into typical fibrosis of lungs and bronchiectasis.

Occasionally chronic respiratory symptoms may be produced by congenital cystic disease of the lungs with secondary infection. This condition can be distinguished from chronic bronchitis, bronchiectasis and pulmonary tuberculosis by radiological examination, sputum examination and bronchography.

12/1A, Hindusthan Park,
Calcutta.

Cirrhosis of Liver in Infancy and Childhood*

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Recent advances in the pathology of hepatic cirrhosis.—Experimental work in 1932 first showed the importance of diet in the genesis of hepatic disease. Lack of choline or proteins containing Methionine produce in animals cirrhosis analogous to human portal cirrhosis.

Massive experimental acute necrosis of liver in cystine-deficient animals is proof to show the dietary element in the pathogenesis of acute yellow atrophy (Glynn, Himsworth, and Neuberger, 1945). " .... it now seems safe to assume that sudden death of liver cells plays no part whatever in the production of the fibrous liver of human portal cirrhosis, whilst human acute yellow atropy and the scarring and hyperplasia which may follow it are the direct outcome of acute necrosis of liver cells on a massive scale and are in no way related to disordered fat metabolism." (Hadfield and Garrod, 1948).

Acute massive necrosis is different from zonal necrosis typified in infective cirrhosis.

Choline and its related bases are lipotropes. "Phosphorylation is thus one of the basic functions of the liver cell and the choline molecule an integral factor in carrying it out." (Hadfield and Garrod, 1948). Choline is an essential dietary constituent.

The lipotropic action of proteins and amino-acids (casein—Channon and Wilkinson, 1935; egg albumin, beef muscle protein, and edestin) has also been recently realised and this action is due to the amino-acid content (Cystine, Methionine). Methionine has a labile methyl group, which probably is responsible for the bio-synthesis of choline. Casein is lipotropic because of its high Methionine content.

Cirrhosis of liver secondary to fatty infiltration (experimental dietary necrosis, Himsworth and Glynn, 1944-b) is slow and a close copy of Lænnec's multilobular portal cirrhosis, associated with chronic alcoholism.

Researches by Gillman and his coworkers in South Africa reveal that human malnutrition (deficiency of quality protein for a long period resulting in lack of lipotropic factors and Methionine) is a source of fatty liver and ultimately portal cirrhosis. The "malignant malnutrition" (Trowell and Mawazi, 1945) is an extreme example of malnutrition producing cirrhosis of liver with pellagra like illness and for it there is now a promise of therapeutic efficiency with ventriculin. This is the pathetic nutritional story of South Africa, where again hepatic malignancy is commonest cancer.

* Specially contributed to THE ANTISEPTIC.

appear earlier than the other, or both may set in almost simultaneously.

GEOGRAPHICAL DISTRIBUTION :—Text-books on Children's diseases by English authors are without any detailed description of the malady. Wilfrid Sheldon, (1946) discussing about biliary cirrhosis described two forms, one in association with congenital obliteration of the bile ducts and the other accompanying subacute necrosis of the liver (subacute nodular hyperplasia of the liver). Rogers and Megaw, (1942) help no better. Sir Philip Manson Bahr has described the condition very briefly.

Infantile hepatic cirrhosis occurs in India, Mexico, North China and possibly in Japan. "In India it is common in Bengal, Madras and Bombay Presidencies and the United Provinces; it is more prevalent in the rural districts than in towns" (Manson Bahr). The Mexican analogue of the disease according to Brahmachari is characterised by diarrhœa, neurological signs and febrile bouts.

AETIOLOGICAL FACTORS.—The writer, (1939, 1940, 1941) and P. Krishna Rao, (1941) feel that the majority of cases hail from vegetarian families; out of 100 cases studied in detail by the writer 88 were from the vegetarian families and only 12 from non-vegetarian familes.

The disease is clinically discernible after 7 months of age. The writer, (1939), K.C. Chaudhuri, (1944) note the preponderance of the disease in the male sex while M. B. Prabhu, (1940) and P. Krishna Rao, (1941) think that both sexs are equally affected.

The disease is certainly familial. Transmission through females is present in 3 instances in the writer's series. A number of children from the same parents or the children of two brothers or sisters die from the disease.

Study of twins with regard to infantile hepatic cirrhosis was made by M. B. Prabhu, (1940) and P. Krishna Rao, (1941). The former said that twins may simultaneously be affected though not to the same extent. The latter thinks feeding with cow's milk is the crucial point which decides the pathogenesis.

PATHOGENESIS.—Malaria and kala-azar have no bearing while toxic drugs (carbon tetrachloride, arsenic, copper, phosphorus, manganese, atophan, sulphonamides, chloroform, chloral hydras, santonin) are known to damage the liver.

"The occurrence of biliary cirrhosis apart from obstruction or inflammatory changes in the bile ducts is improbable and the same argument would hold in infantile cirrhosis." (T. B. Menon, 1931).

Toxæmias of pregnancy were present in some mothers whose children were later afflicted by cirrhosis of liver. Asthma, migraine, gastric ulcer and diabetes occurred in some of the parents of these children. Whooping cough and typhoid fever also appeared to pave the way for hepatic cirrhosis.

Studies on the Rh factor have revealed that Rh positive baby born to a Rh positive father and Rh negative mother (generally the subject of toxæmias of pregnancy) stands liable to develop hepatic cirrhosis.

A child with congenital syphilis may, like any other baby, become a victim of hepatic cirrhosis.

Diarrhoeas (particularly summer diarrhoeas) appear to be the starting point—virus infections. Castor oil has been blamed as a cirrhogenic agent and it is possible only if the child is allergic to the same.

A preponderance of carbohydrate, especially as cereals and starches and the presence of spicy and useless adjuvants form the diet when a baby is weaned from the breast; and thus fed, some babies are exactly on the experimental level equal to animals in nutrition research laboratories.

P. Krishna Rao, (1941) incriminated cow's milk diet and B. coli invasion of the liver in the etiology of cirrhosis liver in children. His conclusion is based on fraternal twins, when the boy was spared when breastfed, and his twin sister died of cirrhosis when reared on cow's milk. The writer's view is that feeding with cow's milk is injurious only when overfed and due to the general intolerance to high fat diet.

PATHOLOGY :—Gibbons, (1891) first described the pathology of infantile liver cirrhosis and concluded that it was biliary or hypertrophic cirrhosis. Rolleston and McNee described the condition as a form of biliary cirrhosis in young children in India.

T. B. Menon, (1931) described monolobular and pericellular fibrosis in infantile hepatic cirrhosis.

P. Krishna Rao, (1941) came to the conclusion that the cirrhosis of infants is of the portal type (Atrophic type of Lænnec).

M. V. R. Rao, (1935) classified the socalled infantile liver cirrhosis as subacute toxic cirrhosis.

The post-mortem study by the writer, (1944) has yielded the following :

Post-mortem body was intensely jaundiced and with a sanious discharge from the nostrils and the mouth. Abdomen was distended. When the abdomen was opened, the liver was seen intensely bile-stained and hard and very finely nodular. Only a small quantity of fluid could be tapped. The liver cut with resistance and a portion was removed from the right lobe.

Under the microscope, the capsule of the liver is thickened in places. Surface is granular and bands of connective tissue run

into the substance of the liver from the depressed areas on the surface of the liver.

The normal architecture on the liver is lost. Small groups of liver cells of varying sizes, showing degenerative changes, separated by well formed connective tissue are seen. Areas of regeneration consisting of pseudo-lobulation are also seen. Yellowish pigment particles are found in areas of degenerating and regenerating cells as demonstrated by fat stains.

Biliary thrombi are present in the biliary canaliculi in places.

The connective tissue is infiltrated with lymphocytes, a few polymorphs and an occasional eosinophile. The periportal fibrous tissue is also increased to some extent.

A few central veins show some thickening of their walls.

The ante-mortem condition of the baby is thus :—A male baby, 1½ years old, Hindu, Brahmin, Vegetarian, Middle class, Father asthmatic. Admitted for distended abdomen of six months duration on 1-12-1944. Baby was breastfed and supplemented with cow's milk.

Clinical :—Liver hard and 3″ below costal margin and spleen ½″ below costal margin. No ascites or jaundice but prominent para-umbilical vein present.

30-12-1944:—Slight icteric tinge seen in the sclerotic; slight diffuse œdema of the body present. Urine—No albumin. Benedict's qualitative solution reduced. Bile pigments present, but no bile salts. Urobilin sub-normally present. Kahn of patient's blood and father's blood negative.

16-1-1945:—Admitted into the Government Stanley Hospital with cholæmia and intense jaundice. Slight ascites present. A soft systolic murmur audible at the apex. Patient died on 18-1-1945. This fits with the description of *subacute toxic necrosis*.

Discussion.—*Heredity* :—The disease is common in the vegetarian families. It is heredo-familial according to some workers. Some observations on twins have been alluded to already.

A boy, Hindu, Brahmin, of 11 years, came under the writer's care for chronic interstitial nephritis in January 1945. His twin brother died at the age of 1½ years of infantile hepatic cirrhosis. The twins were fed by the mother and also on cow's milk. An elder brother of this patient died of chronic interstitial nephritis at 20 years. Paternal uncle is asthmatic. Paternal grandmother and her mother are victims of migraine. Kahn and Wassermann tests of the twins and their parents are negative. This is the story of one team. A second team of twins came under the writer's care; they were boys. Both were breastfed and on cow's milk. One died early at 1 year and other later died at 1½ years of infantile hepatic cirrhosis. Thus the part played by Nature and that by Nurture has not yet been understood by the clinician.

Endocrine aspects :—Mild hypoadrenia (congenitally present due to hypoplasia of adrenal glands and acquired after a chronic infectious disease, toxic condition, or malnutrition) exhibits symptoms like nausea, abdominal pain and diarrhœa alternating with constipation. Murray B. Gordon, (1942) describes that in mild chronic hypoadrenia there is a marked susceptibility to infections especially of the upper respiratory tract and to allergic disorders such as asthma, hay fever, rhinitis, cough and food intolerance, and further disturbances of carbohydrate metabolism (low fasting blood sugar and increased sugar tolerance) are also present.

There is a remarkable similarity in the low blood sugar level and other symptoms of mild chronic hypoadrenia and those of infantile hepatic cirrhosis. Cirrhosis of liver is detected between the 6th month and the 3rd year in infants and there is a tendency to spontaneous retrogression of the disease by the end of the 3rd year. The switch-over period of the infant's life *i.e.*, from shortly after birth to the end of the 3rd year, is noteworthy, because at that time a new and permanent adrenal cortex is built up in place of the old cortex. During this switch-over period, malnutrition, including deficiency of vitamin C which is presumably essential for the normal functioning of the adrenal cortex, probably plays an important role in producing the derangement in adreno-cortical function. Deficiency of cortical function is claimed by Verzar as responsible for the deficient fat absorption from the intestine.

Infections and toxins :—P. Krishna Rao grew B. coli communis from the scrapings of liver after death.

Summer diarrhœas :—(Virus infections?) appear as starting points in many children dying of cirrhosis later on.

Maternal toxæmias of pregnancy appear to have important bearing.

Infection and toxic action may also produce a mild chronic hypoadrenia as already eleborated by the writer.

Food factors :—The writer stressed the intolerance to fat of cow's milk by children as an important cause of cirrhosis of liver about 10 years ago. The following post-mortem proves the point. An ill-nourished child (the usual type in poor children getting into our Hospitals in Madras) was subjected to post-mortem study after death to realise the importance of malnutrition in the genesis of cirrhosis. A female child, 5 years old, poor, Hindu Non-Brahmin, was admitted into Government Stanley Hospital, Madras, for swelling of the abdomen and feet of 2 months' duration. Had whooping cough 2 months ago. Clinically ill-nourished. Cornea vascularised. Conjunctivae xerosed. Skin dry and pellagrous. Angular stomatitis present. Abdomen distended with free fluid. Liver ½″ enlarged and spleen palpable. Prominent veins present over anterior abdominal wall. Heart : nil particular. Lungs : a few basal rales heard.

Mother's blood Wassermann negative. Urine of patient: No sugar. No albumin. Serum Van den Bergh—Direct and biphasic positive. Post-mortem: A portion of the left lobe of the liver was removed as also spleen.

Liver:—Under the microscope fatty degeneration involving all the zones and almost all the cells seen. Slight increase in the periportal connective tissue with lymphocytic infiltration. Spleen: chronic venous congestion seen.

The work of H. P. Himsworth and L. E. Glynn has been alluded to in the general considerations already.

Cow's milk given to infants without dilution and modification is not ideal by virtue of its high content of fat which as a rule is not tolerated by them. To overcome this defect it has to be diluted with water, and the carbohydrate content is made up with sugar. The proteins and valuable amino-acids suffer severe dilution and are not in any way compensated for; and this factor should be having an important bearing in the production of hepatic cirrhosis in children brought up on cow's milk, as according to Himsworth and Glynn the protein moiety of food must be adequate in the dietary to prevent trophopathic necrosis of liver.

The clinical condition of infantile hepatic cirrhosiss appears to include more than one variety, as is the case with migraine, asthma, or atopic dermatitis. Cases arising mainly from dietetic errors might show, post-mortem, the portal type of hepatic cirrhosis, while those wherein toxic or infective elements predominate might exhibit, post-mortem, biliary type of hepatic cirrhosis. In the writer's opinion an allergic basis is common to all types. If the toxic infective condition is neither acute nor chronic in action, subacute toxic necrosis results. Such clinical types do exist is the conviction of the writer. In one group of cases jaundice is terminal and appears later than ascites; while in another jaundice sets in earlier than ascites; the former group conforms to the classical description of portal cirrhosis and the latter is in unison with the orthodox version of biliary cirrhosis.

Allergy:—Allergy denotes peculiar reactions. One to ten per cent of human beings are allergic. Allergy is a clinical concept as opposed to anaphylaxis which is the analogous entity in animals. It is inherited from parents, and is against various substances. Its duration in the young is long. The allergic reaction (first or repeated) is due to allergins of unknown immunological nature provoked by allergens (protein or non-protein). A sensitising agent and time interval are not always essential. The sensitivity is highly developed in some tissues and entirely absent in others. The reactions are mainly in the skin, respiratory and gastro-intestinal tissues.

Infantile hepatic cirrhosis is observed to be familial, seventy per cent show an allergic disturbance in the family, generally in the

parents, wherein it is more often unilateral (in one parent) than bilateral (in both parents).

Incidence of pertussis, typhoid, gastro-enteritis, and atypical diarrhœa as also the frequent occurrence of upper respiratory upsets require close study from the view point of non-bacterial and bacterial allergy.

Cyclic diarrhœa is, in the writer's opinion, not only based on allergy but also a potent forerunner of hepatic cirrhosis.

The Schwartzman phenomenon characterised by hæmorrhagic necrosis at the prepared area, can occur also in the liver, kidneys, stomach, and other organs of not only animals but also of men. The causative factors may be bacteria or viruses. The relationship of Arthus phenomenon to Schwartzman phenomenon is an established fact. The pathological basis of allergy consists of smooth muscle spasm and capillary permeability increase.

The respiratory and digestive linings are entodermal in origin and the two systems are controlled by a common vago-sympathetic nervous balance. An allergic explosion like asthma in the respiratory tract is so overt as to be appreciated even by the patient. A similar occurrence, probably latent, seems to manifest itself particularly in the liver as an integral part of gastro-intestinal hypersensitivity.

The following is the hypothesis put forward by the writer to explain the pathology of infantile hepatic cirrhosis. The basic element is probably an allergic diathesis. The disease being peculiar to children is probably due to the switch-over period of the adrenal cortex rendering the liver vulnerable to cirrhosis. Allergy may be specially to the ingested products. Out of the intolerance to dietetic agents, excess of fat of cow's milk; insufficiency in the diet (especially the protective proteins or vitamin C or anti-cirrhosis factor from the vitamin B complex); a toxic factor from the bowel; and an infective element (A virus?); one or more appear by continued action to produce ultimately infantile hepatic cirrhosis.

Clinically recognised cirrhosis of liver is a final manifestation which has had its existence in early stages without overt signs and symptoms. Looking at the end result of fibrosis of lung or the kidney, it is not always that the clinician is able to trace the exact march of events to the end results. *Cirrhosis of the liver is the final production, the story of whose previous scenes of pathology is as baffling as it is enchanting.*

The clinical picture.—The disease begins insidiously. A child is sometimes diagnosed as suffering from infantile hepatic cirrhosis in the course of a routine examination, as during the course of study in an irregular fever, or stubborn bronchitis, or some form of

digestive disturbance. Early stages may be febrile or afebrile. Cases take a rapid (acute and subacute) or slow (chronic) course.

The early stage:—The playful and attentive infant becomes dull and apathetic and prefers to lie down on the cold bare ground. An earthy complexion, falling of hair from the scalp, sticky eyelids, commencing emaciation, wasting of the calf muscles, slight anæmia and digestive disturbances like anorexia, vomiting, constipation, bloating of the abdomen etc., slowly make their appearance. There is generally a low fever and a few respiratory symptoms like cough and occasionally bronchial spasm (asthma-like).

The abdomen is generally protuberant due to intestinal distension. The liver is generally enlarged, soft, and painless. Spleen may or may not be enlarged. Examination of the chest reveals a few rales particularly over the right base, and weakening of the heart sounds. The tendon jerks are brisk if not exaggerated.

Examination of the urine, motion, blood, and sputum may show nothing definitely abnormal. The urine on drying leaves behind a whitish deposit.

The intermediate stage:—The child at this stage has a liver up to the umbilicus which feels harder than before. The spleen may be palpable. In the strictly biliary type of cirrhosis, light tinge of jaundice, intermittent pyrexia and a characteristic cachexia start now. Either constipation or diarrhœa is present. The motion has lost its normal hue and colour; it generally assumes a whitish appearance, and has foul smell. Van den Bergh of blood is direct delayed positive. Urine is scanty, and acid to litmus, and generally shows a trace of albumin and urobilin is in excess. In the strictly portal type of cirrhosis, ascites is early in onset and jaundice appears much later in the course of the disease.

The third or advanced stage:—This is characterised by the presence of both jaundice and ascites. This has been described also as the terminal stage.

The liver is described to shrink as ascites develops; but the writer has failed to observe hepatic shrinkage in every case with ascites. Portal obstruction consequent on shrinkage of the liver alone, cannot be held responsible for the development of the ascites. There seems to be other factors like toxic action and allergy. "Ascites in cirrhosis of the liver may be due to hypoproteinæmia as well as portal obstruction. It has been diminished in such cases by plasma transfusions and a high protein diet, which have no effect on portal pressure."

In cases where the disease starts after a diarrhœa (generally in a summer) there is a marked preponderance in the enlargement of the right lobe of the liver. The left lobe of the liver is found more enlarged in cases starting with chronic constipation. In all cases at

this stage the spleen is definitely enlarged (1 to 2 inches below costal margin). It is the impression of the writer that children in whom the disease started with chronic constipation showed splenomegaly earlier in the course of the disease than in others.

In this stage, deepening jaundice, ascites, marked and continuous pyrexia, anæmia and a hæmorrhagic tendency are present. Micturition is scanty. Dropsy of the lower extremities appears in most extreme cases. Here again, toxic damage to the capillary endothelium and myocardial insufficiency are added to pressure on renal veins within the abdomen to account for the dropsy. Distension of the superficial veins of the abdomen are characteristic now.

There is marked respiratory distress. This seems to be due not only to pressure of the ascitic fluid but also to the damage of the lungs and heart which share in the common intoxication.

The right supra-clavicular fossa is found tender in some children with palpable lymph nodes also; and this point was stressed by the writer (1940).

Urine is scanty and high-coloured, and shows bile salts and bile pigments. B. coli may also be isolated from the urine. Sputum does not show B. tuberculosis. Blood examination reveals a secondary anæmia. Van den Bergh is direct immediate positive. Fragility of red cells is normal. The Kahn and Wassermann reactions of the child's blood or the parents' blood are negative. Motion is whitish in colour and with a foul odour. In a few cases thread or round worm ova are seen. The ascitic fluid is a transudate.

The long bones appear thinned out. There is clubbing of finger and toe nails. In a few a downy growth of hair over the spine was evident. The skeletal muscles atrophy, particularly the calf muscles. Gynæcomastia has also been observed.

At this stage susceptibility to epithelial infections increases. Chronic rhinitis, chronic otitis and chronically infected condition of the throat, adenoids, and tonsils frequently co-exist.

X-ray study of the chest and bones and electrocardiographic tracings of a few children were done by the writer (1939). X-rays of chest:—The general findings are marked hilar shadows; encroachment of right cardio-phrenic angle, and shadows suggestive of involvement of the right supra-clavicular glands. E.C.G. in one case showed tendency to flutter. X-rays of wrist:—An arrest of growth, slight rarefaction of bone, and irregular epiphyseal lines are noteworthy. A few scorings are seen. This is akin to coeliac and renal rickets.

The Takata Ara reaction in a few cases is positive (M. N. Pai, 1941).

Course of the disease.—An acute case lived for only 2 months. Some children pull on for 2 or 3 years and live out of the disease

mother of 2 children herself; a College student subject to attacks of abdominal migraine (?); and another boy in the High School. Many other children having recovered have now and again greeted the writer with atopic eczema, urticaria, cyclic vomiting, paroxysmal rhinorrhœa and recurrent sinusitis.

(The writer is indebted to Dr. P. R. Kalyanasundaram, M.B., B.S., Superintendent, Government Royapettah Hospital, Madras, for all the help and encouragement received in the preparation of this communication).

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Treatment of 1000 Cases of Schizophrenia with Insulin coma therapy

One thousand and nine patients aged 15 to 44 years were admitted to a mental hospital between 1931 and 1948; of these 563 were treated by insulin coma, sometimes combined with convulsion therapy; the remainder 446 received no special treatment. Of the second group 156 were discharged, after an average stay in hospital of 8 months. Convulsion therapy was given to 103 patients of whom 56 were discharged. Of 378 patients who had insulin coma treatment (Sakels' method) 206 were discharged after an average hospital stay of 5 months. The follow-up of the discharged patients was made by written communications and personal interviews. 14 per cent of the untreated (446 patients), and 38 per cent of the 563 treated patients were quite well 5 years or longer after discharge. The results confirm that the earlier the treatment is started after onset the greater is the percentage of remissions. For insulin treatment *alone* 74 per cent of patients who had symptoms up to one year were discharged much improved and when the symptoms were 2 to 3 years old, only 52·5 per cent improved; and over 4 years only. 15 per cent. The results of convulsion therapy and of insulin coma and convulsion therapy combined were the same.—(*Jour. Ment. Science*, 94-575-80, 1948).

T.N.S.R.

Therapy of Trigeminal Neuralgia

Blanco considers that trigeminal neuralgia is an allergic reaction of the nerves to the circulating bacterial toxins from a focus of chronic infection. The reaction is conditioned by a deficiency of vitamin B_2. Blanco reports good results from Penicillin therapy followed by administration of vitamin B_2 in 24 cases. He advises surgical removal of the foci of infection, and Penicillin and vitamin B_2 therapy. Penicillin is given in either one large dose of 500,000 units or daily dose of 500,000 units divided into 3 fractional doses and administered for 3 consecutive days. Vitamin B_2 is given in 15 mg. doses every day for about ten days—(*Rev. Assoc. Med. Argentina*, 62. 447–509, 1948).

T.N.S.R.

Hepatic Amœbiasis

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Introduction.—Secondary amœbic infection is found in liver, lung, brain, spleen and skin—of which liver is most commonly infected. The secondary amœbic infections are really the complications of amœbic dysentery, seen in the untreated or incompletely treated cases of amœbic dysentery, sometimes after a long interval of the primary infection of the bowel. In some cases no history of previous dysentery can be had, but repeated stool examination reveals amœbic infection of the bowel and on proctoscopic examination, characteristic amœbic ulcers are found in the colon.

The secondary infection of the liver by Entamœba histolytica causes amœbic hepatitis and subsequently amœbic liver abscess.

Excessive alcohol intake may be a factor for hepatic amœbiasis but not the sole factor. Many patients who never took alcohol in life, developed amœbic liver infection.

Chronic infection of the bowel with Entamœba histolytica causes indigestion, retards the absorption of vitamins and other nutritions —thereby the liver is devitalised, and cannot destroy the Entamœba histolytica (vegetative form) carried to it through portal circulation from the large intestine with the result that there is a formation of miliary amœbic abscess in liver and subsequently tropical liver abscess.

Mode of infection and pathology.—The amœbæ of Entamœba histolytica are carried to the liver as embolus by the portal circulation, and fairly distributed throughout the liver. In the sinusoids of the liver they penetrate the endothelium and secrete cytolysin causing a local necrosis—which is amœbic hepatitis. There is a local body reaction which may be sufficient to destroy the amœbæ depending upon the amount of infection and vitality of the liver. There is congestion of the liver which is enlarged. It may be painful due to stretching of the capsule.

If the infection is not controlled by the local reaction, amœbæ cause multiple small coagulative necrosis throughout the liver—minute greyish-white spots. This is the miliary amœbic liver abscess.

These miliary abscesses go on increasing and coalesce to form one or more big abscesses—rarely there are more than two or three big abscesses; or the miliary abscesses may resolute with complete absorption of minute necrotic areas under treatment.

The big abscess may reach the surface of the liver and form adhesion with the surrounding organs by inflammation—of which

• Specially contributed to THE ANTISEPTIC

adhesion with the diaphragm is most common. Later on, it bursts into the surrounding organs such as lung, stomach, colon etc., or on the surface through the chest wall in case of the abscess of the right lobe or in the epigastrium in the case of left lobe abscess.

The abscess cavity contains odourless, chocolate-coloured pus —anchory sauce—without any limiting membrane. The abscess is sterile and contains no true pus. Its wall is rugged in which vegetative forms of Ent. histolytica are found but not in the pus itself. Fibrous bands are found in the cavity of the abscess which are not yet destroyed by the cytolysin of Ent. histolytica. With treatment the amœbæ are destroyed and the necrotic material is absorbed and encapsulated or calcified.

The abscess may be secondarily infected through blood, bile duct or from direct extension from the neighbouring organ, so there is some justification of injecting Penicillin with Emetine, as the secondarily infected abscess proves often dangerous. The secondarily infected pus gives a foul smell.

SYMPTOMATOLOGY :—4 stages of infection—

(1) Amœbic hepatitis—stage of local reaction.
(2) Stage of miliary abscesses.
(3) Tropical liver abscess.
(4) Secondary infected tropical liver abscess.

(1) *Amœbic hepatitis* :—There is some heaviness or discomfort in the right hypochondriac region with malaise or slow fever.

On examination :-The liver is enlarged and tender. W.B.C. : 10,000. It improves rapidly with daily injection of Emetine Hydrochloride gr. i. I.M. for six days and with the relief of hepatic congestion by moving the bowel with Calomel and Sodi Sulph mixture and application of Cataplasma Kaolin over the hepatic area.

(2) *Miliary amoebic abscesses in the liver* :—There is temperature of a hectic character with sweat and sometimes with rigor but there may be no temperature or very little temperature. Definite pain is complained of in the liver area and sometimes referred pain in the right shoulder. The liver is enlarged and very tender W.B.C. is 15 to 18,000.

This stage is completely cured by daily injection of Emetine Hydrochlor gr. i I. M. for 6 to 9 days with application of Kataplasma Kaolin over the hepatic area and moving the bowel by Calomel and Na-Sulph mixture ; thereby the congestion of liver is relieved.

(3) *Tropical liver abscess* :—Temperature is fairly constant of hectic type with rigor and sweating. Stabbing pain is felt in the liver area and sometimes referred pain in the right shoulder. The enlargement of liver is conspicuous ; in case of right lobe abscess of the lower border, the swelling is definitely felt below the right costal margin ; in case of the right upper lobe, the hepatic dullness of the

upper border of the liver is pushed upward ; in the case of left lobe abscess—a definite mass protrudes through the epigastrium. There may be some œdema of the skin over the ribs. The liver area is hot and red. The patient's complexion becomes muddy coloured and emaciated. W.B.C. : 20,000 or more. There is basal congestion or consolidation of right lung.

TREATMENT.—(1) Rest ; (2) light diet—milk, fruit juice etc. ; (3) application of Cataplasma Kaolin : (4) irritating cough relieved by Dover's Powder ; (5) bowels opened by Calomel and Mag. Sulph. ; (6) sleep induced by Bromide ; (7) improving the vitality by injection of glucose, vitamin C and vitamin K ; (8) specific treatment :— Daily injection of Emetine Hydrochlor gr. i I.M. for 9 days and rest for 3 days and again 3 injections more ; and (9) aspiration of pus by Potain aspirator or 10–20 c.c. all glass syringe fitted with lumbar puncture needle under strict aseptic method.

The puncture should be made where the abscess bulges out or in the 8th intercostal space in the anterior axillary line in the upward, forward and inward direction. If no pus is available at the first puncture, 3 or 4 punctures may be made in different directions, preferably under local anæsthesia. On no account, the needle should be inserted more than 3½ inches in view of injuring the neighbouring organs.

CASE I.—A young boy of 18 years was suffering from remittent fever of 103°—104°F with sweating and extreme cachexia, and coughing out blood for about a month. It was diagnosed by a local doctor as P.T. On examination it revealed that the liver is enlarged and very tender. The expectorated pus neither revealed Ent. histolytica nor A.F.B. Stool examination showed Ent. histolytica cyst. W.B.C. : 30,000 ; Poly. : 68%. With Emetine, Glucose, vitamins and cholagogue mixture the patient made an uneventful recovery.

CASE II.—A man, 30 years, came with a big fluctuating mass protruding from the epigastrium continuous with liver dullness and moving with respiration. He had no temperature. The mass was tender, and the skin over it was œdematous. There was no history of previous attack of dysentery, and of taking alcohol.

Stool examination :—Ent. hystolytica cyst present. W.B.C. : 20,000, Poly. : 65%. Repeated aspiration with 15 daily Emetine injections at an interval of 7 days after 9 daily injections, Antiphlogistine application, cholagogue mixture with Glucose, vitamin C and K made complete recovery.

Secondarily infected tropical abscess :—The patient becomes more toxic, temperature rises more, W.B.C. increases.

Treatment as tropical liver abscess with Penicillin G, 3 lacs units in oil and wax every 24 hours till the condition improved. Generally 2—4 injections required.

Coagulation Time of Blood in Cholera*

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In a previous report the author (1935) discussed the coagulation time of blood in cholera patients. In that study he found that coagulation time was shortened (2 minutes or less) in 70 % of the cases in the earlier part of the epidemic (in that particular epidemic), when the mortality rate was also high. With the decline of the epedemic which synchronised with the fall in the mortality rate there was a marked fall in the percentage of cases having their coagulation time 2 minutes or less, though the percentage of cases with high specific gravity of blood was almost the same in the earlier and later part of the period of observation. Though in most of the cases the coagulability of blood roughly followed a parallel course to its specific gravity, in many cases it was found more literally to follow the general condition of the patient than the specific gravity of blood. The shortening of the coagulation time of blood in the cases studied was found to be independent of its raised specific gravity, *i.e.*, independent of dehydration, though both might have been caused by the same agent. Normal coagulation time was studied in 50 healthy persons consisting of senior medical students, nurses and house physicians and was found to vary between 3 to 5 minutes. In no case was it less than 3 minutes. In the present series (summer epidemic in 1947) coagulation time of blood was studied in 170 cases. Technique adopted has been to draw the blood in a capillary glass tube from the fingerprick and to study it at the bedside in room temperature (Calcutta summer). In the cases studied, coagulation time of 3 minutes or above, on admission, was found in only 10 cases (5·9%) of whom one case ended fatally and his coagulation time came down to 2 minutes 10 seconds. Out of the 26 fatal cases studied, all had their coagulation time less than 3 minutes, 20 cases (76·9%) had it less than 2 minutes 30 seconds and 15 cases (57·7%) had it less than 2 minutes. Other findings of the previous study were confirmed in this series. A few cases may be cited to show that coagulation time of blood in cholera does not always run parallel to its specific gravity.

Serial No.	On admission		2nd examination		3rd examination		Result
	Sp. gr.	Coag. time	Sp. gr.	Coag. time	Sp. gr.	Coag. time	
70	1056	1 min. 15 sec.	—	—	—	—	Fatal
73	1062	1 min. 20 sec.	1056	1 min. 20 sec.	1056	2 min. 45 sec.	Cured
102	1060	2 min.	1057	1 min. 45 sec.	—	—	Fatal
164	1065	1 min. 25 sec.	1057	1 min. 40 sec.	1056	2 min. 45 sec.	Cured
162	1060	2 min.	1056	1 min. 55 sec.	—	—	Fatal
163	1064	1 min. 45 sec.	1056	2 min. 10 sec.	—	—	Fatal

* Specially contributed to THE ANTISEPTIC.

Coagulation time of blood is shortened in many cholera cases. In the cases where it is shortened though it roughly follows a parallel course to the specific gravity of blood, in many cases it was found more literally to follow the general condition of the patient than the specific gravity of blood.

The shortening of the coagulation time of blood in the cases studied was found to be independent of its raised specific gravity, *i.e.* independent of dehydration.

Death rate was higher in cases with shortened coagulation time of blood.

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Diabetic Coma, Treatment with and without early Glucose Administration

In a very important and interesting article on the above subject, Leo, Nardoo and Torrens of the West Middlesex Hospital record certain very valuable findings based on their large and varied experience in that Hospital of 1670 beds. Whether or not glucose should be administered in diabetic coma has been the subject of much discussion. Root and his collaborators in America hold that harmful results—anuria and even death may occur as a result of glucose administration either by mouth or by needle. Hamsworth, Bertram Lawrence and others consider glucose to be an essential therapeutic agent in diabetic coma. The consistent high mortality for cases of diabetic coma, in England, due to circulatory failure and intractable dehydration led these authors to reconsider the question in the light of the controversy. 28 cases of true diabetic coma admitted to their hospital between September 1944 and March 1948 were studied. Ten cases admitted between 1944 and January 1946 were given glucose throughout the 24 hours of treatment, whereas 18 cases admitted after Feb. 1946 had no glucose until the blood-sugar had reached normal levels or alternatively until the patient was able to sit up and drink the glucose without help.

The administration of glucose in the first four hours of treatment, by maintaining a heightened blood-sugar serves to increase water excretion, to worsen the state of cellular dehydration and to add to the circulatory collapse and shock. In 4 cases where the clinical state of the patient was poor death ensued.

The results of the study of this and the later (second) group of 18 cases showed that glucose should not be administered in the early stages of the treatment of diabetic coma. The withholding of the glucose for at least 4 to 6 hours to begin with, ensures rapid rehydration and decreases the mortality significantly in serious cases of coma with circulatory collapse—only 2 died in this second group of 18 cases (11 %) as against 4 in the first group of 10 cases (40 %).— (*Br. Med. Jour.*, 2-4-'49.)

—T.N.S.R.

Laboratory Diagnosis in Clinical Medicine

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(Continued from page 758 of Oct. '49 issue).

The Fæces

Occult blood :—Before performing such a test it is necessary to put the patient on a blood-free diet for 48 hours.

Required :—1. Benzidine.

2. Sodium Perborate. It is convenient to use the tablets, which can now be bought, containing 0·1 gram of each.

3. Glacial acetic acid.

Procedure :—Grind one of the tablets and dissolve in a mixture of 5 c.c. of Glacial acetic acid and 5 c.c. of water. Filter. Place 2 drops of the filtrate on a clean slide. To one of the drops add a platinum loop of the material to be tested, if it is fluid, or of the material rubbed up with a little saline, if it is dry. If blood is present a green colour appears in this drop in less than 1 minute, the time of appearance depending on the amount present. The second drop serves as a control.

This test for blood may be applied to other materials :—Urine ; test meals ; and suspected blood stains.

If Sodium Perborate is not available, the following method is useful :—Boil approximately 2 grams of fæces with 10 c.c. of distilled water in a 6 inch x 1 inch test-tube. In a similar test tube place a knife-point of Benzidine and 2 c.c. of Glacial acetic acid to make a saturated solution, add 2 c.c. of 10 volumes of hydrogen peroxide solution and shake well. Add the cooled fæcal solution drop by drop to the Benzidine solution, a green or blue colour indicates a positive test for occult blood.

Ova :—Make a thick emulsion of fæces with a concentrated solution of Sodium Chloride. Fill a straight, flat-bottomed tube, such as a sputum tube, to the top with the emulsion. Rest a slide on the top for five minutes. Gently remove the slide and cover with a glass the emulsion adhering to the slide. Examine with a 3/8 inch and 1/6 inch objective.

Zinc sulphate centrifugal flotation method.—A fæcal suspension is made by mixing 1 part of specimen with 5 parts of tap water. About 3 c.c. is strained through 2 layers of damp gauze into a 3" x ½ inch tube. Water is added to fill the tube. Centrifuge for 40–60 seconds at 1,500 r.p.m. and discard the supernatant. To the deposit add 4 c.c. of Zinc Sulphate solution of S. G. 1180 and break up sediment thoroughly. Then add sufficient Zinc Sulphate solution

to fill the tube to within ½ inch of brim and centrifuge again. Add carefully further drops of solution till the fluid level rises a little above the brim. Remove the surface film by direct application of cover glass. This method isolates and concentrates protozoan cysts and helminthic ova and larvæ.

Hæmoglobin estimation

Sahli's method.—20 c.mm. of blood are added to N/10 HCl to form acid hæmatin, this is compared with a standard solution of the same substance. The colour in Sahli's method develops slowly and tubes should be left at room temperature for at least 30 minutes before reading. The original Sahli standard corresponds to 17·3 grams of hæmoglobin per 100 ml. of blood.

The estimation of the number of red blood cells

The apparatus consists of a combined pipette and mixing chamber, a diluting fluid, and a hæmocytometer. The diluting fluid commonly employed is that of Toison, and has the following composition :—

Methyl violet	..	0·25 grams.
Neutral glycerine	..	30·0 c.c.
Distilled water	..	80·0 c.c.
Add to this a solution of—		
Sodium Chloride	..	1 gram.
Sodium Sulphate (crystal)	..	8 grams.
Distlled water	..	80 c.c.

Filter the mixture

To make the dilution draw up the blood in the pipette to the mark 0·5. Wipe the end of the pipette. Place the pipette in a bottle of the diluting fluid and draw up the fluid to the mark 101. Rotate the tube vigorously until blood and fluid are thoroughly mixed in the bulb of the pipette. The blood in the mixing bulb is now in a dilution of 1 in 200. Blow out the fluid in the capillary part of the pipette, also a few drops of the diluted fluid in the bulb, transfer a drop to the platform of the counting chamber. The ruled area of the central disc is marked off into 16 large squares. As a minimum all the red cells in 4 large squares, each consisting of 16 small squares, are counted. The average number of red cells per large square in health is about 110.

In order to calculate the number of red cells to the cubic millimetre, it should be remembered that dimensions of a small square are 1/4000 of a cubic millimetre and that the blood has been diluted 200 times. The number of red cells to the cubic millimetre will therefore be, 4,000 x 200 x the average number of red cells per small square. If 400 red cells are counted in 4 large squares containing 64 small squares the number of red cells to the cubic millimetre of undiluted blood would be 4000 x 200 x 400 64 or 5,000,000.

The estimation of the number of white cells

The Thoma-Zeiss method.—The apparatus required consists of a special pipette, a diluting fluid and a hæmocytometer. The diluting

fluid consists of a 0·5 per cent solution of acetic acid in distilled water with sufficient Methyl green added to give the fluid a distinct green colour. The diluent dissolves the red blood cells and the methyl green stains the nuclei of the leucocytes. The blood is drawn up to the 0·5 mark on the pipette and the diluting fluid to the mark 11. The pipette is manipulated as described under the enumeration of the red cells and the mixture is put up on the hæmocytometer slide in the same manner. The dilution of the blood is 1 in 20. All the leucocytes in the entire set of 16 large squares are counted. To calculate the number of leucocytes per c.mm. of undiluted blood multiply the average number of leucocytes per small square (*i.e.*, the total number of leucocytes counted in the 16 large squares divided by 256) by 20 times 4,000. The average number of leucocytes counted in the entire set of squares in only about 20, and the possible error is considerable.

Gentian-violet acetic acid method.—In this method the red cells are lysed by 3 per cent acetic acid and the remaining white cells counted on a Neubauer chamber. The solution required is made up in 100 c.c. quantities, 1 c.c. of 1 per cent Gentian-violet being added to 99 c.c. of 3 per cent acetic acid ; 380 c.mm. of this solution is placed in a small test-tube or mixing bottle and 20 c.mm. of blood added. The solution is run under the cover-slip of the counting chamber and four large squares are counted.

If x is the number of leucocytes counted, then the number of leucocytes per c.mm. is $\frac{x \times 10 \times 20}{4} = \text{or } x \times 50.$

The most useful ruling for a hæmocytometer is that of Neubauer. The central heavily ruled square is the equivalent of the Thoma ruling, and is used for counting the red cells. The single ruled squares at the corners are each 0·1 mm. deep and 1·0 mm. square and can be used for counting the cells of a spinal fluid or the white cells of the blood. For leucocyte counts the blood is taken into the Thoma diluting pipette, and the white cells in all the 4 large single ruled corner squares are counted. Each corner square has a capacity of 1/10 c.mm. so that with a dilution of blood of 1 in 20, the calculation is :

Number of cells counted $\times \frac{10 \times 20}{4} = \text{or } 50.$

Leishman's stain :—This stain can be bought in tabloid form or in solution ready for use, but it is advisable to buy the stain and the alcohol separately and to make up in the following manner.

To 0·2 gram of the stain in a well-stoppered bottle add 100 c.c. of pure Methyl alcohol. Shake well and stand for one week (preferably in the incubator at 37°C) shaking night and morning. The stain goes into complete solution, and, kept in a dark cupboard, it improves with time and will keep indefinitely in ordinary

climates. It is essential that all bottles and measuring glasses used in the preparation of the solution should be chemically clean.

To stain the blood film with Leishman's stain :—Cover the film well all over with the stain and leave for 30 seconds. Add about twice the volume of distilled water to the stain. Mix stain and water with a glass pipette until an iridescent scum forms over the surface and leave for 7 minutes.

Pour off the stain and cover the film with distilled water, only for 2 minutes.

Wash off the water with fresh distilled water, wipe clean the back of the slide, and gently blot the film dry with clean blotting paper.

Sedimentation Rate

Required :—Tubes about 0·3 c.mm. in internal diameter and 10 c.mm. long, graduated in millimetres (Wintrobe's tubes).

Procedure :—Collect the blood over Potassium Oxalate in the usual way. Suck the blood up into a pipette, the end of which has been drawn out in a long capillary. Push the tip of the pipette to the bottom of a Wintrobe's tube and expel the blood, filling the tube exactly to the top of the graduations and carefully avoiding the introduction of air bubbles. Observe, at intervals during the course of an hour, the height of the column of plasma left clear by the sinking of the red corpuscles.

The rate of sedimentation is increased when the number of corpuscles is reduced.

Another type of tube used in estimating the sedimentation rate was devised by Westergren. It is 200 mm. in length with a diameter of 2·5 mm. 3·8 per cent Sodium Citrate is used as an anticoagulant and 0·5 c.c. of this is used for 2 c.c. of blood. The mixture is drawn up into the Westergren tube, the red cells are allowed to settle over a period of one hour, precautions being taken that the tube is held vertically. Normally in men the red cell level will have dropped 3 to 5 mm. and in women 4 to 7 mm.

The rate of sedimentation is increased when the number of corpuscles is reduced, in cases where the hæmatocrit reading is less than normal it is necessary therefore to correct the sedimentation rate.

Serological tests for kala-azar.—*Formol-gel or aldehyde reaction* : —The reaction may be negative in early cases of kala-azar and the strength of the reaction diminishes progressively during convalescence.

To 1 c.c. of Serum are added 2 drops of commercial Formalin, the serum is coagulated within 30 minutes if the reaction is strongly positive and within 4 hours if weakly positive. Partial solidification may occur in some cases of tuberculosis, leprosy, syphilis and heavy malarial infections, but the serum does not usually become opaque.

Antimony test.—Add two drops of the serum to 2 c.c. of a 1 per cent solution of Urea Stibamine or other pentavalent antimony compound. Within 15 minutes a heavy flocculent precipitate occurs in positive cases. The test may be made more sensitive by layering the serum over the antimony solution.

Colloidal gold test (Lange).—*Principle* :—Under certain conditions, the addition of Sodium Chloride solution (an electrolyte) to a colloidal solution of Gold Chloride causes a precipitation of the Gold Chloride, with characteristic changes in the colour of the solution. The colloids in normal cerebro-spinal fluid exert a protective action on the colloidal Gold Chloride which prevents this precipitation. In many pathological conditions the cerebrospinal fluid loses this protective action, and precipitation occurs.

In early cases of tabes and general paresis, the colloidal gold test may be positive when all other tests are negative.

Required : (1) *Special distilled water* :—This is most conveniently made from tap water to which a knife point of Potassium Permanganate has been added. This is distilled, using a distilling flask and condenser without rubber stoppers or connections. The first portion of the distillate should be rejected.

(2) *Colloidal gold solution* :—To about 230 c.c. of special distilled water in an Erlenmeyer flask add 2 c.c. of a 1 per cent solution of Gold Chloride. (The double salt, $AuCl_3NaCl$, $2H_2O$). Heat to 90°–95°C and, without removing the flame, add 2 c.c. of a 5 per cent solution of Sodium Citrate ($2Na_3C_6H_5O_7+11H_2O$). Continue heating ; a bluish-red colour appears. Continue heating until the colour is clear red without a trace of blue. Cool and make the volume up to 400 c.c. with special distilled water.

(3) 0·4 per cent Sodium Chloride made with special distilled water.

All glass-wares must be cleaned by soaking in Sulphuric acid-bichromate mixture, and washed out with tap-water .followed by special distilled water.

Procedure :—Arrange ten test tubes in a rack, add 0·9 c.c. of the Sodium Chloride solution to the first tube and 0·5 c.c. each to the other nine tubes. Add 0·1 c.c. of the spinal fluid to the first tube and mix. Remove 0·5 c.c. of the diluted cerebrospinal fluid to the 2nd and mix. Repeat this procedure and prepare double dilutions of the cerebro-spinal fluid, discard the 0·5 c.c. from the last tube of the series. Add 2·5 c.c. of the colloidal gold to each tube. Mix and leave on the bench over-night.

Complete precipitation with a colourless supernatant fluid is reported as 5, a greyish blue fluid as 4, a blue fluid as 3, reddish blue as 2, bluish-red as 1, and unchanged as 0.

In general paresis complete precipitation (5) is found in the earlier tubes ; in tabes changes up to 4 or 5, with the maximum usually about the fourth tube ; in disseminated sclerosis changes up to 3 or 4, and a maximum about the fifth tube. In tuberculous and acute forms of meningitis the maximum changes (2 to 3) occur in the higher tubes. Normal fluids may change to 1 or even 2, usually about tube 8.

Liver function test.—Many tests of liver function have been produced. None are satisfactory, the Bromsulphalein Dye excretion test is relatively simple and as good as any. Neither this nor any other excretion test is of any significance in cases with obstructive jaundice.

Procedure :—1. Weigh the patient, and calculate the number of c.c. required to furnish a dose of 5 mgm. per kilogram.

2. Inject this quantity, undiluted into a vein slowly (one minute), and carefully to avoid leakage.

3. At precise intervals of 5 minutes, 30 minutes, and 60 minutes withdraw 5 c.c. of blood from the opposite arm vein, taking the usual precautions to prevent hæmolysis. The 30 minutes specimen is the significant one, and the others may be omitted in ordinary routine tests.

4. Put about 1 c.c. of clear serum in each of two comparator tubes. To one add 1 or 2 crops of 10 per cent NaoH to secure maximum depth of colour, and to the other 1 drop of 5 per cent HCl.

5. Read at once in the comparator, backing the standard tube with the tube containing acidified serum, and the alkalinized serum tube with a tube of water.

Standard solutions may be prepared (in advance) by adding 4 mgms. of the dye (0·08 c.c. of the 5 per cent solution) to 100 c.c. of water which has been alkalinized with 0·25 c.c. of 10 per cent NaoH. From this solution, which corresponds to 100 per cent, make progressive dilutions with similarly alkalinized water (80, 70, 60, 50, 40, 30, 20, 15, 10, 5 per cent). Readings must be made promptly after the serum has been alkalinized, as clouding may occur after a few minutes and spoil the readings.

Interpretations.—The normal reading 5 minutes after injection is from 20% to 50 per cent (average 35%). After 30 minutes, all the dye has apparently disappeared. The presence of 10 per cent or more of the dye 30 minutes after the injection indicates definite impairment of function. In cases of grave liver injury considerable amounts may persist for several hours.

The test is not a sensitive indication of milder degrees of liver injury. Positive evidence of impairment has been obtained in about 60 per cent cases of proved liver disease particularly in cirrhosis.

(To be continued)

Modern Conceptions of Sex-Pathology*

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THE general practitioner has got a very meagre knowledge of sex-life and its disorders. So when he is confronted with such a patient, without correct diagnosis he dismisses the patient with some insignificant useless prescription with ridicule. Being attracted by advertisements of quacks, he turns to them who exploit the patient for their vested interests. Just like other subjects of medical study, sexual pathology should be studied scientifically. First principle of sex education is that there is nothing inherently obscene, disgusting, in sex manifestations and its disorders. Seeds of sexual neurosis are sown by parents. Only when healthy upbringing becomes the rule, the number of sex-neurotics will fall. Conspiracy of silence about sex-affairs should be broken and information imparted. Sex is closely woven in the fibres of our lives and so it is inseparable. Child's desire to know where babies come from is just like the desire to know where Sun has gone when it drops down below the horizon. All these should be replied readily and simply. Once the curiosity about the world new to child is satisfied, the subject is dropped. At home parents should satisfy the natural curiosity while teachers should supplement it with elementary knowledge of biology in school. At puberty, children need sympathetic medical advice on noctrunal emissions, menses, masturbation etc, tactfully and frankly without removing modesty. Sexual taboos and religion injure his or her outlook on life and healthy attitude to sex. All decent associations with opposite sex are allowed, but the girl should learn to resent the first sign of indecency by males. By their behaviour in this regard she should estimate the character of her male friends. It is easy and best to stop at first sign of too much familiarity and he will take hint from this. For youth's mental health and welfare, as years go by, parents should learn to retire more and more in the back ground. One cannot live by the ideals of others.

Essentials of happy marriage :—(1) Right choice of marriage partner in selection ; (2) good psychological attitude of both partners to the world in general and to each other ; (3) solution of problem of parentage which meets the wishes of both ; (4) vigorous and harmonious sex-life ; (5) no family rows, quarrels and criticisms ; (6) both may have some defects and should not expect ideal heavenly bliss described in novels ; (7) beyond love, the religious sense of sincerity and duty to the partner is needed ; (8) marriage means voluminous sacrifice of personal independence, freedom and desire, to the partner ; and (9) transformation of married love into natural love.

Choice of partner and marriage fitness :—Thorough medical examination of partners should be made under guise of insurance

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examination by doctors of opposite party for, (1) potent to consummate marriage; (2) fertile to procreate healthy children ; (3) venereally healthy ; (4) constitutionally healthy ; (5) normal knowledge of sex-life. Mutual interchange of views and feelings for marital relations with children should be arranged. Do not declare any candidate unfit absolutely but give chance of medical treatment and educational facilities.

1. *Biological fitness* :—Inbreeding itself is not bad ; but from bad stock it is risky for recession of bad traits, and diseases are intensified and degeneration of germ plasm of species occur without fresh outside mutations. Town dwellers favour sportive active girls while countrymen like robust girls. Choice is more affected by mental qualities than physique. Woman weighs highly personal cleanliness and well groomed look than beauty. She admires physical or mental strength, alertness and prestige of man. Little women are equal to all sex demands and so men of slight-build are perfect adepts in the art of love.

(a) Great enthusiasm for masculine profession should doubt intersexuality and is unfit for marriage.

(b) Genital infantilism is commonest in women and cured by coitus and pregnancy.

(c) T.B :—T.B. patient is unfit for marriage and so such girls should not marry. T.B. wife should not get pregnant and should use contraceptives. T.B. testis results in sterility and impotency and infects the opposite partner. T.B. female genitals destroys tubes ovaries and uterus with cyst formations.

(d) Cardiovascular diseases :—As in sports so in marriage, the doctor should exclude persons with imperfect heart as unfit. Greatest strain falls to man in coitus but its results are far greater for her. Her whole body is at service of procreation. Great demands are made on her body, specially heart and kidneys in pregnancy and parturition. In coitus emotional strain causes in male rise of B.P., heart failure, embolism, cerebral hæmorrhage and sometimes death after coitus.

(e) Chronic renal diseases have reciprocal effect on heart—chronic renal failure causes impotency and sterility.

(f) Metabolic diseases :—Diabetes leads to sterility and impotency.

(g) Venereal diseases are of triple importance :—*(i)* sterility ; *(ii)* danger of infecting partner ; and *(iii)* hereditary transmission. Gonorrhœa causes sterility in both and causes fatal deaths with degenerate issues.

(g) Local genital malformations, hernia, hydrocele, phimosis, marked infantilism, with disproportion of genitals, adhesions and displacements cause dispareunia.

(*h*) Nervous diseases, psychosis, epilepsy, spinal cord injuries are unfit.

2. *Psychical fitness* :—Temperaments of both must be compatible so that the feminine surplus in man is compensated by masculine surplus in woman. All sexual processes in woman are associated with injuries or vulnerability—menses, first coitus, pregnancy and parturition. Unsexual friendly relations apart from erotic ties need certain similarity in mental culture and education. Differences in religious views break up marriage, facts of realities are stronger than ecstasy of love, sentiment is stronger than reason. Too great demands on one partner endanger happiness. Greater the age difference in marriage more dangers are for marriage. Everybody tries for power over all others in every sphere, same is in marriage. Inferiority complex in man is unfit for marriage. Infidelity is unfit. Illegitimate relations with prostitutes before marriage is unfit psychically and venereally, as feeling for feminine modesty is killed. Coitus of betrothed before marriage leads away from high conception of marriage. Morbid jealousy is unfit. Sex-perversions of libido-homosexual etc. are unfit. Fashion favours infantilism as—boyish men and girlish women. Drug addiction is unfit for it provokes desire but takes away performance. Co-education is unfit for marriage. Woman with calm and balanced temper is unfit for man with stimulation and dramatic performances so impulsive in nature.

3. *Social fitness* :—Avoid defective families with histories and signs of hereditary diseases and congenital malformations, insanities, criminals, degenerating families with tragedies of doom. Avoid inter-racial marriage. Unemployed man is unfit for professional woman as he must not be dependent on wife financially. Marriage with rich man's daughter is bound to be a failure if she is ahead materially. Do not undervalue with low appreciation for partner's work. Joint work is favourable—Doctor's wife as lady doctor or nurse, businessman's wife as secretary. Financial worries and miseries cause hostility. Differences of attitude to life, work and pleasures lead to hostility. Some professions demand great sacrifices from husband and also from wife *e.g.* doctor's life.

I. Sexual perversions of libido.—Evolution of libido or sex-instinct (normal) :—1. Infancy : 1—5 years.

(*a*) Autocratic stage— {—Oral / —Anal sadistic

(*b*) Infantile genital stage—Phallic castration complex.

2. Childhood : 6—10 years—Repression or latency period of infantile amnesia and incestuous stage— {—Edipus complex / —Electra complex

3. Pubescence : 10—12 years. Narcissistic stage of self-reaction formation, so shame, modesty and disgust.

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4. Puberty : 12—16 years. Homosexual stage—masturbation and hero worship.

5. Adolescence : 16—20 years. Bisexual stage.

6. Maturity : 21 years onwards. Heterosexual stage.

Development and progress of this hypothetical stream of libido is not always smooth but is liable to fixations at various levels ; if repressed and dammed back, it flows backwards at infantile levels or finds new channels in neurotic symptoms or sublimation into artistic erration work. Edipus-complex is most important in psychoanalysis and main thing in unconscious. Every adult problem of sexuality and marriage can be solved by this.

1. Erotic-symbolism is a type conditioned reflex and overcomes inhibitions hindering free expression of particular feelings and ideas. Erotic symbolism is of three types :—

(*a*) Parts of body (fetishisms)—hands, foot, animals, child and dead bodies attraction.

(*b*) Inanimate objects (fetishisms)— —Garments / —Impersonal objects

(*c*) Acts and attitudes— —Active cruelty (masochism) / —Mutilation, Exhibitionism / —Trebadism, Triolism / —Bastility, Zoophilies, Voyeurism / —Passive cruelty - suffering with Sadism / —Eonism

Eonism—desire to assume dress of opposite sex. Sadism is just opposite to masochism. Human beings are bisexual.

Hermaphrodism— Genital— —Gonadal / —Ext. genitals ; Somatic—Secondary sex-characters ; Psychosexual (Homosexual)

2. Homosexuality means mutual masturbation with same sex *i.e.*, in male sodomy, feminine man and masculine woman. Between masculine man and feminine woman lies whole range of intersexual stages with hermaphrodite in centre and towards extremities feminine man and masculine woman. Everybody passes through this stage of modesty and negativism for opposite sex. Very few reach maturity without having their genitals fondled by their friends at this stage. This stage is present in animals. Asexual attraction of this stage is hero worship and friendship. To counteract this protect childhood from seduction and stimulate virile upbringing, good opposite sex-friendship, socio-religious influence. This tendency is found in famous persons as monarchs, statesmen, artists and scholars.

3. Masturbation means all methods of producing pleasurable sex sensations by stimulation of erotogenic zones specially genitals without co-operation of other person. This is universal at puberty and stimulates gonadal hormone for physical and mental growth. This is present in animals. Fear, guilt-sense and moral

reproaches associated with it are more harmful leading to fatigue neurosis, nervous tension and breakdown with mental conflicts. In infants it is due to perineal irritation, phimosis, worms, vulvitis etc. Bashful rundown, solitary dream and anæmic child complaining of headaches, loss of memory psychoneurotic symptom, suspect this habit. In adult it is due to prostatic irritation. Patient is shy and complains of tremors and weakness in legs. Treatment is by massage, Silver Nitrate instillation and sedatives.

II. Disorders of coitus.—Physiology of coitus—theory of sex impulse (Moll). It is complex reflex action. (1) Local genital impulse of tumescence and detumescence; (2) general impulse to contactation or desire for physical and psychic contact with opposite sex. So events of coitus are courtship; prelude; libido; all leading to tumescence erection and orgasm ejaculation or detumescence and epilogue. Nervous mechanism of coitus: Psychic impulses of love play and various physical sensations-touch, sight, hearing—caressing and sensuous ideas from cerebrum, impulses from distended vesicles are sent to erection centre in spinal cord to be filled. Impulses from genitals contact and friction maintains erection *via* dilator nerves. When erection centre in lumbar spinal cord is fully saturated and completely filled up by holding back till this proper time, it sends out impulses to ejaculation centres E_1, and E_2 and ejaculation occurs and nervous tension relieved and relaxation occurs.

All these above events of coitus means sexual potency to perform coitus. Diseases are— {—Impotency in male {—Frigidity in female

Impotency means inability to perform sex act due to lack of erection. In true impotency patient has normal sexual desire but unable to do coitus. Absence of sex desire is frigidity not common in males. Excessive sex desire— {—Satyriasis in male {—Nymphomania in female

Impotency— {—Psychic {—Organic diseases {—Exhaustion or functional— {—Excessive coitus {—Due to coitus interruptus

Psychic impotency— {—Misdirected libido {—Inhibited libido

Stages of development of impotency are :—(*a*) Hyperirritability and premature ejaculation; (*b*) short-lived erection and ejaculation; (*c*) no erection; and (*d*) spermatorrhea at the sight and thought of woman without erection. Organic causes are: diseases of central nervous system, canda equine and sacral plexus, spinal cord injuries, tabes, diabetes, drug addiction—opium, arsenic cocaine, local genital malformations and diseases—elephantiasis, hernia and hydrocele.

Psychic impotency causes :—This commonest type of impotency is due to anxiety or fear neurosis of venereal diseases, pregnancy, being caught in the act, disgust of partner, fear of impotency

due to masturbation. This is due to inhibited libido. In misdirected libido his love is directed to other woman or sublimated.

Functional or exhaustion impotency— {—Disorder of erection and ejaculation. {—Disorders of orgasm

Here sex-apparatus is normal structurally but coitus is disturbed due to interference from nervous sex-centres. Endoscopy reveals congestion and erosion of post-urethra due to chronic congestion of parts by excessive coitus and coitus interruptus. So hyperaemic erection centre is constantly bombarded. Erection and orgasm occur at once before penis enters vagina or erection and insertion normal but late or no ejaculation. Finally libido present but no erection and orgasm nor ejaculation. So irritation of sex centre leads to paralysis of centre. This is disorder of erection and ejaculation. In impotency of disorder of orgasm sex function appears late and is short-lived. They have no masturbation nor-pollution and so easy continence, so congenital lack of sex desire. Premature ejaculation and impotency are unfit for marriage. Premature ejaculation causes dissatisfied coitus leading to inconsiderate husband and unsatisfied wife, the common domestic tragedy. Repeated failures lead woman to nervous breakdown or drive them into arms of others. Normal pollution or nocturnal emission occurs once or twice a week with erotic dreams and erection. Diurnal pollutions are pathological. Pollutions are due to erotic reading, full bladder and rectum, prostatitis, masturbation, cycling, riding. Defecation and urinary spermatorrhea yield to sedatives. Involuntary seminal emission without coitus is called pollution or emission. Treatment of impotency by sexual rest local and mental with sedatives for six months. Then give stimulants—Strychinine, Yohimbine, Testosterone.

Frigidity or sexual anaesthesia means lack of sexual desire. It is common before puberty and in old age. It is normal in modestly reared girl upto and some time after marriage—after many coituses. In maiden sex desire is lying dormant ready to be awakened by the kiss of the lover. The girl has to be kissed into woman. It is due to disproportion of genitals, impotence in male, lacerations of child-birth causing roomy vagina, masturbation. Masturbation needs more than ordinary coital stimulation and psychic imagery as sex centres are dulled. In love, woman is the harp who only yields her secrets of melody to the master who knows how to handle her. Love ideal consists of (*a*) Infantile impressions and (*b*) identification of loved persons with one's own ego. Experiences of early home life moulds erotic taste. Art of love consists in keeping alive premarital idealisation of other's personality. Sex gratification is associated with highest sense of pleasure which enters so much into adolescent problems and is core of conflict between society and individual. Of all causes of failure in sex harmony commonest is not only ignorance but existence of wrong ideas. The woman who does not love, does not feel. There are few frigid women

who cannot be aroused by proper coitus technic. Frigidity is a protest against treatment by her husband or struggle between sexes for will to power or self protection against suppressed sex impulse or bond with unconscious object of love or self imposed penance due to guilt sense of bad conduct, infanticide, or implies unwanted child coming again.

III. Reflex-sexual neurosis.—For such troubles, neurologist and psychoanalyst should refer their refractory cases to urologist for examine of sex-apparatus for organic sex pathology. These sex organs through their hormones exert distinct effect on the person. In every psychic trouble rule out organic pathology. Reflex symptoms not suggestive of sex apparatus occur, so in nervous troubles, thorough *gynæcologic* examination with sex-history in female and complete genitourinary examination with sex-history in male is required. Compare two histories of sex-life of both and then interpret. Various types of aches and pains, nervous exhaustion, tremors of hands, palpitation occur. These are due to chronic congestion of post-urethral prostate, due to coitus withdrawal, masturbation etc. Reflex prostatic syndrome is due to hypertrophy or adenoma of prostate. Symptoms develop at age of 50—60 years, and patient becomes erotomaniac with abnormal uncontrollable sex-passion leading to indecent sex exposure with assault, urinary symptoms of frequency, precipitancy at late night, retention, hæmaturia cystitis, pyelitis, chronic nephritis and finally death from uremia. Congestion and other disorders of it cause marked sexual troubles ranging from impotence, pollution, masturbation, rape, sodomy and various reflex sexual neurosis. Gynecological neurosis—such patients are chronic invalids with ailing due reflexes from sex organs, leading to domestic unhappiness. Recurring pregnancies, labours, nursing and rearing of family in slender resources economically leads to her mental and physical breakdown. Disappointment of unhappily mated, barren, unsatisfied sexual or mother instinct, unmarried with no substitute and revenge of contraception are prices which *woman* has to pay. Hereditary nervous instability may show at puberty when conditions arise to test strength of machine that it is below par in power, slight abdominal—pelvic pathology—cervical erosion, displaced uterus or ovary, varicosity of broad ligament, cystic ovary, visceroptosis, slight prolapse, anæmia etc., are not enough to account for such symptoms. Sacral ache and coccydynia are due to organic pelvic pathology while lumbo-dorsal pain is functional. Female genital tract is controlled by endocrines, psychic factors and visceral nervous system. Nasal dysmenorrhea is due to congestion and swelling of genital spots in nose which are sensitive to probe and bleed at menses. By local anæsthetic if pain disappears temporarily, then it is cured dramatically by caustics.

Venereology, prostitution and continence:—Results of illicit coitus are venereology, abortion, virgin-mothers, illegitimate child,

prostitution, divorce and domestic infelicity. 8–10% of the population of the world suffer from venereal diseases. These cause physical, mental, moral and social degeneration of patient, leading to disruption of peace and happiness of family, degeneration of health, and physical progress of community. Venereology is responsible for 35% insanity, 40% mental defectives, 40–60% blindness, 50% sterility, 30-40% abortions and miscarriages, and high percentage of diseases of heart and vessels, and nervous system. Syphilis can produce disease in any part of the body. *Increase in prostitution* is due to the evolution of the marriage system as all are not able to marry for various reasons. It is immoral guardian of public morality. In ancient times, she patronised arts and learning. Artist sells his art, labourer his labour, so woman if she has not any marketable assets, she sells her sex. It is vice, born of poverty, greed, imbecility and perverted sexuality. 75% clients of prostitutes are married men as wife cannot compete with prostitute in responses and coquetry. In some sex urge is so weak or sublimation so complete that continence or celibacy imposes no hardships; while to others struggle to remain chaste strains them to confirmed masturbator and sex neurotic. Tossed between desire for satisfaction and fear of results one is subjected to constant strain. Such continence is no chastity. *There is no virtue in avoiding* eating though period of starvation in some conditions is good. For some men and women sexuality holds little interest; while for *others sex is the* axis on which their lives have turned the fly-wheel that has imparted momentum to the whole of their mechanics. Sex impulse has no relation to physique. Poorly developed man may be more potent than champion-wrestler. Due to modern socio-economic factors, young people cannot marry at an early age as he could fifty years ago. If he expects to live in fair comforts and to aim for his prospective children benefits of modern education he must defer his marriage till his income exceeds to that of his father when they married. (*a*) Illicit coitus equals to venereal disease; (*b*) modern girl refuses to marry man infected venereally; and (*c*) socio-economic conditions prevent early marriage. The doctor can only deal with the 1st item. Prevention of venereal diseases means suppression of prostitution which reduces chances of *infection but not the danger*. Disease is contracted from servant girl, chamber maid and so called sure things. If they go with *you*, they go with others, so one is not safe. The very fact that so called respectable married woman has connection with you proves that she is not respectable and brings her in line with other "sure things." Functions of testis like uterus and breasts may be suspended for a long time, yet capable of being roused into activity on stimulation. Unlike other organs they do not undergo disuse atrophy. Sex organs are meant for intermittent action. If one's upbringing and environment are pure, it is easier to remain continent. Once coitus is indulged in, it forms a habit. We enjoy

things we eat though body needs are far less. In the same way, people indulge in coitus for they enjoy it.

Sexual physical culture :—Just as artistry of love and coitus is a guide in erotic technic for husband, similarly physical culture keeps woman fit and able to share all pleasures with him. It is man's role to awaken her desire and pleasure, so it is her duty to preserve that vital flame in their relations. Sex appeal decreases while sex efficiency increases by culture.

Aims of physical culture :—(*a*) Sex efficiency and keeping up sex attraction and fitness and prevention of certain changes in genitals in advanced life ; (*b*) exercises for pelvic floor muscles ; (*c*) full use of Swedish exercises for pregnancy and puerperium. Pelvic-floor exercises promote circulation in pelvic organs and cures backache and menses disorders. Exercises are not suitable to all and every woman at any stage of life and health. Perivaginal exercises are unsuited to unmarried girls. Sudden leaping, jumping, wrenching, and violent slinging are not suited to women. No woman should take up sports, games, athletics without gynecological examination for chronic infection and displacements. There is loosening of joints at menses and pregnancy, so she is injured by lack of judgement in games and gymnastics. Excessive muscular development promotes narrow male pelvis, so athletic woman is not suited for maternity. After delivery vagina is like a limp sac, so vaginal muscles exercises intensify sex pleasure if used aptly as there are reflex involuntary contractions of vagina in orgasm. Abdominal pelvic exercises are important in parturition, specially Walcher's suspension, which increases ant.-post. diameter of upper border of inlet but reduces inter-ischial diameter of outlet. In Walcher's second flexed position, legs flexed on abdomen, so lower outlet diameter is expanded. Sitting increases lower pelvic outlet diameter. Singing is the best respiratory exercise. Pelvic rotation or machine exercises, pelvic spiral, pelvic swing, pelvic drop and pelvic lung exercises are good perineal and pelvic floor exercises. Dancing stimulates all these exercises and strengthens pelvic floor. If women in parturition are correctly bandaged from pelvis to thorax by 6 yards × 6″ elastic crape bandage for 6–8 weeks they recover virginal firmness. Genupectoral position is good for incarcerated retroverted gravid uterus. Best of all indirect methods for bust beauty is normal coitus after lactation.

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Sinor (Via Miyagam).

Medical Inspection and Educational Institutions*

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"The highest moral law is that we should unremittingly work for the good of mankind."—Mahatma Gandhi.

THE idea of yearly stock-taking of the health of the younger generation is an ideal conception. Among the students of to-day are the future generals, politicians, doctors, lawyers, engineers etc. of the country. Defects pointed out and remedied in early life, go a great way in building up a strong physique.

During the routine examination of the student, the doctor should make a general survey of the candidate to form an idea of his physical and mental attitude. This judgement along with the other details of physical examination could be used to advise the candidate in regard to the nature of vocation that would suit him best, specially in the case of military and police.

Coming to the examination proper, when one is examining students for some years, one is painfully impressed at the high incidence of physical defects and ailments requiring attention even in this age group. In the hustle and bustle of modern life and in the nightmare of examinations, the University student seems to find hardly any time to bestow on his health.

The medical advice given is of the nature of removal of septic tonsils, obstructive adenoids, operation for a bad phimosis, a small hydrocele, a bubonocele, a recurrent chronic appendicitis and in a solitary instance to the repair of a hare lip. These are but the oases in what may seem the dreary desert of a medical examination.

The student complains of a constant irritative cough causing even a phobia of pulmonary tuberculosis and it is pointed out to be due to a plug of wax in the ear. In another case it is one of chronic asthma which yields good dividends when a total and differential count for W.B.C. is done to recognise eosinophilia. Cases of dry bronchiectasis and chronic pneumonias with hæmoptysis—mistaken by the student for T.P.—are ruled out by modern diagnostic measures. Cases of hypothyroidism short of myxedema, toxic goitre, hearts crippled by rheumatism are diagnosed during the short but systematic medical examination. Anæmia due to malaria is common in a tropical country like ours and is sometimes due to ankylostomiasis.

Case.—A student of the I.U.C. complained of sleepless nights. A routine investigation was done, temperature 99°F to 99·6°F. Blood showed slight eosinophilia—which called for an examination of the fæces which showed ankylostoma infestation. The B.P. was also

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raised. The usual treatment for ankylostomiasis was given and the boy was able to sleep sound and consequently blood pressure also came down and soon all was well with him.

The incidence of errors of refraction and lack of dental cleanliness—malnutrition is high as seen by the figures given below, from the statistics for ten years of the medical inspection of the local Municipal College—which shows that the percentage incidence of malnutrition in later years is steadily on the increase, indicating that the acute shortage of food in the country is telling on the University student as well.

Disease and Percentage Incidence

YEAR	Vision	Malnutrition	Teeth	YEAR	Vision	Malnutrition	Teeth
1939–'40	21%	12·5%	17%	1944–'45	20%	16%	13·8%
1940–'41	20 ,,	16·5 ,,	12·5 ,,	1945–'46	22 ,,	18 ,,	16 ,,
1941–'42	26 ,,	14 ,,	15 ,,	1946–'47	23 ,,	18·4 ,,	18 ,,
1942–'43	23 ,,	11 ,,	16 ,,	1947–'48	23 ,,	19 ,,	18 ,,
1943–'44	25 ,,	16·3 ,,	12 ,,	1948–'49	15 ,,	21 ,,	14 ,,

How cheap and voluntary is a medical consultation made available to the student—a boon specially to the middle and poor classes.

Propaganda and prevention.—"Prevention is better than cure" is an adage so often quoted and familiar that it seems to have lost its significance. If the students could only realise that the infections like cholera, typhoid, dysentery are fly-borne and that they are contracted by contaminated food and that there is effective preventive inoculation against cholera, typhoid and diphtheria much suffering could be saved. So also malaria which claims one out of every four deaths and has a toll of million deaths annually in our country—besides an equal number that are crippled—is, after all is said, a preventable disease, if mosquitoes could be eradicated or if mosquito curtains could be used. It is a popular belief even among some of those that have passed through the portals of the University that malaria is contracted by drinking water. Ladies should in particular realize that the maternal mortality rate in India is 20 out of every 1,000 confinements, that 4% of women who have confined suffer later. Our infant mortality again is appalling *i.e.*, that out of every 1,000 children born we have only 750 surviving at the end of the first year and only 500 at the end of the decade. Death rate in India is 24·1 per mile as against U.S.A. 10·6, U.K. 11·9 and Newzealand 9·9 and yet we know how crowded and strenuous is life in the U.S.A. and U.K. as compared

to the bulk of our population living in the villages—the rural population is 8 to 10 times that of the urban.

The University student in whom the future of the country lies should be aware of these hard facts—which are a poor compliment to any civilized country—in order that he or she may so live and set an example to the rest to grow into healthy citizenship.

Diet and fresh-air.—Handicapped as we are with scarcity of food in this country, there is still much to be thought of in diet at this growing age where beverages like coffee and tea could be replaced at least partially by milk and malted drinks made of ragi, kambu etc. The bulk or quantity may be cut down with discrimination and replaced by quality *i.e.* less rice and more vegetables and greens, since by habit we overeat rice and other allied carbohydrates. Vanaspathi is a make-believe and has to be deprecated and polishing of rice should be prevented by law. Eatables of any kind should not be allowed to be vended in the vicinity of the school or college except those licensed by Public Health Authorities and periodically checked by the Institutions. The importance of fresh air cannot be over emphasized except for the dismal fact that we observe people nervous about free ventilation in their dwellings.

In this connection we will do well to remember the latest report of the Tuberculosis Association of India that the cause of T.P. is bad ventilation, unhygienic surroundings and malnutrition and that every year 5 lakhs of people die in our country which works up to 1,400 a day or one death every minute. Their forecast is that it may be worse when our country is more industrialized. Thanks to the B.C.G. campaign which will considerably help when there is good food and fresh air.

Psychiatry and student life.—One is apt to believe that the mental condition and its repercussions on the physical is a modern conception though according to English literature it is as old as Shakespeare.

Macbeth :—How does your patient, doctor ?

Doctor :—Not so sick, my lord.
As she is troubled with thick-coming fancies
That keep her from the rest.

Macbeth :—Cure her of that.
Cans't thou not minister to a mind diseas'd
Pluck from the memory a rooted sorrow
Raze out the written troubles of the brain
And with some sweet oblivious antidote.
Cleanse the stuff'd bosom of that perilous stuff.
Which weighs upon the heart ?

Some students react like a 'bundle of nerves' highly strung up with the ambition to get distinctions etc. and depend merely on memory not realizing that "an ounce of nervous tone is worth a

ton of knowledge." In such a life when disappointment sets in, it manifests itself in the form of various psychosis or neurosis. In the final analysis it would be evident that this psycho-neurosis has a physical bearing which requires to be dealt with in the light of psychoanalysis, since it is believed by eminent psychiatrists that "there is probably no such thing as the so called 'mental disease' without some somatic recording."

From the foregoing we may conclude that medical inspection calls for an all round knowledge of the healing art, combining in one an astute physician, a clinical surgeon and a keen psychiatrist.

Scabies and its Treatment

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MUCH has been said and written about "Scabies and its treatment". It is not necessary to describe the aetiology and pathology etc. as every medical man is familiar. I would like to describe, at this juncture, my own experience regarding skin diseases of similar nature with special reference to scabies.

There are two varieties of cases met with in general practice.

I. Scabies as an entire manifestation as a skin disease.

II. Mixed infection—which is more common or as a result of:

I. Scabies as an entity.—It is not difficult to diagnose a case of scabies. The lesion is found on and in between the fingers and toes, more so on the hands than on the feet. The pustule is raised and yellowish in colour. If the infection is severe there may be redness round about. Cases are occasionally seen where the infection is found on other parts of the body. The patient complains of severe itching, more at night. The pustule is scratched by the patient and a thin fluid comes out. This fluid is mainly responsible for further infection by other organisms. The infection is mainly local but cure is hastened by internal medication in the form of Inj. Coll. Sulphur.

TREATMENT :—Scabies as a whole can be definitely cured by the local use of Sulphur or Balsam of Peru in ointment form which are drugs of antiquity. My way of treating scabies is by applying Sulphur in sweet or cocoanut oil locally—preceded by a warm soap-bath in the evening and followed by a similar bath in the morning. I had no occasion to prescribe the application of Sulphur to the whole of the body surface below neck as is suggested and experienced necessary by some doctors. Ung. Sulphuris 12½% is being generally used. No Sulphur or any other special soap-bath is necessary and as I know poor villagers I have come across could not afford it. The disease is cured in a majority of cases within 8 to

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10 days. If persistent after this period, Inj. Coll. Sulphur 1 c.c. three times in a week (only one week) has proved very efficacious. Bowels should be moved regularly.

II. Scabies—mixed infection.—This variety is more common in cases of some standing. Due to constant scratching by the patient the skin round about the lesion sometimes becomes abrased. To this is added the fluid which comes out of the pustules and unless cared for small ulcers, usually covered by scabs, are seen. The patient involuntarily removes the crusts, there is very little bleeding and the disease becomes a mixed infection due to other organisms—by constant scratching, clothes etc. At this stage if treatment is undertaken, the disease can be cured within a period of about 20 days. If left untreated the disease becomes chronic and results in dermatitis. There is marked itching, sometimes burning and the skin becomes pigmented. Such a dermatitis is found on other parts of the body due to autoinfection by the patient—with fingers, towels bed etc. The usual site of such dermatitis is *loins, perineum*, external genitalia, buttocks, waist pinna and lobules of the ears and occasionally the tip of the nose.

When on the leg or the hand, the disease resembles chronic eczema when no ulcers or crusts are seen.

TREATMENT :—A series of 750 cases of this disease (both varieties) were treated sucessfully by the following treatment:

(1) Washing the entire area with Normal Saline or H. P. lotion 1:5,000 or simple warm water (by the patient at home) and applying the following ointment :—

℞	Resorcinol	.. 1·0
	Acid Salicylic	.. 0·5
	Chrysarobin	.. 1·0
	Acid Boric	.. 10·0
	Zinc Oxide	.. 10·0
	Sulphur	.. 12·5
	Tinct. Iodine (10·0% Iodine) Methyl	.. 5·0
	Vaseline	.. 100·0

No case needed treatment with Benzyl Benzoate so highly spoken of by many doctors. All the cases were completely cured with the said ointment within a period of 20 days to 1½ months according to the severity and periodicity of the infection. No bandage was advised in any case, the infected area being covered by clothes only. Sulphur alone did not show improvement in spite of energetic treatment for longer periods. The ointment is to be rubbed and not simply to be applied. The quantity of the medicament should be just enough for the area otherwise with larger amounts there is irritation of the skin with subsequent pigmentation which lasts longer.

The ointment is equally efficacious in eczema (even chronic of 4 or 5 years), ringworm and pruritus.

Cases and Comments

Transorbital Leucotomy in the Treatment of Mental Diseases

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THIS preliminary report gives the result of bilateral transorbital leucotomy performed on the first 23 patients in the Government Mental Hospital, Bangalore.

There is ample literature available, on the clinical value of bilateral prefrontal leucotomy in the treatment of mental diseases. But there has not been sufficient literature about transorbital leucotomy, and the results of large scale application of this operative procedure in treatment of mental disorders.

As originally devised by the Italian Psycho-Surgeon, Fiamberti, it is a simple operation. Due to the recent World-War, the merits of the operation remained confined to the frontiers of Italy. The available literature on the subject are: (1) The original article on Transorbital Leucotomy by Walter Freeman in the *Lancet* for September 1948; and (2) a paper on the same subject by Fleming and Philips in the *Journal of Mental Science* for January 1949, and so far no article has appeared in any of the Journals published in India about the results of this operative procedure upon Indian patients.

When the virtues of this method of approach became known to us, it was tried on a group of patients in the Mental Hospital, Bangalore. The main advantages in following this method of approach may be summarised thus:—

(1) It is a restricted operation on the frontal lobes which is designed to under-cut particularly areas 9 and 10 and part of 46 on the Broadmann chart.

(2) It is so designed as to perforate the orbital plate without causing any harm to structures within the orbit.

(3) The possibilities of encountering and damaging large intracranial vessels are minimal.

(4) The Thalamo-frontal radiation is served fairly far anteriorly without disturbing the cortex except probably to a very minimal degree.

(5) The fatality rate is nil and no extensive mutilations in the brain are ever produced.

(6) The head of the patients need not be shaved, as it is necessary while performing the major prefrontal leucotomy operation and it is a great advantage in the case of Indian women patients.

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(7) There is little preliminary preparation of patient necessary.

(8) The procedure is a simple one, involving little surgical and theatrical appliances and assistance, and so can be tried extensively in all the mental hospitals where facilities for major prefrontal leucotomy are not easily available.

Selection of Cases.

Indications for the operation are the same as for prefrontal leucotomy. 12 men and 11 women ranging from 18 to 55 years of age were operated. The duration of the disorder varied from a few months to 10 years. In 7 men and 6 women all the other recognised methods of treatment, like the administration of biochemical and electric shocks, had been tried without lasting benefit. Two men and one woman had undergone major prefrontal leucotomy without improvement.

There were 10 schizophrenics, 4 paranoids, 7 maniac depressives and 1 involutional melancholia. The usual symptoms associated with psychotic type of illness like excitement or depression, tension, hallucinations and delusions, disconnection in speech and emotion, etc., were found in the majority of the patients who underwent transorbital leucotomy.

Technique.

The operative procedure is the same as that described by Walter Freeman in *Lancet* for September 1948, a summary of which is given below with some minor modifications adapted to suit our conditions.

The anæsthesia that was used in all our cases was intravenous Sodium Pentothal 2½% solution, the amount of solution being 6 c.c. to 10 c.c. The advantage in selecting this method over E. C. T. induced coma being, simplicity of administration, rapidity of onset of anæsthesia, clean operation field without the interference of nasal and oral discharges and rapid and calm recovery from anæsthesia.

When the patient has come under the eyebrow, eyelids are cleaned and dried with wipers soaked in Bin-iodine spirit, so as to render the lower eyelids in particular, sterile, and thereby minimising the chances of sepsis being carried to the cranial cavity along the leucotome. Sterile towels are covered over the face leaving only the eyes exposed.

The instrument that is used was manufactured locally, according to the description given by Walter Freeman; it consists of a shaft and a handle made of stainless steel, the shaft is 12 cms. in length and 4 mm. in diameter, the lower half narrowing down to a fine point with a slight bevel. It is graduated in centimeters. The handle is 7 cms. in length and 8 mm. in diameter and ends in a knob.

The upper eyelid is pinched up with the index finger and thumb of left hand and the leucotome is introduced between the upper eyelid and eyeball, so as to reach the roof of the orbit. The leucotome is kept parallel to the bony ridge of the nose. The leucotome is gently tapped with a metallic hammer to perforate the orbital plate. The thickness of the orbital plate varies in different individuals and so the force that has to be used also varies. Then the leucotome is gently pushed, by taking care that the leucotome is parallel to bony ridge of nose and pressing against the eyeball. When the leucotome has reached the 4 cms. level the handle is taken laterally as far as the margins of the orbit, with the idea of severing the fibres in the lower portion of the Thalamo frontal radiation. The instrument is then swung back to the mid position and gently driven into 7 cms. level. The shaft is moved to 15—20 degrees laterally and medially, taking particular care not to swing it too far at this depth. The shaft is then withdrawn maintaining a certain amount of pressure over the upper eyelid for a few minutes to prevent escape of cerebro-spinal fluid into the orbital cavity. Similarly the operation is repeated on the other side. Then ice packs are applied to the eyelids, and the eye bandage applied. The cold pad is renewed every few hours. The bandage may be removed in 2 or 3 days. Cibazol tablets two t.d. are given as a routine for the first two days after the operation. The post operative recovery has been uneventful.

Clinical Results.

Of the 23 cases operated 10 cases have recovered completely, 8 are improved, 5 unchanged of which 2 cases showed some improvement after the operation but gone back to preoperative mental condition after a brief period.

Two schizophrenics of very long duration are very much improved. One chronic paranoid schizophrenia has shown considerable improvement though his delusions are persisting. Among the three patients who had already undergone major prefrontal leucotomy, two have registered considerable improvement. All our patients operated have become increasingly cooperative and friendly. No major undesirable changes in personality after transorbital leucotomy, are recorded. A few illustrative case histories are given below:

Case Histories

1. CASE No. 9.—A clerk, aged 25 years, average intelligence, asthenic build, restless, troublesome, auditory hallucinations, with pronounced schizoid symptoms. Had been ill for 3 years. He has one brother who is a psychotic. Ammonium Chloride and electric shock tried without much benefit. Transorbital leucotomy done on 8-4-'49. Recovered.

2. CASE No. 1.—A man, aged 26 years, above average in intelligence, athletic build, violent, boisterous and destructive with

offensive habits. Diagnosed suffering from affective type of disorder. Electric shock treatment tried with only temporary improvement. Had been on maintenance shock treatment. Duration of disorder was 6 months. Transorbital leucotomy done on 9-3-'49, was discharged from the hospital a month later and is attending to his work.

3. CASE No. 13.—A woman of 22, superior intelligence, athletic type of build, single, morbid preoccupations: University education, meaningless excitement and dirty habits. Maniac depressive of 2 years' duration. E.C.T. tried without benefit. Transorbital leucotomy was done on 12-5-'49. Quick recovery after the operation and was discharged from the hospital, improved on 18-7-'49.

4. CASE No. 7.—A man, aged 28 years, average intelligence, athletic type of build; good social position, with excessive drinking habit for the last 2 years. Refusal to speak and indifferent to food, stereotyped movements. E.C.T. and Insulin shock tried without benefit. Prefrontal leucotomy done on 12-6-1947 and reoperated on 1-12-'48 with no benefit. Faradic current given on several occasions and other methods tried to induce him to speak without effect. Transorbital leucotomy was done on 12-4-'49, and a course of E.C.T. given. He gradually began to mutter and then speak. There were disconnections in speech and delusions but at the time of discharge he was talking, stereotyped movements had stopped and he was cooperative.

5. CASE No. 5.—A case of agitated depression of six months' duration, aged 55 years. Extreme restlessness, refusal to speak and to take food. Incontinence of urine and fæces, obstinate to any interference. E.C.T. failed to induce convulsions with dosages within the limits of safety. Transorbital leucotomy was done on 11-7-'49. Eight days after recovery from effects of operation, another course of E.C.T. given; with moderate dosage, convulsions occurred, and with three or four convulsive doses the patient's mental condition improved, became cooperative and amenable for the suggestive influences of others. He began to speak with others. Discharged on 9-8-'49, and reported to have been maintaining the improvement till now.

In conclusion I wish to state that transorbital leucotomy compares favourably with major prefrontal leucotomy and so can be given a fair trial as a preliminary to the major surgical procedures and in simple cases of mental disorder. Regarding the results it is too early to make categorical assertions.

I take this opportunity of thanking Dr. M. V. Govindaswamy, M.A.B.Sc. M.B., B.S., D.P.M., the Medical Superintendent, Mental Hospital, Bangalore for affording facilities for carrying on this work, and Sri. C. K. Vasudeva Rao, Psychologist, Mental Hospital, Bangalore, for his assistance in determining the mental state of patients before and after transorbital leucotomy.

D.D.T. in Control of Insects other than Mosquitoes

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IT is now a well-known fact that D.D.T. in different preparations is a very valuable insecticide against mosquitoes, flies, lice, sand-flies, fleas, tsetse fly (Glossina species) etc.

The susceptibility of D.D.T. to some other arthropods and reptiles has been ascertained and is described in this article.

Arthropods.—1. **Centipede (class Myriapoda)*:—A centipede of about 6" length, when sprayed with a drachm of solution of 5% D.D.T. in kerosene oil (2nd quality), lost activity. The same specimen became active after 20 minutes when it was again sprayed with the same solution (2 drachms). The specimen lost activity again within 2–3 minutes. The legs from behind began to lose motion, when in about 15 minutes all the legs and body lost complete motion. The feelers kept on moving till about half an hour, after which the specimen collapsed.

2. *Wasps* (class Insecta, order Hymenoptera) are susceptible to D.D.T. A number of experiments have shown that a wasp nest, when once treated with 5% D.D.T. solution in 2nd quality kerosene oil, kills most of the wasps. A second application with the same solution on a subsequent day makes the wasp nest free from them permanently.

3. *Preservative in poultry*:—10% D.D.T. powder (commercial) mixed in Talcum, when dusted on the wings of ducks, has been found a good preservative of feathers, and keeps away all parasitic arachnidians.

4. *Preservative of clothes*:—10% D.D.T. powder (commercial) mixed in Talcum or soapstone has been tried with successful results as a preservative of wollen clothes against clothes moth and other lepidoptera.

5. *Reptiles**:—A young coral snake (Hemibungarus Niglescens) was sprayed with 5% D.D.T. in 2nd quality kerosene oil solution. The snake having gone into the hole, solution was sprayed inside the hole, and left for a time. During this interval (5 minutes), probably due to skin irritation or due to suffocation or stomach poisoning, the snake came out again. It was sprayed again when it died. The motion was lost at the tail first and lastly at the head. The total solution absorbed was roughly 1 oz. and total time taken one hour.

Summary.—Toxicity of D.D.T. in kerosene oil solution on some arthropods as centipede, wasps and reptiles is described. An account is given of the economic value of D. D. T. as a preservative.

D.D.T. is primarily a contact poison, although it might act as a stomach poison as well, as probably in the snake above described, during spraying in the hole.

*The specimen has been preserved in the Anti-Malaria Museum at Campbellpore (Pakistan).

Hiccough or Hiccup*

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IN daily practice medical men are called to examine a case of hiccup with or without any inorganic or organic lesion, where they are to find out the cause for the relief of the symptom. In laymen this is called Hichki or Hirrki.

DEFINITION:—Hiccup is a recurrent respiratory spasm which consists of sudden contraction of the diaphragm, so to say a clonic diaphragmatic spasm, and produces an inspiratory sound from inadequate asynchronous opening of the epiglottis.

PHYSIOLOGY:—Normally the descent of diaphragm in each respiratory act is accompanied by a contraction of the post cricoid arytenoid muscles which causes an untoward rotation of the arytenoid cartilages and dilatation of the glottic aperture. The diaphragmatic and laryngeal acts keep time together and in health the rhythm sixteen or eighteen to the minute is maintained. If, however, the diaphragm gives sudden descending jerks irrespective of the respiratory need as in Hiccup—and this jerk occurs at a time when the dilaters of the glottis are not acting—a noise will be produced by the rush of the air through the insufficiently widened epiglottic aperture. If the hiccup occurs with any persistency in the course of typhiod fever it is often an indication of perforation and the onset of general peritonitis. Certain cases of paroxysmal hiccup have been regarded as instances of modified epilepsy. The noise is not a constant phenomenon and during an attack of hiccup it never occurs, during ordinary inspiration, or without the spasmodic action of the diaphragm.

AETIOLOGY AND DIAGNOSIS:—1. Reflex stimulation of phrenic nerve by gastric or colonic flatulent distention, irritation after hot peppery food, tobacco and with hepatic diseases *e.g.* cirrhosis of liver, cancer, acute and chronic hepatitis.

2. Irritation of the peritoneum near the inflamed abdominal organs *e.g.*, general or local peritonitis, symptoms of gastritis, dilatation of stomach, enteritis, intestinal obstruction, tympanitis typhiod fever, acute appendicitis, acute pancreatitis, strangulated hernia.

3. Diseases of the thoracic viscera: diaphragmatic pleurisy, pericardial effusion, mediastinal disorders and enlarged thorocic glands, enlargement of heart and adhesive pericarditis.

4. Toxic blood causes *e.g.* uræmia.

5. Renal causes: chronic nephritis.

* The paper was read in the Annual General Meeting of I.M.A. Branch, Gorakhpur, U.P.

6. Neurosis *i.e.* nervous system causes :—Hysteria, cerebral tumours, meningitis, hydrocephalus, epilepsy, alcoholism.

(a) Certain cases without any cause.

(b) Encephalitis lethargica may show itself with persistence hiccup.

(c) Persistence hiccup may also arise from central or peripheral irritation of the phrenic nerve by the spinal tumours.

7. Epidemic hiccup probably is an infection of the central nervous system which may clear up spontaneously without any effect.

8. Taylor says that hiccup is also the result, sometimes of excessive laughing.

9. In children hiccup arises due to an accumulation of wind due to faulty digestion.

10. Doctor C. V. Pooke says that hiccup is produced by the passage of hot fluid through the pharynx.

11. During convalescence of cholera it is often accompanied by eructation of wind and sometimes by vomiting.

12. Sometimes certain drugs irritate the central or peripheral nerves causing hiccup, for example Atabrin Musonate injections, sometimes large doses of Salicylates and Potassium Iodides and others.

13. Debilitated causes : gout, diabetes.

PROGNOSIS :—As a rule not serious : in abdominal group grave ; epidemic hiccup may resist all treatments and hence exhaust the patients which may be the cause of immediate death.

TREATMENT :—1. Find out causes and treat accordingly.

2. Emetic :—To empty the stomach or stimulant to increase the neutral peristaltic action which gives definitely good result.

3. To manage to produce a forcible contraction of diaphragm thus producing a feeling of suffocation *e.g.* by tickling of nares or by taking hard snuffs.

4. Attempts to hold breath or to count a hundred without drawing breath or sipping of water with one stroke.

5. Warm applications or counter irritants over the diaphragm or cervical spine.

6. Pressure on the trunk of the phrenic nerve by means of the fingers applied over the Scalenus Anticus muscles gives relief in obstinate cases.

7. Stop the drugs which would be the cause of the hiccup.

8. Drugs :—*(a)* Chloroform internally with or without opium.

(b) Camphor in spirit form.

(c) Valerinate of Zinc, Belladonna groups, Bromides of Potash and Strontium, Liquor Trinitrine, Musk, Whisky, and Antacids, the best is Bismuth Subnitras.

(d) In very severe cases Morphia may be administered.

(e) Calomel and Chloretone—Calomel in fractional doses or Saline purge may do good provided there is no contra indication as intestinal obstruction or perforation bowels or due to any pressure over the abdominal organs within or without any cause *e.g.* tumours or due to the complications in typhoid and gastrointestinal troubles as peritonitis or tympanitis.

(f) Colon or gastric lavage sometimes gives effective results.

(g) Menthol in 10% in alcohol 10–15 days in water t. i. d.

(h) Inhalation of CO_2 or Amylnitrite.

(i) Ether or Ethylchloride spray on the epigastric.

(j) Rhubarb and soda by mouth.

(k) Hypodermic injection of Nitroglycerine or Pilocarpine or Apomorphine gr. 1/8 or Hyoscine Hydrobromide gr. 1/200 repeated every three hours till the symptoms lessen.

(l) Bilateral compression of the eye balls.

(m) Compression of the chest or pressure upon the ribs near the origin of diaphragm.

(n) When due to ingestion, frequent feedings of milk or milk with cream alternating with alkalies.

(o) Benzyl Benzoate ½ dr. of 20% solution.

(p) With the head and body flexed drinking water from the reverse side of the glass.

9. When hiccup is without any organic cause but still persists:

(a) Blisters to epigastric region.

(b) Application of hot colomon plaster over gastric area for 10 minutes or galvanism.

(c) Pinching the lobe of the ear, forcible pulling forward of the tongue.

(d) Abdomen may be bound tightly with a bandage or plaster.

(e) Sometimes Adrenalin drops 10 in aqua dr. 1 may be given ½ hourly till the relief.

(f) In psychoneurotic cases we sometimes have to rebuke violently or say something odd to the case which causes to think over or repent, may give effective results ; sudden fright ; sometimes in certain cases we have to give injections of Glucose with vitamin C intravenously or even Saline or ordinary distilled water.

Sometimes we get good results in giving the Ayurvedic Medicines as :—

1. Bhasm of Peacock's wings with powdered pepper may be given with honey and in some cases Makaradhwaj may be added.

2. Rus of nimboo Bijori (Zamiri) with ordinary salt.

3. To inhale the preparation after macerating ginger (Sonth) with ordinary water.

4. Ginger, pepper, anwla, candy sugar and honey in equal quantity three or four times in a day may be given.

I am deeply indebted to Dr. H. C. Varma, M B., B.S., Medical Officer, Civil Hospital, Gorakhpur for going through these pages and giving a few suggestions regarding treatment.

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A Simple Test for Typhoid Fever

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THIS is a short note about a simple test of typhoid fever which I am doing on all suspected cases of this fever occurring in my practice during the last ten years or so. During this time I have performed this test on more than 1,000 cases of continued fever, symptomatically typhoid, and in practically all my cases found this test as a great help in clearing up the uncertainty and corroborating the diagnosis. I have done this test on innumerable healthy person's urine and on urine of patients suffering from clinically malarious fever with remission of temperature and in these cases the test became invariably negative.

This test can be done by anyone and anywhere and does not require the help of a laboratory or any special reagents except a little Potassium Permanganate solution, or any elaborate instruments except a couple of test tubes. The test has been seen to be positive as early as the third day of fever but it generally becomes positive on the 6th or 7th day and remains positive till some days after remission of the fever but actually for how long it could not be worked out as following up of these cases for any length of time was not possible as all my cases were amongst labourers working in Tea Estates. As I found this test very helpful in confirming the diagnosis of suspected cases of typhoid I have been tempted to place my knowledge, not without diffidence, before my colleagues who work in a place away from a laboratory, where elaborate blood tests etc. cannot be done, with the hope that it will be found similarly helpful to them. Moreover I want to be benefited by their experience in this direction and shall be glad and obliged to know from them if in their hands too this test proved positive my observations are substantiated.

The test, as is carried out by me, is done in the following way : Two test tubes 4½ in. long and ½ in. diameter (test tubes of any size may be used but I find this size convenient) are taken. From the bottom of the test tubes six horizontal lines parallel to each other at an interval of ½ an inch are drawn with a grease pencil or a thin slip of paper with six parallel lines at interval of ½ in. drawn on it is stuck with gum on the test tubes. Then a small quantity of urine of the suspected case is taken in a pipette and put into each of the test tubes up to the first mark from the bottom. Then the tubes are filled with distilled water up to the mark 6 and after closing the mouths of the tubes with finger they are tilted up and down several times to mix the urine and distilled water thoroughly. Urine of fever cases are generally high coloured and this dilution is necessary for proper test. As the reagent a 1 in 1,000 solution of Potassium Permanganate in distilled water is freshly prepared and a few drops of this is taken up in a pipette and dropped in one of the tubes drop by drop and the change in the colour of the urine round each drop as it falls is noticed. The other tube is kept as a control for matching the colour of the treated urine against it. As the drops of the reagent sink in the urine (the rate of sinking varies according to the specific gravity of the urine) each traces out a violetish pink path of the normal colour of Permanganate behind them in negative cases. But in positive typhoid cases, especially those which give strong reaction, a woolly halo appears around each drop even from the very first drop which spreads and colours the urine around to a turmeric yellow (Mepacrine yellow) colour. After adding five drops the tube is shaken to mix the reagent well with the urine and is compared with the control tube. A turmeric yellow colour deeper than that of the control is taken as the positive test. Sometimes adding of 5 drops of the reagent does not develop the colour well and we add another 5 drops and then the yellow colour fully develops. So generally we wait about a minute or so after adding 5 drops and then add another 5 drops and complete the test. The depth of the yellow colour is taken as the measure of positiveness, the deeper the yellow the more strongly is the test positive. Very strong and mildly positive cases may easily be labelled as typhoid cases and most of these cases have been seen to run a course of three weeks or so, the usual typhoid course, and weakly positive cases are usually taken by us as paratyphoid cases and in many of them the temperature remitted round about the 10th day of the disease.

The test, above described, is a rough and ready test but a workable test for doctors working in villages away from the help of a laboratory. It has not been checked up by Widal or blood culture tests and is put before the medical public for what it is worth, just for the sake of more light as to whether in their opinion also this test may be depended on as a reliable one as it has been found by me.

Intestinal Amœbiasis—Some Surgical Aspects

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ENTAMŒBA hystolytica has a world wide distribution, but mostly prevalent in tropics and subtropics. Most persons infected with ntamœba are healthy carriers and live with their parasites in a tate of equilibrium. When this equilibrium ceases, which may be lue to varied causes, or when it does not exist, ulceration occurs in he bowel. Often in practically healthy carriers ulceration in bowel as been noted.

Pathology.—Vegetative amœbae which are passed when the ysenteric symptoms are acute are shortlived outside the body nd it is generally believed that when they are swallowed by a man hey are destroyed in the stomach by the action of gastric juice. 'he cysts which are passed when the acute symptoms subside are ie potent cause of infection. They are hardy and can live for eeks in moisture. On being swallowed the mature tetra-nucleated /st passes unaffected from the stomach and on reaching the small testine the alkaline pancreatic juice dissolves the cyst wall and berates the amœba, which matures and becomes motile. Some ass in the stools and a few find their way through the crypts of eberkuhn into the submucous layer of the large bowel where they crete a cytolysin, destroy the mucous membrane resulting in aracteristic button hole ulcers. In vertical section these ulcers e flask shaped. The ulcers begin in the caecum which is most mmonly involved and extend to the whole of colon, sigmoid, :tum, and occasionally appendix.

Bowel infection with amœba sometimes superadded with pyo- nic infection, leads to formation of chronic granulation tissue sses called amœboma—they resemble new growths and occasion- y give rise to obstructive symptoms.

The invading amœbae gaining entrance into the radicals of :tal vein reach the liver causing hepatitis and/or liver abscess.)m there amœbic emboli may reach distant organs *via* systemic :ulation, like spleen, brain, lung, kidney etc.

Clinically chronic intestinal amœbiasis presents sometimes a fusing picture. Right from a simple chronic dyspesia syndrome can meet cases resembling like malignant bowel disease. From rgical viewpoint the following few conditions are important :

(1) As an important causative factor of chronic pain in right fossa.

(2) Formation of amœboma in rectum or sigmoid producing ptoms resembling carcinoma of bowel.

(3) Acute amœbic typhlitis resembling symptoms of acute endicitis.

While thrashing out a differential diagnosis in a case of chronic pains in right iliac fossa amœbic infection of caecum should always be borne in mind. Hyperplastic tubercular disease of caecum is so closely resembled by chronic amœbic typhlitis the symptoms are so identical, a thickened tender palpable caecum which gurgles on feel often associated with slow fever, loss of weight and occasional diarrhœa. In such cases a careful differential blood count, repeated stool examinations, and a very careful sigmoidoscopy, should always be done before it is decided to open the abdomen for a caecal resection. To this routine may also be added a therapeutic test of Emetine, in doubtful cases.

Intestinal amœboma : Occasionally one comes across this very puzzling condition. In chronic cases of intestinal amœbiasis masses of granulation tissue develop in the bowel wall which is a result of superadded bacterial infection. Common sites for these are rectum and colonic flexures. Such cases usually come up with an abdominal mass and history resembling chronic intestinal obstruction, or sometimes a routine rectal examination for some other gastro-intestinal condition reveals a granulomatous mass in the rectum. These cases are invariably mistaken for malignant disease of rectum or colon. As such they demand a very careful examination—clinical, cytological stool examinations repeated, sigmoidoscopy and biopsy to exclude amœbiasis. Thinking of the prognosis of the case all these painstaking examinations are essential. A patient with a granulomatous mass in rectum or sigmoid or in caecum, smooth or craggy, ulcerated, should invariably be put on Emetine and have a biopsy done where accessible. Emetine with chemotherapy will succeed if it is an amœboma and fail otherwise.

Amœbic typhlitis may sometimes be confused with an acute appendicitis, and cases have been reported where abdomen has been opened in amœbiasis as mistaken diagnosis of acute appendicitis. The differential diagnosis between the two conditions may not be easy at times. If the condition is borne in mind the mistake may be avoided by a careful interpretation of physical signs and blood picture report.

CASE 1.—A male, aged about 40 years, came to me with complaints of anorexia, loss of weight, occasional diarrhœa alternating with constipation, and sought my advice. There was history of passing occasional streaks of blood in stools. He was in a poor state of general health and markedly anæmic, and was being treated as a case of piles. On doing a rectal examination in squatting position a granulomatous lump was palpable high up in the rectum, and the rectum had a tendency towards balooning. There were no facilities for sigmoidoscopic examination, but the third examination of stool showed the presence of Ent. Hystolytica cysts. He was put on Emetine gr. 1 with Strychnine gr. 1/60 injection daily combined with Enteroquinol and Sulphasuxidine by mouth. Ten injections

and one week's oral course marvellously improved the condition. Six weeks after, the rectal examination did not show any growth.

CASE 2.—Male, aged about 25 years, was seen by me in consultation with a brother practitioner who was treating him for fever and diarrhœa. On the third day of diarrhœa he started getting acute pain in right iliac fossa. Frequency of stools was not more than 5 to 6 in 24 hours. There was no blood, but a definite history of having blood dysentery one year back. When I examined him there was a definite tenderness on MacBurney's point, there was some rigidity in the whole of right iliac fossa, Rovsing's sign was positive but there was no hyperæsthesia of the skin. Rectal examination revealed tenderness in practically all the quadrants but definitely more on the right side. The patient had already lot of Sulpha drugs with little effect on his pain or diarrhœa. Stool examination revealed cysts of Ent. Hyst. He was put on Emetine injections; after the very first injection the pain in iliac fossa disappeared. On subsequent course of Emetine and Enterovioform he was cured.

This patient was obviously a case of ameobic typhlitis resembling closely acute appendicitis.

Summary.—In diagnosing surgical conditions of right iliac fossa amœbiasis of cæcum should always be borne in mind. Amœboma of rectum or sigmoid colon should be in one's mind as one of the possibilities while diagnosing a case of malignant disease in these regions. Emetine as a therapeutic test can be more widely used when in doubt.

Spread of Tuberculosis by Books

The investigations of Kenwood and Dowe and later of Roodhouse Gloyne showed that at least 50 per cent of the books used by patients with open tuberculosis become infected. Fortunately the bacilli become nonviable in about 48 hours when they are dry so that Tytler considers that 2 days after the books have left tuberculous patients only 1 to 5 per cent of the bacilli deposited on them are living provided no moisture is present. After six days the chances of finding tubercle bacilli are very remote. There is, therefore, a risk to non-tuberculous persons, and particularly to children, in handling books used recently by the tuberculous.

The risk decreases after the first 2 days. The danger is of course greater if the patient moistens his finger when turning pages or coughs directly on to the page he is reading. To make certain that viable bacilli are not carried books should be disinfected either by exposing the pages to bright sunlight for 2 or 3 days or by placing them in an oven for 30 minutes with an open dish of water at a temperature of 95°C.

Nice has shown that books can be sterilized in moist air at 80°C and with 30 to 40 % humidity for 32 hours without damage to the books.

Sterilization by formalin or formaldehyde vapour is fast getting into disfavour, as the results have not been uniformly satisfactory.—(*B. M. J.*, 2.4-1949, p. 601).

T.N.S.R.

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Medicos in Conference

WHILE every advanced nation in the world has, through various schemes, brought medical relief to the homes of the people, India lags far behind. There is only one doctor for more than 2,000 of the population on an average. It does not follow that even these doctors are within the easy reach of people. We can quote examples to prove that there are many villages which have no hospitals or dispensaries within a radius of ten miles, with the result that the sick and the ailing have no facility for medical relief and many of them die of preventable diseases causing the greatest economic loss to their own families and to the country at large.

The Hon'ble Dr. T. S. S. RAJAN, in inaugurating the Fourth South Indian Provincial Medical Conference and the Seventh Provincial Licentiates' Conference at Chidambaram last month, deplored the present grave shortage of medical personnel and appealed to the members of the profession gathered at the Conference to offer suitable suggestions to remedy the present unsatisfactory and highly deplorable state of things, throwing out, by the way, two suggestions to meet the shortage. The one is the expansion of the output by medical training institutions. This can be achieved either by increasing the number of seats available in the institutions, or by quicker turnover of training, or a combination of both. So far, as the expansion of the output by medical institutions is concerned, the aim can be achieved in two ways, one by increasing the number of seats in the present institutions and, the other, by opening more colleges. So far as the first is concerned, the maximum has already been reached and there is no possiblity of its further expansion. In regard to the second, the chances of the

opening of more medical colleges are, according to the Hon'ble the Minister, beyond the range of possibility, the financial condition of the Province being what it is at the present moment and is likely to be for some years to come. The only other way, according to him, is increasing the turnover of medical institutions by shorten ing the course without sacrificing standard and efficiency. We ar glad that the Hon'ble Minister has stressed the need for maintain ing the present standard and efficiency.

The addresses of the Presidents of the two Conferences make it clear that they are fully alive to the needs of the situation. The President of the Provincial Medical Conference has classified diseases into two classes, preventable and inevitable and he has again sub-classified them as curable and incurable. He thinks that so far as simple diseases which are curable by safe remedies are concerned, such as malaria, diarrhœa, scabies etc., the Public Health staff *i.e.* the Sanitary Inspectors and Health Visitors, might be taught to give the necessary treatment. He also thinks that they could be taught how to prevent infections after injuries, and to detect serious conditions and refer such cases to the nearest doctor. This, he considers, is the only possible quick and cheap method of carrying on preventive and curative measures to the masses in the villages. This would necessitate the increase of the Public Health personnel a hundredfold with the training in the above subjects "If the country is flooded with such people," he says, "it will help to reduce the incidence of disease and also give breathing time t the Government to turn out fully qualified medical men."

Even according to him it is only a temporary palliative and the equipment of these people with even the elementary knowledge on these subjects is no small thing. Even assuming that they are so equipped and the rural areas flooded with such men, it is open to question whether the Government can claim to have brought real medical relief in the true sense of the term within the easy reach of masses who badly need it. There is also the other point to be considered, *viz.*, whether the creation of a new class of people will not lower the standard and create a separate caste in the profession which it has long fought to get abolished. It may be possible to give the Health personnel additional training to enable them to discharge their own duties satisfactorily, but they cannot be entrusted with the task of treating the sick and the ailing. We would only remind the President of the observations he has himself extracted in his Presidential address from the speech delivered by the Hon'ble RAJKUMARI AMRIT KAUR, Health Minister, depre cating strongly the tendency in certain provinces to have short and cheap medical education with a view to provide a large personnel required to cater to the needs of the masses. It would, as she herself has pointed out, prove costly to the nation in the long run. It would create also in the minds of the rural population, who contribute

largely to the exchequer, that discrimination and differentiation are made in this all-important matter affecting their very lives. To give room to such a feeling is not only unhealthy but also positively dangerous.

How are we then to solve the problem and provide for the present needs? The general consensus of opinion in the profession is that the present course of medical studies can be cut down by deleting unnecessary subjects which might not be ultimately necessary or useful to the average practitioners. The medical profession and the Government should put their heads together and evolve a curriculum which, while not lowering the standard of the profession or the equipment of the individual, will help to increase the output from the medical colleges. Even assuming that this is done and the course reduced, say by one year, the question will still remain as to how to prepare the personnel required to meet the present day needs. With the existing colleges full and even overcrowded, leaving no further scope for additional seats, the only way open is the establishment of more medical colleges. A news item was put out recently that according to present P.W.D. type design, the construction of a medical college would cost not less than a crore of rupees. It is not necessary that we should follow the standard type design and build big. We can easily start on a small scale in buildings available now in some important centres, make such small additions as are necessary, and carry on till better days dawn on us. This is not likely to cost much and the expenditure is worth incurring in view of the urgency. It is no good closing the gates against a large number of students, many of whom might well be deserving and prove themselves worthy members of the profession in course of time, if allowed a chance. The matter is one of great importance and urgency and we trust the Hon'ble the Minister who is a medical man himself and who is well aware of the present grave shortage will make a move in the matter, get his colleagues in the cabinet round, and secure the establishment of more colleges in the next academic year.

The recommendations of the Chopra Committee have given rise to considerable misgivings in the minds of a large section of the practitioners of the Allopathic system of medicine, and the President of the Conference of the Indian Medical Association has given expression to their views very forcibly in his address. The use of strong language such as, that "Lt. Col. CHOPRA and his team surrendered their conscience and judgement to a clique that sponser the mixed system of medicine in Madras.....The opinions expressed in the report are the views of the handful who represent the mixed trained variety," and so on and so forth, are quite unnecessary to strengthen the case of the practitioners of the Allopathic system. Such strong language instead of helping the

cause, the President has at heart, might cause grave injury. There is no doubt that in spite of the fact that the indigenous systems of medicine had remained static for centuries, they are popular with a large section of the people. Such popular systems of medicine cannot be obliterated by decrying them. That will not be in the country's interest as well. That is why we have often given expression to our view that while we have no objection to the Government giving encouragement to the indigenous systems of medicine for their advancement on their own lines, we are against attempts being made to bring about a so-called synthesis of the two systems which would help neither the one nor the other system and would lead us nowhere. When the indigenous systems of medicines are developed and placed on a scientific basis as to be acceptable to the world, it will be time enough to introduce post-graduate courses to the Allopathic graduates who desire to obtain a knowledge of those systems also to make them more useful to the society. If the Indian Medical Association takes up this line, we are sure it would command respect and attention at the hands of the authorities.

The Hon'ble Dr. T. S. S. RAJAN, the Minister, disarmed the licentiates of much of their criticism by announcing, while inaugurating the Conference, that in pursuance of the decision of the Government of Madras to abolish the differentiation between the L.M.P.s and the M.B.B.S. graduates and to treat them as officers in one cadre, a notification had been issued giving them the status of Gazetted Officers and placing them in the category of Civil Assistant Surgeons Class II. He also announced that the question of the unification of the two classes in the same cadre is also under consideration. Also that the question of making it possible for large number of old licentiates to obtain graduate qualification through the condensed M.B.B.S. course has been taken up and the Surgeon-General has been asked to submit a report. While these are welcome, the question of the pay and the status of practitioners working under local bodies whose number is very large still remains. It has been suggested that the best way of wiping out the differentiation between those under the direct service of Government and those under the service of local bodies is to provincialise the service. It is unfair to make any differentiation between those in Government service and those in quasi-Government service and we trust that the suggestion will be given the consideration it deserves.

We are in the formative stage, so to say. We have to build anew a structure worthy of our status and importance in the world. Just as Rome was not built in a day, so also the new structure that every one wants, cannot be raised in a day. It requires long, elaborate and well-thought out planning. And above all it requires large scale finance. The country is not yet out of the wood

Devaluation has added to our troubles. But there are many problems which cannot long be delayed or postponed. The extension of proper medical relief and the improvement of the health of the nation are matters which require to be given top priority. We are sure that the Governments in the land are fully alive to this. Let us, the members of the profession, give them all the co-operation and help they need and enable them to build a New India on the solid foundation of a healthy people.

Mobile Medical Units

IN the financial straits in which the Governments in the country find themselves today, due to causes beyond their control, it is next to impossible to expect any large scale expansion of the much-needed medical relief to the rural areas. In the circumstances some other arrangement has to be thought of which will bring such relief to the rural areas. The easiest and the surest means of ensuring such relief to them is through the establishment of Mobile Medical Units in each Taluk which can constantly be going round their respective areas giving help to the sick and the ailing. Dr. NATARAJA JATAWALLABAR, Chairman of the Reception Committee of the Indian Medical Association Conference held at Chidambaram last month, pleaded for the establishment of mobile medical units, well planned and properly equipped, to serve the needs of the villages. The unit, he said, should visit villages by turns, spot out early cases and send them to well-equipped institutions with recommendatory note for treatment, where they cannot themselves handle them. We need not depend entirely on the Government to launch such a scheme. Private organisations devoted to social service and the service of the poor and needy can come forward and do much to alleviate the sufferings of the people. Once such a scheme is started, financial help will voluntarily be forthcoming from philanthropic-minded individuals and organisations. Self help is the best help, and such efforts will, we are sure, be given every encouragement by the Government also.

The Indian Red Cross and Catholic Medical Guild Mobile Hospital Unit was inaugurated by Her Highness the Maharani of Bhavanagar the other day at the Museum Theatre in Madras. "A welcome and wholesome venture," characterised the Hon'ble the Minister, this effort. He assured the Unit that he would watch the working of the scheme with sympathy and would give all help possible so that the greatest service could be done to the largest number of people. There are already, as the Surgeon-General pointed out on the occasion, two such Units working in Madras and this is a welcome third. While we congratulate the organization in thus coming forward to start this Unit, we consider that the

establishment of such units is far more necessary and urgent for rural areas than for cities where medical facilities are within the easy reach of people.

It is the village that is neglected and it is the villager that is badly in need of help and relief. Welcoming the delegates to the Second Annual Provincial Conference of Social Work held at Coimbatore in October, Mrs. RUTH MORRIS gave out a long list of organizations engaged in social service in the District and said that in spite of all these organizations working hard, only a fraction of those who needed medical help, education and guidance to raise their standard of living had been touched. There are several such organizations in many districts, and if only they come forward it should not be difficult to organise at least one mobile medical unit for each taluk. What is wanted is co-ordination with a view to avoid overlapping. The Coimbatore Conference has given the required guidance and the Central organization will ever be ready and willing to give the necessary advice and help wherever people are ready to come forward to start this noble task.

We are glad that the Central organization has much work to its credit, and yet a large and wide field lies before it. It should be the aim of the organization to have its branch in every Taluq headquarter so that such a service can be undertaken in that area. That is the appeal which H. E. the Governor of Madras made in inaugurating the Conference. There is much force in what he said, *viz.*, that all Governments need a lot of convincing. "We have to convince", he said, "not only the Minister-in-charge of the department which I should think is a sufficiently hard task; the Minister has to convince his colleagues and, what is much more important, the Finance Department." All non-official schemes intended for the amelioration of the condition of the masses are not immediately accepted by the Government. They are first opposed to such schemes and naturally they keep themselves out of the picture. But when by our earnestness and sincerity we prove the worth of the step we have taken, they are sure to come in, as the Government in England had come in to give all the help it can. So far as we are concerned we have crossed the first step. The Hon'ble the Minister has assured his full sympathy and help to Mobile Medical Units. Convinced as he is of the usefulness of such a scheme, he is sure to persuade his colleagues in the cabinet, and especially the Finance Minister, to agree to give all the support it is possible for the Government to give. What is wanted is initiative from the side of social welfare workers, and we trust that with the rosy prospect of help coming to them from Government, they will come forward to take up this great and noble cause and do everything in their power to help those who are badly in need of it.

MEDICINE AND THERAPEUTICS

Misuse of insulin.—(*New York State Jour. Med.*, 48: 2587, 1948).

Schreier and Sevringhans say that in the older age group, the use of insulin requires great care. They suggest that if diabetes develops in the obese person he should not be given insulin *unless* acetonuria is also present along with the glycosuria. Weight reduction is paramount in such cases as obesity is a prediabetic stage in such persons. One may well permit the optimal weight to be established by managing the diabetes with a minimal diet *without* insulin. Of 120 diabetics weighing over 180 lbs. each, 108 (90 per cent) were treated without insulin by the authors. They stress that the use of insulin in older obese persons with diabetes, often becomes an easy substitute for education of the patient in the use of a suitable diet. As more food is taken, the insulin dose is increased because of continued glycosuria. The results include uneconomic use of insulin with possible dangerous reactions. Obesity and hyperglycemia persist despite the large dosage of insulin; this could have been minimal or indeed the patients could have fared quite well even without the insulin. T.N.S.R.

Treatment of neuro-syphilis with penicillin.—(*Brit. Jour. Vener. Dis.*, 24. 89-100. 1948).

Dr. J. P. Martin of the National Hospital London gives a clear account of his study of 24 cases of various types of neurosyphilis treated with penicillin. These included 8 with mental symptoms and spinal fluids that were "*paretic*," 5 with tabes dorsalis, 3 with atrophy of the optic nerve, and eight with meningo-vascular syphilis. The results obtained by him were *excellent* and compared favourably with those of Dattner *et al.* of the New York, Bellevue Hospital.

In the author's experience the spinal fluid continued to show signs of progressive improvement for as long as 12 months after a single course of penicillin, in many cases. He is doubtful about the value of repeated courses but he records one case in which progressive optic atrophy was arrested by repeated treatment. Clinical results were best in meningo-vascular syphilis and worst in established tabes dorsalis where the signs and symptoms depend more on degenerative rather than on inflammatory processes. The author is strongly opposed to malaria therapy as the risk arising therefrom is seldom justifiable, particularly when there is in *penicillin*, a potent and dependable therapeutic agent of great efficacy as judged by the results obtained so far. T.N.S.R.

Influence of nicotinic acid on diabetes.—(*Therap. Arkh.*, 20, 3, 62-76, 1948).

Alesker examined the effect of nicotinic acid in the blood sugar in 29 cases of diabetes mellitus; 15 healthy subjects served as control. It was found that nicotinic acid and nicotinamide always lowered the blood *sugar* for 2 to 2½ hours in diabetes patients, while in the normal healthy subject the blood pressure was lowered *only if it was given along with glucose*. The optimum effect in diabetics was obtained with 200 to 300 mg. Oral administration had less effect. Nicotinic acid definitely potentiates the action of insulin when given simultaneously. The author concludes that a combination of nicotinic acid and insulin is very useful in cases of moderate or even severe diabetes but preliminary saturation with 600 mg. of nicotinic acid daily for 3 to 4 weeks is advised. *The dose of insulin can then be reduced and in mild cases the drug can be dispensed with altogether.* T.N.S.R.

Nitrogen mustard therapy.—(*Cancer*, New York, 1, pp. 357-382, Sep., 1948.

Wintrobe and Huguely describe the effects of nitrogen mustard therapy in 102 patients; they included 32 with Hodgkin's disease, 11 with lymphosarcoma, 5 with reticulum cell sarcoma, 37 with leukemia, and 17 with miscellaneous other disorders. A palliative

effect on adenopathy, fever, bone pain and splenomegaly, has been observed in many patients with Hodgkin's disease who were "X ray resistant." Nausea and vomiting were noticed in most cases after administration of nitrogen mustard. This therapy also resulted frequently in a decrease in leucocyte count with lymphocytopenia, and granulocytopenia. There was also a decrease in the red cells and platelets. This initial decrease was followed by a complete disappearance of the anæmia, and of thrombopeneia in patients who responded favourably to the therapy. In leukemia a fall in the leucocyte count was followed by a decrease in or even disappearance of the anæmia. Ease of administration, effectiveness in some X-ray resistant cases and rarely a better tolerance for nitrogen mustard are the advantages claimed for this therapy in preference to X-ray therapy. T.N.S.R.

Paludrine in malaria: Dosage for prevention and treatment.—(*Med. Res., Council of Great Britain: Report*).

The following recommendations on the use of paludrine in prophylaxis and treatment of malaria and suggestions for trial have been issued by the colonial office and the Medical Research Council.

Prophylactic:—The dose for suppression of malaria of all types in endemic areas, is 100 mg. daily. *For children*: from birth to 5 years of age 25 mg. daily; from 6 to 12 years 50 mg. daily. When a daily dose is not practicable one dose of 300 mg. should be taken on the same day each week, and the dosage for children should be in the same proportion. Persons who have been resident in an endemic area for sometimes, who have been exposed to infection, a full therapeutic course, (as in **A** (*a*) below) should be taken before entering on the suppressive regimen of paludrine.

THERAPEUTIC USE:—**A.** *Malignant tertian (P.F.) infections, mixed infections and undiagnosed types of infections.*

(*a*) In treating non-immunes, paludrine alone will not do to effect a radical cure. Mepacrine should also be taken on the first day of treatment. The following is the procedure recommended:—300 mg. paludrine twice daily for 10 days reinforced on the first day with 3 doses of 300 mg. of mepacrine and followed by 100 mg. paludrine daily for six weeks. (Persons continuing to live in an endemic area should continue the suppressive regimen).

(*b*) For treating the clinical attack in semi-immune subjects (*e.g.*, labour forces and rural populations in endemic areas) a single dose of 300 mg. paludrine will usually suffice to produce clinical cure. Relapses can be similarly treated as and when they occur.

(c) For treatment of emergent and serious conditions, *e.g.*, cerebral or algid malaria or where patient is unable to tolerate oral medication, *immediate* intramuscular mepacrine or intravenous quinine therapy should be employed.

B. P.vivax (Benign Tertian) infections.

(*a*) To effect a radical cure, the dose for adults is 100 mg. paludrine plus 100 mg. pamaquin base, thrice daily for 10 days; dose for children proportionate. Pamaquin should *not* be given *unless* the patient can be kept in bed under observation throughout the course: this is particularly important with children.

When the patient cannot be kept in bed, the alternative course is 100 mg. paludrine thrice a day for 10 days followed by a single dose of 300 mg. paludrine on the same day each week for a year.

(*b*) The treatment of the clinical attack in semi-immunes is as for M. T. malaria.

T.N.S.R.

Poliomyelitis: Diagnosis and pitfalls in diagnosis.—(*Jour. Lancet*, Minneapolis, 68: 383-388, Oct. 1948).

Three broad clinical types of acute anterior poliomyelitis are to be distinguished:—Abortive, non-paralytic and paralytic poliomyelitis. The abortive type may be the systemic phase of the disease with a single symptom as the forerunner of any acute infection. The central nervous system is not involved at the stage.

Non-paralytic type should be diagnosed from history. Symptoms and clinical signs and spinal fluid changes, even though no paresis or paralysis develops. The second stage involves the central nervous system. In addition to the general symptoms of fever, headache, anorexia, nausea, and vomiting, there may be stiffness of the neck and opistotonus. The ventral flexion of the spine and the head-drop are the most indicative signs for a positive diagnosis. If one or both of these are present with the characteristic spinal fluid changes, a positive diagnosis is clearly indicated. Paralysis develops in some cases usually on the 2nd or 3rd day of this phase of the disease. Pain, or loss of the deep reflexes and weakness and twitching of muscles are premonitory signs of approaching paralysis. T.N.S.R.

Poliomyelitis—Diagnosis of acute.—(*West. Virg. Med. Jour.*, 44, 299-302, Nov. 1948).

Kehoe describes the difficulties in aiming at a proper diagnosis of poliomyelitis. Among 100 patients admitted into the children's hospital with a presumptive diagnosis of poliomyelitis the diagnosis was established in 77; the other 23 being subsequently found to have other diseases. There is no single pathognomonic element of history, symptom, sign, physical or laboratory observations which would readily offer a positive diagnosis of acute anterior poliomyelitis.

Accurate history, a thorough physical examination, and good clinical judgment must be combined to make the diagnosis. However, cervical rigidity, muscular weakness or paralysis, muscular soreness, and loss of deep tendon reflxes in the involved areas are the most significant findings to be looked for; the minor pathognomonic signs of moderate temperature elevation, headache, irritability, nausea, vomiting and constipation are also to be watched. T.N.S.R.

Folic acid—indications for and limitations.—(L. S. F. Davidson, Edinburgh, *Med. Jour.*, 55, 406-12, 1948).

Davidson describes the therapeutic effects of folic acid in 85 patients with a variety of anæmias with and without thrombopenia and leucopænia. A hæmopoietic response occurred only in patients with megaloblastic anæmia, though improvement in alimentary symptoms and general health occurred in certain cases of the sprue syndrome and of normoblastic anæmia. Folic acid is not recommended for Addisonian prenicious anæmia, because of the dangers of development of neurologic complications. It is the agent of choice in the treatment of megaloblastic pernicious anæmia of pregnancy, the pernicious anæmia of infants, and (tropical) nutritional megaloblastic anæmia, and in such cases of the sprue syndrome as do not respond to liver therapy. Davidson thus offers a new concept of the pathogenesis of megaloblastic blood formation in the different groups of megaloblastic anæmias. T.N.S.R.

Fuchsin in therapy of cholera.—(A. Castellani, *Rev. Inst. Sero. Ital. Rome.*, 23, 73-75, 1948).

Castellani found basic fuchsin to kill the '*v*'-cholerae *without* disintegrating them. It is well tolerated internally by men and animals and retains its bactericidal and bacteriostatic powers on the comma bacillus even when dissolved in liquids containing pepsin, and other enzymes or proteins. Basic fuchsin in doses of 0·1 gm. (1½ grains,) with intervals of 10 *minutes* up to a daily dose of from 1 to 2 gm (15 to 30 grains) if administered after appearance of diarrhœa in cholera and preferably before appearance of vomiting, will control an attack of cholera. The dye can be given orally in pills or capsules. The author reports *a cure of all patients* who had this treatment. T.N.S.R.

Cure of chronic vivax malaria with pentaquine.—(L. T. Coggeshall and F. A. Rice, *Journal of the American Medical Association*, vol, 139, Febr. 12, 1949, pp. 437—439).

So far treatment of malaria has been characterised by the failure to obtain permanent cure, especially in vivax and quartan malaria. Quinine and the newer synthetic antimalarials afford prompt relief in the acute attack, but relapses occur in a high percentage of patients.

Since 1930 we know that these relapses may be reduced in number by treat-

ment with quinine, combined with substances of the 8-aminoquinoline group. First among these was plasmochin (now called pamaquin), then came pentaquine snythesized by Drake.

Many very favourable reports, both about quinine-pamaquin quinine-pentaquine have been published, but nearly always the reports mentioned annoying symptoms in a rather large percentage of cases: cinchonism and epigastric troubles with methaemoglobinæmia.

These symptoms were certainly caused by the rather high dosage of both drugs. Most authors used 2 grammes of quinine, with 60 mgm. of pentaquine daily. Coggeshall and Rice started with a 14-day regimen of 2 gm. of quinine daily also, combined, however, with 30 mgm. of pentaquine base. They wrote: "Since the amount of quinine was chosen arbitrarily and because many of the first patients treated complained of symptoms of cinchonism, the amount given was reduced to 1 gm. per day." Thus, 67 patients got this moderate daily dose, which proved to be as effective as the larger one. To quote the authors: "The dosage of quinine when decreased from 2·0 to 1·0 gm. seemed to be just as effective."

Of 185 patients, the majority of which was experiencing relapses every 4 to 6 weeks prior to treatment, 163 had no further objective findings referable to malaria; 10 were verified failures, with blood smears yielding parasites; the remainder had chills but no parasites could be detected in their blood smear. It is not sure whether or not the latter group ought to be considered as failures.

Anyhow, results have shown that quinine-pentaquine, in moderate doses like that prescribed by Coggeshall and Rice, very nearly succeed in radically curing vivax malaria.—(*Voz Dias agency International*).

Suppression and treatment of malaria.—(C.A. Bentley: *British Medical Journal*, Oct. 9, 1948, p. 691).

In a letter to the Editor of the *British Medical Journal*, Prof. Bentley, former Director of Public Health of Bengal, and Professor of Hygiene at the University of Cairo, tells of his experience with quinine during his long career in the Far and Near East.

In the Jalpaiguri Duars of Northern Bengal, an area where spleen and parasite indices exceeded 90 per cent, he protected himself by systematic daily use of 1 5-grain tablet of quinine sulfate; if he developed any sort of symptoms (headache, sore throat, indigestion. etc.) quinine was not stopped, but the dose was doubled for a few days.

In the Duars a large proportion of the European population took to systematic use of quinine. Since then, only three cases of blackwater fever occurred among Europeans who professed not to believe in quinine and only took it when they felt unwell.

Many authors (including Bentley himself) consider blackwater fever to be consequent upon a sudden dose of antimalarial drugs after a long intermission. The onset of blackwater fever immediately after use of mepacrine, as reported by Wilson (*Medical Journal of Australia*, vol. 2, 1943, p. 414) suggests that this disease is not due to a hypersensitivity to quinine itself, but rather to a by-product liberated from the parasites themselves by an antimalarial drug.

The moral appears to be that whatever the drug chosen for the suppression of malaria—whether it be quinine or mepacrine, and quite probably paludrine also—it would be wiser to take it daily rather than intermittently.—(*Voz Dias Agency International*).

Acute diarrhœa in children.—James Watt and Margaret F. Gutelius, *New Orleans M. & S. J.* 99 : 268 (Dec.) 1946.

Diarrhœal disorders constitute an important problem in the summer months, especially in the southern states. Clinical observations usually only suggest the etiologic agent. Accurate diagnosis is a laboratory problem. The pathogen is usually of the Shigella or the Salmonella group. The best medium for the purpose of differentiation is SS (Shigella-Salmonella) agar. The Shigella infections are susceptible to therapy with sulfonamide drugs, while the Salmonella infections are not.

Dehydration and acidosis constitute the major problems of treatment. If possible, the carbon dioxide-combining power of the blood should be obtained. Assuming that 55 volumes per cent is normal, sufficient one-sixth molar sodium lactate or 1·5 per cent sodium bicarbonate should be given to raise the carbon dioxide-combining power to this point. One cubic centimeter per pound (2 cc. per kilogram) of body weight of either solution is needed to raise the carbon dioxide-combining power 1 volume per cent. At least half the required amount should be given at once intravenously and the remainder subcutaneously or intraperitoneally. Dehydration is further combated by using Ringer's solution U. S. P. and 6 per cent dextrose in equal quantities. These may be given subcutaneously or intravenously. In cases of severe dehydration and acidosis 75 to 150 cc. of fluid per pound (150 to 300 cc. per kilogram) of body weight should be given in the first twenty-four hours. If given intravenously, one-half the amount is allowed to flow by gravity and the remainder at the rate of 5 to 10 drops per minute. If the drip method cannot be used, 10 to 30 cc. per pound (20 to 60 cc. per kilogram) may be given in a twenty to thirty minute period and repeated every four hours.

If the carbon dioxide determination is not available, it is advised that 15 cc. per pound of one-sixth molar sodium lactate or 1·5 per cent sodium bicarbonate be given intravenously, followed by an equal amount subcutaneously.

After fluid and electrolyte balance had been obtained, 60 cc. of fluid per pound of body weight will maintain hydration unless the diarrhœa persists, in which event more will be required, and 15 cc. of one-sixth molar sodium lactate per pound of body weight will be required to prevent the recurrence of acidosis. Ketosis may be avoided by adding 0·5 Gm. of dextrose per pound of body weight each day.

In some cases the diarrhœa fails to respond to this form of treatment. In such cases the causative factor may be a lack of potassium, as suggested by the work of Darrow.

In cases of moderate dehydration, lactated Ringer's solution U. S. P. is the choice of the authors. This may be given parenterally or by mouth if not vomited.

After body fluids have been restored. whole blood, plasma or amino acids may be indicated. Parenteral administration of vitamins is also advised.

Since the sulfonamide drugs are effective in treatment of Shigella infections and many cases are of this type, some sulfonamide compound may be given before the final diagnosis is established. Sulfadiazine is the choice recommended. The dose is ¾ to 1 grain (0·048 to 0·065 Gm.) per pound of body weight. The drug is continued until two negative cultures of the stool have been obtained, or for seven days, whichever is first.

The Salmonella infections do not respond to sulfonamide therapy, and proof that the infection is of that group indicates discontinuance of the drug.

General measures include rest, a fast of twelve to twenty-four hours and proper diet, and sedation if indicated. The diet should be low in carbohydrate and high in protein. Skimmed or evaporated milk is advised. Protein hydrolysates and protein milk may be valuable, especially early in treatment. Lactated Ringer's solution may be used as a milk diluent to prevent acidosis. The use of apple powders, foods combined with agar and kaolin have met with varied success. Berkley, Beverly Hills, Calif.—*American Journal of Diseases of Children*.

Transfusion in newborn infants.—Recent literature contains reports on giving transfusions to the newborn infant *via* the umbilical vein within the umbilical cord. The applicability of the method is limited by the brief period during which the umbilical vein remains patent within the rapidly atrophying cord. Estimates of this period vary between twelve and forty-eight hours. Pinkus utilized that portion of the umbilical vein which lies within the abdominal wall. Here the vein is readily available even after atrophy of the umbilical cord. A transverse incision is made cephalad to the upper margin

of abdominal insertion of the umbilical cord. The umbilical vein is visualised as a whitish, longitudinal, tubular structure elevating the thin midline aponeurosis. A 0·5 cm. longitudinal incision through the aponeurosis is made on either side of the vein. After loose application of a fine silk or a surgical gut ligature around the upper exposed portion of the vein, a transverse nick is made through its anterior wall. A cannula is then introduced cephalad until blood can be aspirated. The ligature is then tied with a single hitch to effect snug approximation of the vein wall around the indwelling cannula, and transfusion is carried out. On termination of transfusion, the cannula is withdrawn, and the ligature is tightened and completed with a second hitch. Skin edges are approximated with two silk sutures. The length of time after birth during which this technic is applicable is as yet undetermined, but its usefulness far outlasts the approach *via* the cord.—*Journal of A. M. A.*

SURGERY

Accidents in spinal anæsthesia.—*(Jour. of Surgery,* Manila, 3: 139 : May 1948).

Procaine sensitivity has recently been emphasised as a possible cause of reactions after spinal anæsthesia and the testing of sensitivity by dermal tests has been advocated. Drs. DeGuzman and Quitco beleive that dehydration is an important factor in some of these accidents. In 2 of their cases in which spinal anæsthesia was followed by severe complications, the patients had *not* taken adequate amounts of fluid before the induction of spinal anæsthesia, and consequently were in a state of relative dehydration, which involves low blood and cerebrospinal fluid pressures. A low spinal fluid pressure connotes less spinal fluid to mix with the anæsthetic and therefore a greater procaine concentration. Dehydration of the body secondary to the preoperative fasting or to acute pathological conditions would appear to contraindicate spinal anæsthesia unless fluids required by the body are supplied. Patients should take plenty of fluids the day and night before and on the day of operation. Artificial respiration is important when an accident results from spinal anæsthesia. Fluids for intravenous use should be on hand. Epinephrine is effective in raising the blood pressure in spinal anæsthetic shock; but considerable caution is needed in using it. In case a high intercostal paralysis results from the anæsthetic, the best position for the patient is a flat horizontal one. Artificial respiration is better given before injections of epinephrine. T.N.S.R.

Human bites.—*(Southern Surgeon,* Atlanta, 14: 690: 1948).

About 800 cases of human bites had been recorded in literature, and to this Boyce of the New Orleans Charity Hospital adds a series of 126 bites in 93 patients. 79 of these affected the hand. The ideal treatment of a human bite seen early (within four or five hours of the injury) includes (1) cleansing for at least ten minutes with soap and water, (2) followed by thorough irrigation of the wound with normal saline or clean water, (3) determination of the depth and nature of the injury by gentle retraction of the wound edges, (4) splinting of the hand with massive dressings in the position of function, (5) application of moist heat, if no surgical interference is deemed necessary, (6) excision of devitalised tissue; debridement should be conservative but thorough, (7) hospitalization for at least 48 hours and (8) administration of both sulphadiazine and penicillin. *Primary wound closure is definitely contraindicated in human bites.* Bites on parts of the body other than the hand, are considered to be less dangerous than those on the hand and generally speaking this is correct. T.N.S.R.

Treatment of gastric ulcer with ext. licorice—(*Ned. Tyds. V. Ganees,* Holland, 92. 2957–68 : 1948, Eng. Abst.)

Revers says that 2 years ago he first reported on the administration of succus liquiritiae (Ext. Glycyrrhiza) to patients with gastric and duodenal ulcers. A paste like consistency of the extract is made by mixing 100 gm. of Pulv Glycyrrhiza with 50 gm. water. The patient with ulcer takes a teaspoonful of this paste thrice a day. On the assumption that it exerts an influence on the wall of the stomach, the paste is given when the stomach is empty, *i.e.*, an hour before breakfast in the morning, at about 11-30 a.m. and again at 9 p.m. (before going to bed). In 27 out of 48 patients treated in this manner, the symptoms subsided between the first and fourth days and in 6 others somewhat later. Only in 5 of the 48 was the treatment ineffective. Favourable results were obtained with the Glycyrrhiza extract in cases of gastritis.

Oedema of the face and extremities developed in a few patients during treatment and those complained also of severe headache, pressure in the chest and abdominal pains. Pharmacological studies showed the presence of a spasmolytic substance in the drug. T.N.S.R.

Podophyllin treatment of venereal warts.—(*Actaderm-Venereol-Stockholm,* 28, 488–97, Eng. Abst.).

Drs. Emanuel and Varming treated 109 male patients with podophyllin and followed up the patients subsequently. In 63 the warts were the only lesions present; in 25 there was gonorrhœa and in 21 balanoposthitis in addition. 2 had perineal warts and 7 had intrameatal ones; in 5 of these latter this was the only site affected.

The warts were painted with 25 per cent podophyllin in oil and the patients were instructed to wash the area after 24 hours and daily after this time. The warts were observed 3, and 8 days and 4 weeks after treatment when they were repainted, if necessary. 70 were cured with one application, 11 with 2 applications and 8 with 3. 14 relapsed; but 103 were finally cured and there were only 6 failures. 3 of the 7 intraurethral warts required 3 applications. 42 had some local reaction to the treatment, with a somewhat severe inflammation in *only* 4 cases which were hospitalized. T.N.S.R.

American experience on the treatment of cancer of breast.—(Dr. F. Adair's lecture before the *Surgery section of the Royal Society of Medicine* on 25-3-'49).

Dr. Frank Adair of the New York Memorial Hospital in a very lucid lecture before the section of surgery of the Royal Society of Medicine, London, related the experiences of himself and other American Surgeons on the Surgery, Radiation and Hormones in the treatment of breast cancer.

To give a sufficient dose of X-rays to kill breast cancer, using X-rays only was not feasible, owing to the great damage caused to the skin and other tissues. He criticised the employment of radiation to cover inadequate surgery. At the Memorial Hospital patients, in whom no involvement of the axillary glands would be detected microscopically, were treated by surgery alone; when there was such involvement post-operative X-ray therapy was given During the period 1934–1940 the proportion of 5 year survivals after radical mastectomy when the cancer was limited to the breast, was 74 per cent and during the period 1940–1944 it was 82 per cent.

Turning to hormone therapy Dr Adair found Stilboestrol the most satisfactory œstrogen; but it took a very long time in some cases before any improvement took place. Cases of breast cancer treated with Testosterone ceased to menstruate for 3 to 6 months and in women near menopause this amenorrhœa might be permanent. In his own practice he had been much impressed by the occasional response to the injection of Testosterone particularly in cases where there were metastases in bone. Large doses of Testosterone induced male characteristics and in that way probably inhibited mammary growth. T.N.S.R.

Streptomycin in the surgery of pulmonary tuberculosis.—Murphy says that the Army and Navy have been conducting a cooperative study of the bacteriostatic action of streptomycin on the tubercule bacillus. The surgical divisions of the 47 participating study units were asked to determine whether streptomycin provides any protection against postoperative spread or reactivations and against the development of

empyema in patients subjected to thoracoplasty and pulmonary resection for tuberculosis.

The programme was initiated in January, 1947. After that date, every alternate patient subjected to thoracoplasty and every patient undergoing lobectomy or pneumonectomy was given streptomycin as a protective agent. It was felt that the use of controls in resection cases could not be justified under present conditions.

In the beginning 2 gm. of streptomycin per day were given by intramuscular injection, divided into five doses. On October 15, 1947, the standard daily dose was reduced to 1 Gm., divided into two doses of 0·5 Gm. each at 12 hour intervals. It was desired to avoid, as far as possible, the development of resistance to the drug. Under both regimens the drug was administered for one week before and two weeks after each operation. Since the usual interval between thoracoplasty stages was three weeks and the number of stages per patient averaged three, continuous administration of streptomycin for nine weeks has been the rule in the thoracoplasty series.

The results of study concerning the protective action of streptomycin in 1,347 thoracoplasty stages and 129 pulmonary resections for tuberculosis are presented.

The conclusion was reached that streptomycin should not be given to the routine thoracoplasty patient but should be reserved for the occasional borderline risk patient in whom the disease is more wide-spread and more exudative in character than is usually considered suitable for surgery.

The use of streptomycin is mandatory, however, before as well as after pulmonary resection for tuberculosis.

(Murphy, J. D. : Surgery, Gynæcology and Obstetrics, 87: 546-548, November, 1948. The author is connected with the Department of Surgery, Veterans Administration Hospital, Oteen, N. C.) —(*Surgical News Letter* from United States Information Library).

EYE, EAR, NOSE & THROAT

Recent advances in cataract surgery.—(E. G. Gill, *Southern. Med. Jour.*, 1948, 3 : 191-198).

After reviewing the recent advances, Gill advocates the following technique for the extraction of the lens in capsule. The pupil is dilated by instilling 2 drops of 0·2 % Scopolamine Hydrobromide in the conjunctival sac. Akinesia is produced by the *Van Lint* method. A lid speculum is *not* used. The lids are held open by silk sutures. The upper suture is placed under the superior rectus muscle 4–6 mm. behind its insertion. The lower suture is placed through the skin of the lower lid near the lid margin. A full 180 degrees concentric conjunctival flap is dissected 3 mm. from the corneal limbus. Double-armed corneo-scleral sutures are placed at 1 and 2 o'clock with No. 6·0 silk in atraumatic needles. Conjunctival sutures are placed at 10, 12 and 2 o'clock. The section is made at the limbus with a specially devised keratome which is 14 mm. in width at its base. The incision is widened to the horizontal meridian with scissors. If an iridectomy has been decided upon, it is performed at this point. The final step in the operation is the extraction of the lens in capsule by the head-on or Verhoeff method. The zonular fibres are ruptured by point pressure at 4, 6 and 8 o'clock. Gentle pressure is made on the iris at 3 and 9 o'clock with a small iris repositor. Firm continuous pressure is made on the limbus at 6 o'clock. When the lens presents itself in the wound it is grasped by a Verhoeff capsule forceps and delivered by continuous pressure firm below. The sutures are then tied and 1 per cent atropine is instilled in the conjunctival sac. The patient is generally allowed out of bed 24 hours after operation. The author claims that by this technique 90% of his cases achieved a visual acuity of 20/25 or better. Hæmorrhage has been reduced to 3 per cent and vitreous loss to 2 per cent.

T.N.S.R.

Nicotinic acid in chronic glaucoma.—(*Union Medicale de Canada*, Montreal, 77: 1433-1948).

Moniette treated with nicotinic acid cases of chronic glaucoma. This vasodilator has been used by Gallor in France for 12 years with satisfactory results in glaucoma cases, in which the intra-ocular pressure did not exceed 50 mm., particularly in patients with simple chronic glaucoma in the early stage in which the vascular lesions are not yet accentuated. Repeated vasodilator tests with intravenous doses of 2 to 3 mg. of the drug twice or thrice within one week must precede the treatment.

The treatment consisted of 1 mg. of nicotinic acid in a teaspoonful of distilled water 2 teaspoonfuls daily. The vision was improved from 15/30 to 15/20 and tension was reduced from 26 to 20 in one case and from 25 to 19 in others. Headache disappeared and so did the clouds before the patient's eyes. Gallor's results in France have thus been substantiated in Canada. T.N.S.R.

Management of carcinoma of the larynx.—(Henry B. Orton, *Laryngoscope*, 59:315, (April), 1949).

It is difficult to compare and appraise vital results; they are often incompletely recorded, some surgeons decline doubtful cases and will accept only those which promise definite results. The difficulty and disagreements seem to be about the so-called extrinsic type of case. According to reports, there seems to be a controversy between operation and irradiation. With the incomplete reports of irradiation where the radiologist claims beneficial results, the erroneous belief has arisen that almost all, if not all, cases of extrinsic cancer should be irradiated in preference to surgery, and that the radiologist should be consulted as to the advisability of irradiation before surgery is attempted. Such fallacy I have attempted to show in my tables. I feel that surgery still holds a very important place in the battle against extrinsic cancer of the larynx and pharynx. This statement has been confirmed by others who are doing extensive neck surgery.

When we consider in general the results by surgery, it is fair to ask ourselves what are the results without surgery. At the present time two conclusions present tthemselves: first we have technical methods which seem soundly established and capable of progressive refinement and extension; second, we can say that in cases carefully but not too rigorously selected as favourable, we can look for satisfactory results as to the disease, cures by drastic but not very dangerous operations which have no serious disability. I cannot agree with the statement that these operations are mutilating. In our follow-up we rehabilitate the laryngectomized patient in the use of the esophageal or pharyngeal voice. It is gratifying to see how very promptly these patients readjust themselves, returning to their former occupations and enjoying life.

The preoperative and postoperative care of these patients is of utmost importance. It is only with the meticulous care and the coordinated efforts of the surgeon, pathologist, anæsthetist, assistants and nurses that it is possible to show the results as I have. These operations are not one man's work; they involve team-work of the highest type, and it is this team's work that shows the low mortality rate.

I believe that radical surgery saves many lives that would have been sacrificed if more conservative forms of surgery had been performed, and I still believe that more lives can be saved by surgery, if diagnosis is made earlier in the epilaryngeal or extrinsic cancer of the laryngopharynx.—*Eye, Ear, Nose and Throat Monthly.*

Silent dacryocystitis.—(F. H. Thedore, *Arch. Ophth.*, August, 1948).

Dacryocystitis is generally described in the ophthalmic literature as a chronic inflammation of the lacrimal sac due to stenosis of the nasolacrimal duct, which usually is of considerable degree, if not complete. The stenosis, in its turn, develops as a result of inflammation of the nasal mucosa extending by continuity to the mucous membrane of the nasolacrimal duct. A mucopurulent or purulent discharge is present, which flows into the conjunctival sac on pressure. Sometimes a mucocele develops in cases of long standing disease. The

condition known as acute dacryocystitis is more properly designated as acute peridacryocystitis; it occurs when the organisms present in chronic dacryocystiois penetrate the submucous tissue and invade the wall of the sac itself. Thus, the "acute" inflammation is secondary to chronic dacryocystitis. These two obvious types of inflammation of the lacrimal sac appear to be the only ones generally accepted. A third type seems to deserve inclusion in the everyday thinking of the ophthalmologist.

It is not sufficiently recognised that there exists an incipient, mild, low grade dacryocystitis in which obstruction does not play an obvious role. Experience would indicate, however, that such a "silent" dacryocystitis is by no means rare, but, on the contrary, is often discovered when looked for in likely cases. If this more or less acute, although mild, dacryocystitis does not clear up, it is possible that the classic chronic type of dacryocystitis may result. It is only logical to assume that the mucous membrane of the lacrimal sac, like mucous membrane elsewhere, containing mucous cells, and sometimes mucous glands, is susceptible to mild, sometimes transient, inflammations. In cases of this type only mucus would be found. Furthermore, in the severer inflammations, in which a purulent or mucopurulent exudate occurs at first, only mucus might be noted later. The lacrimal washings in the cases reported here indicate that as the inflammation subsides mucus is always found sooner or later, before cure is complete. Thus, the presence of mucus may indicate either mild inflammation *per se* or an intermediate stage in the course of a severer dacryocystitis. Associated nasal disease may of course, be present; it may even be the cause of the dacryocystitis. The important point is that early evidence of dacryocystitis causing conjunctivitis, or only tearing, may be discovered and the condition adequately treated if the systematic examination of the eye includes the technic described here—qualitative and quantitative inspection of the washings resulting from irrigation of the lacrimal passages.

A mild type of dacryocystitis, usually mucoid in character, is often the unsuspected cause of persistent conjunctivitis or of unexplained tearing. This "silent" type of dacryocystitis is overlooked if investigation of the tear passages is limited only to a determination of patency. If, however, the lacrimal washings are collected and examined both clinically and bacteriologically, the finding of mucus, mucopus or frank pus containing pathogenic bacteria will indicate the presence of "silent" dacryocystitis. In cases of this type obstruction does not play an obvious role. Once the diagnosis is established and treatment of the dacryocystitis instituted, the conjunctivitis, which in almost every case of the present series had existed for months, subsided in a matter of weeks, recovery paralleling the clearing of the lacrimal washings. Experience suggests that this low grade type of mucous dacryocystitis is not uncommon and, if not recognised, may eventually lead to more obvious inflammatory changes in the lacrimal passages.—(*Indian Journal of Ophthalmology*, vol. x, No. 2).

A contribution to the question of otitis media in infants.—A. Mares (*Journal of Laryngology and Otology*, 62: 207, April, 1948) reports that in 101 infants under one year of age in whom myringotomy was done because the tympanic membrane showed some abnormality, the findings in 6 cases were normal, and the slight changes in the ear drum were attributed to the early age of the infant in 3 cases and to a previous otitis media in one case; in 2 cases the slight injection of the drum around the manubrium was not caused by otitis media. In 16 cases, the slight changes in the ear drum were attributed to a previous "otitis media neonatorum hyperplastica." In 79 cases otitis media was present; spontaneous perforation of the ear drum had occurred in only 9 of these cases; 43 showed only slight changes in the ear drum (slight dullness and or absence of the cone of light. In 46 cases there was bronchopneumonia or other airborne infection; in 41 cases severe gastroenteritis; and in 5 cases slight gastroenteritis. Mastoidectomy was done in

11 cases: there were 3 deaths in this group, due to meningitis with septicæmia in one case, and to severe toxæmia in 2 cases. The average number of myringotomies in the ears treated for otitis media was 1·8; in the majority of cases, there was definite improvement after myringotomy. Both penicillin and the sulfa drugs proved less effective in the treatment of otitis media in these infants than in older children and adults. In 64 of the 79 cases, the otitis media was cured and the patients recovered; 2 infants died after the otitis media was cured; 8 died from other organic lesions (as proved at autopsy), the otitis media playing only a minor note; 5 died from otitis media and its complications, including the 3 deaths after mastoidectomy, and 2 deaths in infants seen only twentyfour hours before death.—*Medical Times*, September, 1948).

OBSTETRICS AND GYNÆCOLOGY

The conservative treatment of placenta previa.—(W. G. Mills, *Brit. M. J.*, 4585: 896-99, Nov., 1948).

Conservative or expectant treatment of placenta previa is based upon the contention that the first hemorrhage will never be fatal in the absence of vaginal manipulation and that subsequent hemorrhages will not be fatal if the hemoglobin level was normal when bleeding began. Results are reported in a series of 100 cases of placenta previa largely treated conservatively. The principles of treatment were that, if possible, no infant should be delivered before about the thirty-seventh week of pregnancy. Risks of asphyxia to the fetus and unnecessary blood loss to the mother were considered to outweigh the possible advantages to the fetus of the last few weeks in the uterus. A severe hemorrhage before the last three or four weeks was therefore treated conservatively but during these weeks was considered an indication to empty the uterus.

The usual procedure with hemorrhage before the thirty-seventh week was to examine the cervix with a speculum upon admission, give morphine as indicated, check the hemoglobin level, make blood tests and wait for the bleeding to stop. No attempt at radiographic location of the placental site was made and no vaginal examination made unless immediately before a cesarean section. Primiparas were often sent home to bed after several days without further blood loss and most cases with only slight loss before the thirty-second week were allowed up and about with instructions to go to bed immediately if further hæmorrhage occurred. Section was usually done when the placenta was palpated across the cervix or coming up to its margin. Experience has indicated that active treatment may be deferred in over 50 per cent of cases unless there has been procrastination on examination before admission when this is reduced to 25 per cent.

The disadvantages considerably outweigh the advantages of conservative treatment for the mother as she must either stay in hospital or be severely restricted at home for a number of weeks, and may have further hæmorrhage. There is slightly less likelihood of cesarean section however, little increased danger to life, and much more probability of having a live baby. Section was done in 47 of the 103 cases in this series. Advantages of the conservative treatment greatly exceed the disadvantages for the fetus as prematurity is the chief cause of fatal death in these cases. Delay of even a few hours is unjustifiable however after the fetus has reached a satisfactory stage of development as any serious bleeding may cause sudden fetal asphyxia. Published reports after conservative treatment show a fetal and neonatal mortality below 30 per cent for the first time. There were no maternal deaths in this series and a fetal mortality of 16·5 per cent. Expectant measures are only possible in areas having reasonably good transportation but in those, with cooperation from local doctors, the fetal mortality could well be reduced to about 10 per cent and the maternal mortality remain normal.—*Quarterly Review of Obstetrics and Gynecology*.

Control of eclamptic convulsions by pentothal drip. A report of two cases.—(D. P. Short, Nelson Hospital, Wellington, New Zealand. *New Zealand M. J.*, 47 : 485-6, October, 1948).

The oral administration of barbiturates to control eclamptic convulsions requires a conscious patient while intermittent parenteral administrations disturb the patient and may precipitate convulsions. Reports are presented of 2 cases of eclamptic convulsions treated by Hawes' method of intravenous pentothal drip. The first case was a 28 year old multipara admitted after 6 post-partum convulsions. Another fit occurred while being admitted. She was immediately given soluble sodium luminal 5 gr. and the intravenous pentothal drip commenced. Another convulsion started just as this treatment was being completed and was controlled by running the pentothal drip rapidly for one minute. A venesection of 400 cc. of blood was done because of the cyanosis and high pulse rate but two more convulsions occurred and were promptly controlled by resuming the pentothal drip as necessary. No further convulsions occurred. She was a normal a year later.

The second case was a 27 year old multipara, almost seven months pregnant, who was found unconscious and had 3 convulsions. Another occurred upon admission. An immediate intravenous pentothal drip was given and no more convulsions developed. The patient was catheterized and given injections of magnesium sulphate without disturbance. She became conscious seventeen hours after admission and a dead fetus was delivered. Convalescence was uneventful.

This treatment has many advantanges over other methods for controlling eclamptic convulsions. Only a single manipulation is necessary to commence the drip. This both controls the convulsions and permits the performance of nursing and other necessary measures without disturbing the patient. The drip was stopped after twenty-four hours in both these cases, not over 0·5 gm. of pentothal having been used. It has been suggested that 25 to 30 per cent glucose be used in the main flask and 5 per cent in the pentothal flask to increase tissue dehydration and diuresis.—*Quarterly Review of Obstetrics and Gynecology.*

Book Reviews

Pathology—Edited By W. A. D. ANDERSON, M.A., M.D., F.A.C.P., Prof. of Pathology and Bacteriology, Marquette University School of Medicine, Milvaukee, Wisconsin, 1948, 1453 pages, with 1183 illustrations and 10 colour plates. The C. V. Mosby Company, St. Louis.

This Pathology Textbook written by Dr. Anderson and 31 collaborators has 1453 pages in which there are 1183 illustrations and 10 beautiful colour plates. In this volume the author has brought together the specialised knowledge of a number of pathologists in particular aspects or fields of pathology. Each one is an authority in his speciality and the sum total of their contributions is a textbook of pathology that is well written, and well balanced in the various branches of the subject matter and written in an authoritative manner. The usual order of presentation is maintained because it has been found logical and effective in teaching medical students and also because it facilitates study and reference by graduates. The chapters on Effects of Radiation, Bacterial Diseases, Rickettsial and Viral Diseases, Fungus Infections, The Organs of Special senses, The Gastrointestinal Tract, The Liver, The Breast, The Skin, Heredity and Constitutional Diseases are well written. There are chapters for each of the Endocrine Glands. At the end of each capter there are extensive references to current publications both in medical journals as well as in textbooks. The book is well got up, beautifully printed and contains matter which will be useful not only to the medical students but also to the practising physician. The book is one of the best books on pathology we have come across.

U.K.B.

A Handbook of Diabetes Mellitus and its Treatment—By J. P. BOSE, M.B., (Cal.), F.C.S. (Lond.), In-charge Diabetic Research, Calcutta School of Tropical Medicine, Physician in-charge of Diabetes Department, Carmichael Hospital for Tropical Diseases, Calcutta, Fourth Edition, thoroughly revised and rewritten, 227 pages, illustrated, 1949; U. N. Dhur & Sons Ltd., 15, Bankim Chatterji Street, Calcutta.

Dr. Bose having started a new Department in the School of Tropical Medicine for research and investigation in diabetes with special reference to problems relating to India is very well fitted to write a book on the subject. He has dealt with the subject of Diabetes and its treatment in a very systematic and practical manner giving special attention to facts affecting Indian conditions and Indian ways of life.

Chapters on Insulin and its later modifications, Diagnosis of diabetes, Blood sugar, Diabetic Coma and its treatment are very well written. Chapters on Dietetics in the treatment of Diabetes has been completely overhauled and re-written. The author's formula for the calculation of diabetic diet is bound to be useful. Diets suitable for vegetarians and non-vegetarians have been incorporated in this chapter. There are good chapters on Diabetes in Children, and Glycosuria and life insurance work. The author has given detailed description of his own methods for estimation of blood-sugar. The book also contains a few useful recipes for diabetic patients. The author deserves to be congratulated on this very excellent book. We are sure it will be useful to every practitioner who will be called upon to treat diabetic patients.

Synopsis of Pathology—By W. A. D. Anderson, M.A., M.D., F.A.C.P., Professor of Pathology and Bacteriology, Marquette University School of Medicine; Pathologist, St. Joseph's Hospital, Formerly Associate Professor of Pathology, St. Louis University School of Medicine, 741 pages with 327 text illustrations and 15 colour plates. Second Edition, 1946. The C.V. Mosby Company, St. Louis.

The author's original intention was to produce a book to fill a gap which has existed between the very elementary manuals of pathology and the very excellent larger textbooks and reference works. He has endeavoured to present pathology in a compact and condensed form, in a manner that will be useful to the medical student and also to the clinician who must maintain familiarity with the foundation sciences of medical practice. In this endeavour he has succeeded very well. Every one must admit that it is a difficult task to condense such an important and large subject as pathology, but the author has nevertheless succeeded in producing in a concise synopsis in which not only essentials are included, but the broad outlines and patterns are not obscured by a maze of detail. A study of the book will enable the reader to acquire the first essentials and the broad outlines on the subject.

In this second edition, all chapters have been re-written and the whole text-book has been brought up-to-date. The chapters on Rickettsial and Viral Diseases, Spirochetal and Venereal Diseases, Mycotic, Protozoal and Helminthic Infections have been enlarged and brought up-to-date. The Chapters on Inflammation and Diseases of the Lungs and the Nervous System have been thoroughly revised. Wherever possible, the subject matter has been arranged in tabular form to enable the reader to understand the descriptions in a very clear manner. References to recent publications in English in the important medical journals have been given wherever possible. The illustrations are very good and the printing and the general get-up of the book is excellent. We whole-heartedly recommend this book to students of medicine and to post-graduates who have to study the subject of Pathology.

Psychology and Disorders of Sex—By AJIT KUMAR DEB, M.SC., M.B., D.P.M. (ENG.), Professor of Physiology, City College, Calcutta, Physician, Lumbini Park Clinic and Hospital, Mental Hospital, Mankundu and Islamia Hospital, 220 pages, illustrated, The Readers' Corner, 5, Sanker Ghose Lane, Calcutta 6. [Price : Rs. 6-8-0.

Although there are very many authoritative treatises on sexology, the author has taken great pains in culling together important matter and presenting them in a handy book which would serve for reference in daily routine practice. There is no denying the fact that sexual disorders, like mental diseases, have been relegated to the background by medical men of our country all along. An attempt has been made by the author to cover within this small volume a field which has many intricacies and ramifications. Chapters on Anatomy and Physiology of the Sex Organs, Classification of Sexual Anomalies, Deviations and Perversions, Hypererotic ism or Increased Sexual Activity, Difficulties in Married Life and Physical Union. Psychosexual Aspects of Pregnancy, Sex life in Mental Diseases, Sexual Crimes and Indecency deserve special mention. The printing and the general-get-up of the book is very good. This will serve as a useful compendium to students of medicine and to psychologists.

The Expectant Mother and Her Child—By M. A. KAMATH, M.B. & C.M., Madras Medical Service (Retired), Second Edition, 1949. Pages 231. [Price : Rs. 4.

This is a small treatise to guide the expectant mother during her pregnancy and later, in the care of her infant. The care of the infant has been dealt with at great length and contains details not often met with in a book of this size. Particular mention must be made of the chapters on feeding of infants and the training of children. The portion dealing with mothercraft is good. The book also contains in the end a glossary of technical terms, as also weights and measures in common use. The book affords interesting reading and will be found very useful by expectant and nursing mothers as also by girl students in higher forms in all schools.

Nutrition—By LT COL. BARKAT NARAIN Second Edition—illustrated, revised and

enlarged—with a Foreword by the Hon'ble Rajkumari Amrit Kaur, Minister of Health, Government of India—Printed by M. L. Sabharwal at the Roxy Press, New Delhi. [Price : Rs. 1-8-0.

"In a country like India where the vast majority of human beings are not getting enough to eat and where they are wholly ignorant of food values a booklet such as this should prove of great benefit." These words of the Hon'ble Rajkumari Amrit Kaur are really true. There is now a very great necessity to educate the general public in the laws of health. The science of nutrition is, therefore, of vital importance. Dr. Barkat Narain has really done a useful public service by bringing out this little booklet.

Chapters on Vitamins, Cereals, Vegetables, Milk and Milk products and Nutrition are very good. Chapters on campaign for food and grow more food are also well written. There is a useful appendix giving balanced diets for the expectant mother, for the nursing mother and for children of various ages and also cheap diets for the indoor worker, for labourers and for the technical labourer doing hardwork.

The book is written in very simple and easy language and its illustrations are very good. The author brings home in a very clear manner the points he wants to impress. Some of the charts may well be copied for exhibition either in Schools or in Health Centres.

Streptomycin and Its Uses—By. J. R. GOYAL, M.B., B.S., 1949. [Price : Rs. 2

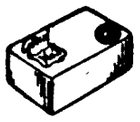
This little handbook gives a detailed account of the use of streptomycin, its pharmacology, its toxic effects and its clinical use. The value of streptomycin in influenza, subacute bacterial endocarditis, tularemia, in plague, in urinary tract infections and gastro-intestinal diseases, brucellosis, in some skin diseases and in venereal diseases, has been thoroughly discussed in this little book.

The Harbingers of Future Medicine—By Dr. PRANJIVAN M. MEHTA, M.D., M.S., F.C.P.S., Shree Gulabkunverba Ayurveda Society, Jamnagar.

The author in this little booklet has dealt with such topics as the Origin and Evolution of Medicine, Man and the World, Medicine a Social Science, the Harbingers of Future Medicine, Features of Ayurveda etc. The author admits that the achievements of science are stupendous despite the blind alley to which they have led. The shrinkage of distance, the mysteries of the planets and stars, invisible rays from the sun beyond the visible spectrum, the discovery of finer metals such as radium and uranium are the achievements of which Science can be proud of. But the author thinks that the wheel of time, like the ocean tide has turned, and to us in India the author claims, has come a chance to take the leadership in the world affairs. He puts in the plea that at this hour of India's destiny she must draw her strength and inspiration from the past and go ahead with unerring step on the path of evolution. He pleads for searching enquiry into Ayurveda to yield up its treasures of drugs, its logic, its philosophy and the means to attain happiness. While we do not agree with many of his conclusions, there is no doubt that he has written a book which gives food for thought and puts one side of the question before the readers.

The Coimbatore District Tuberculosis Sanatorium Society—Thirteenth Annual Report for the period 1-4-'48 to 31-3-'49.

This report gives us ample evidence of the very excellent work done by the Coimbatore District Tuberculosis Sanatorium Society. The year under review is the 13th year of the working of the Sanatorium. The year opened with 165 patients. There were 296 new admissions, making a total of 461 patients treated for the year. 273 patients were discharged during the year. Patients were admitted from practically all the districts of South India. Out of the 244 cases under review, 21 come under Stage I, 29 under Stage II and 194 under Stage III. It will thus be seen that 80 per cent of the admissions were in the advanced or 3rd stage of the disease. 82 cases improved, 83 stationary, 45 cases worse and 24 died. Considering the fact that no selection in the admission is made, this is very good average. 1324 X-ray photos were taken for inpatients and 203 for outpatients, 44 cases were given sanocrysin, and 40 cases were given streptomycin and artificial pneumothorax was done in 204 cases. Pneumoperitoneum was given to 4 patients and thoracoplasty operation was done on 18 patients. A perusal of the opinion of the distinguished persons who visited the Sanatorium shows that the work done has received the approval and praise of those who visited it. Public donations from distinguished ladies and gentlemen have been acknowledged and gratitude of the suffering humanity must go to these benefactors. The Sanatorium Society has done good work and requires public support and encouragement. We congratulate the Medical Superintendent on the very excellent work turned out.



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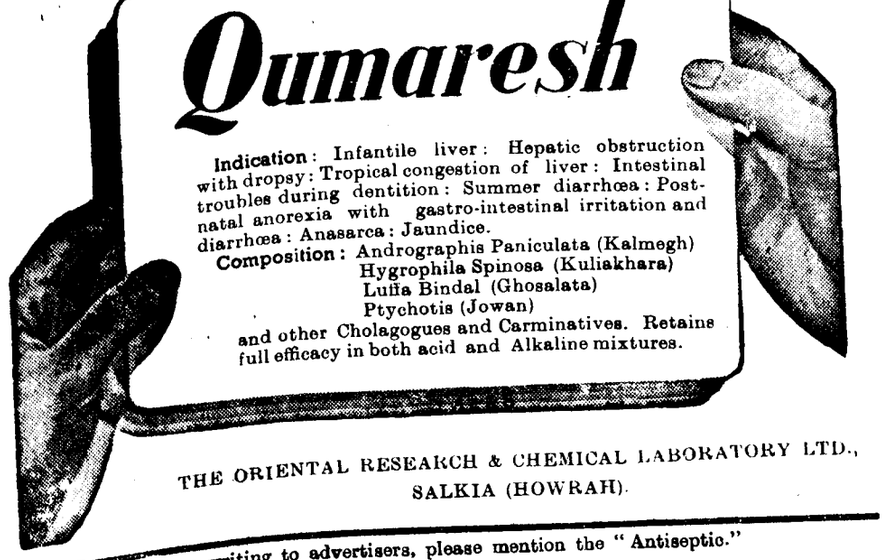

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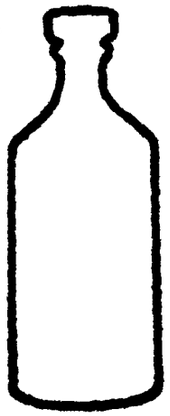

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Original Articles

Food and Food Supplements*

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In different parts of the world, people consume various kinds of foods, the nature of which depend largely on availability, climate and other environmental factors. Thus the Esquimos live on a predominantly non-vegetarian diet in which fat and protein constitute about 80%. There is very little vegetable matter in their diet and of this starch forms an almost negligible part. In the temperate and sub-tropical regions, the diet is more balanced and contains 10 to 15% of fat and 15 to 25% protein. It is generally mixed diet in which cereals, vegetables, fruits etc., form about 40 to 50% of the diet. Over a large part of the tropics, the diet, especially of the poorer sections of people, who form the majority contains about 5% fat and 8% or less of protein. This type of diet is predominantly vegetarian and contains over 80% of cereals, tubers and other starchy foods. It would thus be seen that starch forms the main constituent in the diet of the tropical regions, while it is almost absent from the diet of the people in the extremely cold regions. Foods which can easily be burnt in the body are required for maintaining the body temperature in cold regions, while those which are less rich and develop less heat energy are required in the warm tropical climate. It will thus be seen that the choice of food is essentially one of adaptation to environment and subsequent development as a habit. Experience has shown however, that

* Summary of the Inaugural Address delivered before the Mysore Medical Licentiates' Association on 27th August, 1949.

one can change from one diet to another, though it may take some time to get used to the change. It would be possible to live on a diet which is completely free from starch, or even fat. Protein is essential but one can change from a high protein to a low protein diet depending on environment.

Utilisation of different diets in the human body

The extent to which a diet is utilised by the human body depends not only on age, condition of health, habits of life and other related factors, but also, to a large extent, on the nature of the diet. Thus, it is of interest to mention that people who live on a diet which consists predominantly of fat and protein, digest most of their food and that there is very little of fæcal excretion amounting to hardly 200 gms. a day in the wet state. On the other hand, a diet which consists predominantly of cereals and vegetables is not wholly digested and yields a large fæcal residue which may be as high as a kilogram or more per day.

Variations and quality of different Indian diets

While in most of the smaller countries there is not much of regional variation in regard to diet, there is considerable variation in the bigger countries like India and China. Thus, we have in India nearly a dozen types of regional diets. We have the range from the rich mixed diet of the Punjabies including meat, milk, eggs and fish together with wheat, pulses, and vegetables, to the poor South Indian diet which consists mostly of cereals and tubers with very little of pulses, meat or milk. The quality of the food is reflected in the physical development and other attributes of the people in the different regions. More than two decades ago, McCarrison carried out an experiment comparing the response of experimental animals (chiefly, albino rats) to the different types of Indian diet. He observed that the growth response varied considerably with the nature of the diet; that while the animals grow at 12 gms. or more per week on the Punjabi diet, they grow 3 to 4 gms. on the poor South Indian Rice diet as also on the poor Bengali diet. He also noted that the animals receiving the poor cereal diet showed a number of pathological symptoms such as hæmorrhage in the digestive tract, liver disorder, shedding of hair, etc. He also reported that the animals on the poor diet had a tendency to develop lung affections and that many died of pneumonia. Experimental animals do not breed well on the poor cereal diet. The few young ones that are born do not survive for long. The observations on experimental animals are generally reproduced in the case of human subjects. It is chiefly in respect of reproduction that the human subjects differ mainly from the experimental animals. The rice-eaters are some of the most prolific in the world and this in fact has been mainly responsible for the food crisis of the present day!

The rice problem

In spite of its being a food material of low nutritive value, rice is the most popular cereal in the world. It is eaten in practically all the tropical and sub-tropical countries which account for more than half the population of the world. The following are some of the causes for the high popularity of rice. It has an attractive appearance and a natural taste and is easily digestible. It has been found that in addition to the normal rice-eating population, a fair section of even those who have been accustomed to eating millets and tubers change over to rice whenever circumstances permit them to do so. Persons accustomed to eating rice find it extremely difficult to change over to any other grain or tuber. During the sad and devastating Bengal famine of 1943, it was observed that the rice-eaters would not readily change over to millets, even when there was practically no rice to be had. Similarly, during 1946 and subsequent years, when large quantities of wheat and millets were distributed to meet the shortage of rice in South India and in Bengal, these grains were used only to a very limited extent and quite large quantities went to waste. Rice has a tremendous hold on its consumers and we will have to see how far their requirements can be met either directly or in other ways.

At the present time, the estimated potential surplus production of rice by countries like Burma, Siam and Indo-China is of the order of about two million tons; whereas the requirements of deficit countries like India, China, Malaya, Ceylon, etc., is very much more. The rice producing countries can of course increase their output of rice by suitable application of fertilisers and organic manures. The latter are however available only in very small quantities and it is unlikely that, in the absence of these, there will be any appreciable increase in the production of rice. Thus, India would require a few million tons of Ammonium Sulphate alone for her rice fields, whereas the maximum contemplated production for all the crops is less than four hundred thousand tons. Even this will take some years to come to the stage of maximum production. In the meantime, the population of rice-eaters keeps on increasing and to meet the increasing requirements, alternative foods acceptable to such people should necessarily be sought for and provided.

The rice grain contains about 80% starch, which is the main constituent. It also contains about 8% protein. Similar types of starch, as also proteins of nearly as good quality are widely distributed by nature, but none of these natural forms provide grains which can be cooked and consumed in the same way as rice. Most of them contain varying amounts of fibre. They also have tastes and flavours which are not generally acceptable to the rice-eating people. The consumers of rice are generally keen on having the cooked product in a condition in which the grains stand apart.

This facilitates penetration by the body juice and thus leads to easy digestibility. It is because of this that the rice-gruel which causes the grain to stick together is drained out although most consumers are well aware of the loss of vitamins and other essential ingredients during the process.

Substitutes for rice

One of the most promising methods of meeting the requirements of the rice-eating people is to process different forms of starch bearing materials so as to eliminate the characteristic taste and flavour and also to obtain the desired grain-structure. This could be achieved by concentrating the starch fractions of the different grains and incorporating the necessary amounts of proteins minerals and vitamins from other sources. The possibilities in this direction have already been envisaged and work is actively in progress in this country and elsewhere.

Our experience has already shown that it is not difficult to nearly reproduce the grains structure of rice. Any slight difference in this direction is not very material provided the taste and flavour are otherwise acceptable. To achieve this end, the processed starch used for the synthesis should be as clean and white as possible. The added proteins and minerals should be well balanced, and, at the same time, impart no characteristic taste or flavour. There should be practically no fat in the product, for, otherwise, there will be grave risk of spoilage through rancidity. We have found that several such products can be prepared, but it will be quite some time before the processes can be fully standardised and carried to the stage of large scale mechanisation. It will be no easy matter to produce a few thousand tons, let alone the few million tons, which would represent the present extent of rice shortage.

Supplementation of the rice diet

While the provision of more rice or a good substitute for rice is a major measure for dealing with increasing rice shortage, there are other and equally important problems relating to the supplementation of the rice diet. During the past few decades a number of workers have drawn attention to the multiple gross deficiencies of the rice diet. The diet requires to be supplemented with proteins, minerals and vitamins. Milk, meat, fish, eggs and other concentrated foods would make excellent supplements, but they are beyond the reach of the majority of the people. Among the individual supplements, calcium is very important, but this is best provided through a suitable natural vehicle. Supplementation with small quantities of milk, whole or skimmed, has been shown to be very effective as an all-round supplement. Fats do not have any supplementary effect and, in fact, the recent trends of evidence would show that *increasing amounts of fat are actually harmful.*

The milk problem

Excepting for isolated regions, there is generally short supply of milk in tropical countries. In fact, in regions which get heavy rainfall there is invariably acute shortage of milk. The average production of milk in India is hardly 25% of the minimum requirement for the well-being of the people. Over large parts of South India, the average production of milk would correspond to hardly 2 oz. *per capita.* Production of more milk is highly desirable, but it is doubtful whether, in spite of the most energetic measures, it will be possible to increase milk production in the country. Availability of fodder and concentrates would form the bottlenecks in milk production. There is a strong case, therefore, for supplementing the available supply of milk with other forms of food materials, which are equal or nearly equal to milk in their food value.

Supplementary value of soya milk has been established

Since the early forties, researches have been in progress in India to determine whether soya-bean which is so extensively used in China and other Far Eastern countries can make a useful supplement to the poor cereal diet. The earlier work was directed towards the assessment of the value of the whole bean either in the raw or in the cooked state. This showed that, used in this form, the bean is not superior to any of the indigenous pulses in spite of its very much larger content of protein together with the valuable oil. This led us to the study of the effect of processing of the bean and we found that germination, followed by disintegration of the cell and the preparation of the milk emulsion, increases the digestibility and the biological value of the proteins by about 50%. On fortification with calcium, the supplementary value is further increased and corresponds to about 90% of that of cow's milk. We carried out extensive studies on protein values not only by the usual balance sheet and growth methods, but also by investigating regeneration of red blood corpuscles and formation of liver protein. We also carried out studies on the over-all vitamin complex values and showed that the processed milk are not inferior to those of cow's milk. With the background of these observations, we carried out an extensive programme of human feeding experiments in welfare centres with over 100 children (eighteen months), in orphanages with about 400 children (two seasons) and in schools with over 5,000 children (two years). The institution feeding experiments were carried out in association with the medical observers from Nutrition Laboratories, Coonoor, and statisticians from the All-India Institute of Hygiene, Calcutta. *The results have now shown convincingly that soya milk and also the sour curd prepared out of it have a definite supplementary value to the poor rice diet corresponding to over 80% of that of milk.*

In addition to the above, we have carried out a dozen of consumers' trials and have shown that soya-milk, curd and the allied

products can be generally used in the same way as cow and buffalo milk products. The residue after separation of the milk has also got its application and can be used for a variety of food preparations. If carefully prepared, it would be difficult in practice to distinguish between those prepared out of soya-milk or curd and those obtained out of the corresponding cow or buffalo milk products. There is a very strong case, therefore, for the State not only to recommend but also to actively assist in the popularisation of the use of soya-bean milk and its products as supplements to the available limited supply of the milk.

Vitamin A and carotene

The poor cereal diet, is grossly deficient in practically all the vitamins. Among these, that of vitamin A is one which is quite extensive. Shark-liver oil is a rich source of the vitamins, and during the recent war, there was a unique opportunity to revive the indigenous industry, which had practically died out. The industry was bringing a good return till 1946, but even long before evidence was not wanting to show that, consequent on the adoption of unsatisfactory methods, absence of adequate protection and also gross adulteration with other oils, the quality of the product was unsatisfactory. A great deal of scientific work has been done and among these we have shown, fairly conclusively, how the vitamin A potency of the oil for which it is chiefly valued could be best preserved. It is distressing, however, to find that the necessary precautions have not been generally taken. While, on the one side, we are crying for the production of more vitamins, an indigenous industry concerned with such a production is actually dying under our eyes on the other.

Fish liver oils, however good, are not very pleasant to take. Carotene from plant materials are 60 to 70% as efficient as vitamin A and we can produce the entire carotene requirement of the people in the country without much difficulty. Proposals for the general fortification of oils and Vanaspati have been put forward. It has also been shown that the fortification is comparatively inexpensive. In spite of this, no definite steps have been taken to encourage the fortification of oils and Vanaspati. If there is a State legislation on this aspect, the entire supply of the oil and Vanaspati intended for use as human food can be fortified in less than six months.

The high supplementary value of lucerne

Apart from the above, we have to look for other cheap supplements that will be plentifully available and, at the same time, come within the reach of even the poorest people. With this object, we have lately investigated a variety of plant products and we have found that a very promising material is lucerne leaf. Even at 5% level, it makes a remarkably good suppplement to the poor rice

diet ; that the growth rate of experimental animals jumps up from about 3 to 4 gms. a week to 11 to 12 gms. a week. We are now investigating various methods of processing the lucerne so as to make it popular for human consumption. We have found that lucerne can be cooked in the same way as other leafy vegetables and that the taste improves on addition of tamarind, a little sugar, onions, chillies and spices. We have found that one ounce (on the dry basis) per day would provide a very useful supplement. As lucerne can be grown plentifully in almost every part of the country, it is hoped that its use as a vegetable will become increasingly popular with much benefit to the consumer. The use of lucerne even at one ounce per day will save equivalent quantity of rice or other cereal and will thus indirectly help to meet the present food shortage in the country.

Sub-conjunctival Penicillin in Severe Infected Corneal Ulcers

Rizk, working in Egypt, reports on the successful use of subconjunctival injections in severely infected corneal ulcers without hospitalisation of the patients. The technique is as described below :

A concentration of 20,000 units per c.c. is used in cases where 10,000 units per c.c. did not prove promptly effective. To a bottle of 100,000 units of crystalline penicillin salt, 5 c.c. of 1% procaine hydrochloride solution in distilled nonpyrogenic water is added and 0·5 c.c. is injected subconjunctivally *twice* daily. The eye is opened and partially fixed by a pair of Desmarres' retractors applied to the lids with their tips introduced into the fornices, if the patient is unable to open and fix his eyes while the injection is being given, subconjunctivally at a distance of 2 to 3 m.m. from the limbus. Ten injections are usually sufficient and after that hot fomentations can be used. This method of treatment yields definitely better results than the older methods, in which general Sulphonamide therapy or foreign protein therapy formed a part of the treatment. (*Br. Jour. Ophthal.*, p. 497, 32, 1948). T.N.S.R.

Surgery in Cancer of the Colon*

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THE colon is an interesting segment of the bowel as it is a bifunctional organ from all points of view. The proximal colon as compared with the distal colon has a richer blood and lymphatic supply, it has a larger lumen with a fluid type of contents, where bacteria are more abundant, peristalsis more active and where greater degree of absorption occurs. Similarly its pathological lesions are different even in cancer as will be shown later.

Goforth states that 10 per cent of all carcinomas in the human body and about 96 per cent of all intestinal carcinomas occur in the large intestine and the rectum. The regional incidence of colonic cancer has varied with different series, being the highest in the pelvic colon (45 to 50 per cent), in the cæcum and ascending colon together (25 per cent), while the hepatic flexure is a rare site of tumour formation. Occasionally there are two or more tumours at the same time—a significant fact. Malignant change may occur in a bowel affected by multiple polyposis, diverticulitis and chronic ulcerative colitis.

There are two main types of carcinoma arising from the columnar cells of the colonic mucosa.

I. The proliferative type.—This forms a bulky ulcerated type of growth which is common in the cæcum (also in the rectum). Its ulcerated surface bleeds and may produce marked anæmia. Due to the fluid nature of the cæcal contents obstruction is unusual—however the patient may present an abdominal mass, anæmia, dyspepsia, weight loss. This tumour is more rapidly growing than the next variety.

II. The annular type.—This variety is common in the left or distal colon but may occur in the ascending and transverse colon. It grows slowly and takes about a year to encircle the bowel when it forms a ring stricture. Due to its low malignancy there is little disturbance of general health. The patient may present with a history of a change in the bowel habit, bouts of constipation and diarrhœa may alternate, bleeding per rectum is frequent. Low grade intestinal obstruction is generally present and an attack of acute obstruction may bring the patient to the doctor. Perforation of stercoral ulcers and the cæcum is not unknown in longstanding obstruction.

Spread of cancer.—Cancer of the colon may spread by intramural extension, by lymphatics and *via* the blood stream.

Black and Waugh studied the question of intramural spread which lead to the following interesting observations.

* Specially contributed to THE ANTISEPTIC.

(1) In carcinoma of the colon the raised edge of the lesion may not mark the limit of intramural spread.

(2) There is no appreciable difference in the intramural spread of carcinoma above or below the lesion.

(3) Intramural spread of carcinoma is greater in the descending colon than in other sites in the left portion of the colon.

(4) The plane of greatest extension in the bowel wall is the submucosa.

(5) The grade of malignancy (Broder's method) of the lesion has no relation to the degree of intramural spread.

(6) The spread of carcinoma through the bowel wall appears to follow the course of the intramural lymphatics.

(7) Spread of carcinoma to the extramural lymphatics occurs before the entire bowel wall is penetrated.

(8) For resection of the left part of the colon for carcinoma only 2 centimeters of normal bowel need be allowed above and below the lesion in order to remove the whole of the primary lesion.

The lymphatic spread—this involves three sets of lymph nodes —the paracolonic or peripheral, the middle group, and lastly the central group near the origin of the main blood vessels from the aorta. The number of these nodes involved has a direct bearing on the 5–10 year survival rates.

Spread along the venous system is more marked in the proximal colon which has a richer blood supply than the distal colon.

TREATMENT :—*Historical review* :—It was Laufrauk in 1396 and Travers in 1812 who observed the healing of the serosal surfaces by agglutination while Lembert in 1826 described a method of suture to hold the serosal surfaces of two segments of the bowel. It was only in 1892 that John B. Murphy introduced the famous "anastomosis button" and Oscar Bloch of Norway described a new method of extra-abdominal removal of a segment of the bowel. Three years later in 1895 Dr. Paul, surgeon at the Liverpool Infirmary—apparently unaware of the work of Bloch—described his method of management of cancer of the colon in 7 cases, by introducing glass tubes to the proximal and distal cut ends of the exteriorized bowel. Mikulicz the famous continental surgeon strongly advised the exteriorization method in 1903 but made no reference to Paul's work. Through his lucid writings he popularised his method till ultimately this procedure is often called the Paul-Mikulicz operation. Dr. Rankin in 1930 in his article "Obstructive Resection" perfected the procedure. He applied his crushing clamps on the proximal and distal ends of the exteriorized bowel loop. The proximal clamp is released on the 3rd day while the distal clamp after 8 days. The clamps assist to hold the bowel to the skin surface.

Lately Dr. Lahey of Boston has modified the Paul-Mikulicz procedure in which the proximal loop is kept long (staggered). This

method is ideally suited for the proximal colon and is described later in this paper.

Principles of treatment.—The essentials of the proper treatment depend upon :

(1) Proper preparation of the patient.
(2) Optimum exposure of the part to be resected.
(3) Adequate mobilization.
(4) Free blood supply to both segments.
(5) Avoidance of tension on the suture line.
(6) Proximal complete colostomy if adequacy of the suture line or blood supply is in doubt.

1. *Proper preparation of the patient* requires about one week's stay in hospital to obtain a bowel which is deflated, empty and well prepared. Sulphasuxidine or Sulphathalidine started 7 days before the operation with oral Streptomycin (2 gms. per day) 24 hours before surgery was found to reduce the colonic bacterial flora by 99·99 per cent in 24 hours. Prolonged preoperative Streptomycin leads to the formation of resistant strains, hence it is used only 48 hours before operation (Rowe *et al*). A low residue diet with high protein content and potent polyvitamins in excess of normal needs should be given. The serum protein and hæmoglobin levels should be restored by blood transfusions. With moderate obstruction small divided doses of a saline purge may be given. A Miller-Abbot tube inserted 48 hours before the operation produces a collapsed condition of the small bowel and facilitates operation. Proximal decompression by surgical means is essential in badly obstructed cases where primary resection is not possible and also after resection when in doubt regarding the anastomosis. The defunctioning colostomy of Devine is a step further in colonic surgery as the distal bowel is completely isolated from the proximal and hence can be prepared very thoroughly for final resection.

2. *Incision* :—As a large segment of the bowel is required to be mobilized for resection it is natural that the incision must be adequate. The right and the left paramedian incisions are the most often used but the transverse and the oblique incisions give a very good exposure, especially the supraumbilical transverse incision for resection of transverse colon as the incision is parallel to the bowel axis.

3. *Adequate mobilization and adequate cancer operation* :—Many times the operator starts correctly with the idea of adequate mobilization to perform an adequate cancer operation but may in the end find that he has removed less than what he should have. This is a mistake which should be carefully avoided—cancer is one instance where inadequate operation is more disastrous than no operation.

4. *Blood supply* :—The cut ends of the bowel must have an adequate blood supply for the safety of the anastomosis. Anomalies exist in the distribution of the blood vessels and the safe rule

is to see an actual pulsating vessel or to intentionally cut a small vessel—see it bleed and then apply the ligature.

5. *Tension on the suture line.*—To avoid tension on the suture line is an important rule to safe surgery and it is nowhere more important than in bowel anastomosis. The two ends must be easily approximated and completely free from tension.

Closed (aseptic) anastomosis.—Since the introduction of the basting stitch by Parker and Kerr and the Furniso clamp—the closed or aseptic anastomosis has gained favour in certain clinics. Spur formation at the site of anastomosis may lead to intestinal obstruction with this technique. The open method used in carefully prepared cases and taking due precaution during the anastomoses has stood the test of time. Opinions differ as to the choice procedure but safer surgery is better surgery depending upon the method familiar to that surgeon.

Type of cases.—Cases of cancer of the colon may come to the hospital during an acute attack of intestinal obstruction or they may come without. It is essential that during the former instance the guiding principle is to relieve the obstruction by decompression. This may be done by a proximal colostomy, an ileostomy or even with the aid of a Miller-Abbot tube in some cases. When the cæcum is severely distended the procedure may be a "blind" caecostomy under local anæsthesia. The defunctioning colostomy of Devine is an excellent procedure as performed in the transverse colon for cancer in the distal colon and rectum. It is performed at a sufficient distance away from the affected segment, it does not hinder with the later resection and the defunctioned bowel is better prepared. Closure of the colostomy spur is done by a special entertribe.

Operations in the different segments.—**A.** *Right colon.*—The procedure is called a right hemicolectomy in which 4 to 8 inches of the ileum and a similar length of the transverse colon are included in the resected part which derives its blood supply from the ileocolic artery and its branches. The operation has been variously performed as follows in either one or more stages :—

(1) First stage side to side ileocolostomy—second stage right hemicolectomy and closure of the two ends.

(2) First stage end to side ileocolostomy with or without a safety valve cæcostomy—second stage hemicolectomy and closure of the colonic end.

(3) Exteriorization of the bowel using the Lahey's modification of the Paul-Mikulicz procedure.

(4) One stage right hemicolectomy with either side to side, end to side, or end to end anastomosis.

The type of procedure adopted will depend upon the condition of the patient and the experience of the patient. If a side to side

anastomosis is performed the blind loops of bowel should be as small as possible.

Dr. Lahey's modification of the Paul-Mikulicz procedure is gaining favour. It is a right hemicolectomy through a right paramedian incision where the transected ileum and the transverse colon are brought together in such a way that about 7 inches of the ileum (stripped off its mesentery) is made to protrude on the skin surface—a glass tube is inserted in this staggered end and thus the ileum is drained. This allows immediate decompression of the proximal bowel. The staggered end sloughs off in about a week to reach the level of the cut transverse colon. Then the entertome is applied to crush the spur. The fæcal fistula is closed after about 2 months by an extraperitoneal procedure if it has not healed up by itself.

B. *Transverse colon.*—The methods in vogue are the Rankin's modification of the Paul-Mikulicz procedure of exteriorizing the bowel with the Rankin's clamp on the proximal and distal end of the bowel. The second method is one stage resection and end to end anastomosis with its short post-operative hospitalization and absence of the inconvenience caused by the exteriorized bowel. Tumour in the splenic flexure may prove a difficult operation, sometimes requiring an added splenectomy due to local spread.

C. *Descending and pelvic colon:*—In thoroughly prepared cases a primary end to end resection is advisable and in low pelvic colon tumour a rubber tube passed per anum to above the site of anastomosis will help in reducing postoperative distension. A primary colostomy ideally in the transverse colon when primary resection is not possible. Exteriorisation of the affected loop has often been performed.

The statistical figures vary with experience. As reported by Arthur Wallen his resectability rate is 95% and the average hospital stay of 32·4 days. The mortality rate as reported by Bacon *et* Rowe has been reduced from 6·4 per cent prior to January 1946, to zero per cent after that period in 142 cases. They stress adequate bowel preparation with Sulphathalidine and Streptomycin as already suggested in this paper. To conclude, large bowel surgery has made rapid strides to reduce the mortality figures to under 5 per cent. A brief historical review is given as well as the various procedures used in different parts of the bowel yet stressing that the procedure of choice is the one best suited to the surgeon, the patient, and the type of tumour present.

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Management of Acute Non-Tuberculous Pulmonary Infections*

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In all acute respiratory infections there are certain general principles in the management. Adherence to these principles in degrees proportional to the severity of the condition is wise and in the long run helps to shorten the illness. These are: (1) Rest; (2) general hygienic care and nursing; (3) symptomatic relief; (4) specific treatment; and (5) anticipation and prevention of complications and treatment of these when they arise.

The advent of the chemotherapeutic drugs has, however, considerably simplified the treatment. It is, however, deplorable that many physicians make it an over simplification and prescribe Sulpha drugs for any illness in the cough or chest symptoms.

Mild cases.—Such as simple acute bronchitis—whether as a part of "common cold" or any other illness—Simple measures such as bed rest, a mild aperient, hot drinks, simple nourishing diet will be enough. In the early stages of irritating cough and soreness of the chest, a simple alkaline mixture with a few minims of Tinct. Ipecac and Tinct. Camph Co. or Syrup Codeinphos will be useful. Rubbing counter-irritant liniments on the chest, steam inhalation with Tinct Benzoin Co, specially if there is laryngitis, will also be useful. When cough becomes easier and expectoration starts, stronger expectorants are prescribed.

Upper respiratory tract infections, if present, should also be attended to.

Severe cases.—In severe types of bronchitis, specially in young children, and in pneumonia and bronchopneumonia, management should be more elaborate.

General management.—Patient should be put to a comfortable bed in a room which should have good ventilation. The bed should be placed away from any direct draughts. While the patient should be kept warm, heavy bed clothes or heavy garments are better avoided. The old fashioned pneumonia jacket or too many warm clothes need not be put on. Recently, in a case of pneumonia in an old man of 60 years, I found the patient wrapped in 6 layers —a long piece of woollen shawl wrapped twice round the chest and fixed with safety pins, over this was an under vest, a woollen sweater, a flannel shirt and finally a quilt. This sort of thing is not only unnecessary, but undesirable because it impedes the already burdened respiration.

The position of the patient in bed should be such that it helps respiration. A propped up position or a semi-sitting posture

* Specially contributed to The Antiseptic.

may be the best; but if the patient feels comfortable in any other position he should be allowed to assume that.

Oral hygiene should be properly looked after with suitable antiseptic mouth washes and cleaning the mouth after feeds. Daily sponging in tepid warm water and attention to the skin of the back, buttocks and over bony prominences are necessary, and should be a part of the daily routine in nursing. It should, however, be remembered that in severely ill patients unnecessary movements of the patient should be avoided as far as possible.

DIET.—A liquid diet, simple and nourishing and in small quantities at a time should be given. Milk, barley water, Horlick's malted milk, ovaltine, light tea, fruit juice, etc. are suitable. If patient likes, a little meat broth or vegetable soup or 'dal' soup may be allowed. Vitamins, specially water soluble vitamins, B and C, should be given in large quantities.

A large quantity of fluid is essential. This should be given in the shape of glucose drinks, lemonade, plain water and barley water. It is not merely enough to ask the patient to drink plenty of fluids. The attendants should be asked to keep a chart showing the daily intake and output of fluid. This is specially important when Sulpha drugs are being given.

Overfeeding, specially in patients with abdominal distension, should be avoided. In patients who are markedly toxic and cannot take enough nourishment and fluids, intravenous glucose therapy is very useful. 25 to 50 c.c. of 25% glucose solution should be given intravenously once or twice a day.

Bowels—Stasis in the bowels should be avoided. In the early stages purgatives, such as Calomel or Salines, may be given. But later suitable enemata should be given if the bowels do not move spontaneously.

Medical treatment:—Nothing more than a diaphoretic mixture is needed as a routine. It is useless to prescribe expectorants in the early stages. But later, if this expectoration is too viscid and causes considerable strain in coughing out, a little Potassium Iodide and Tinct. Ipecac may be added to the mixture. In the later stages and in bronchopneumonia expectorants are more indicated in helping to clear the bronchi.

Specific treatment:—Sulphonamide derivatives have completely replaced specific serum therapy of lobar pneumonia, which was of very limited use. The effect on the mortality and on the duration of illness of pneumococcal pneumonia has been very remarkable since the advent of Sulphapyridine or M & B 693. The effect on bronchopneumonia, however, was not so remarkable because of the mixed nature of infection and because broncho-pneumonia usually complicates some other disease on which Sulpha

drugs have no effect. Later the discovery of Penicillin has improved the position still further.

We have now at our disposal a number of Sulphonamide derivatives and Penicillin to which most of the organisms causing pneumonia or other pulmonary infections are sensitive.

Choice of drugs:—In all primary lung infections with pneumococcus or streptococcus, Sulpha drugs are the drugs of choice, because of the ease of their administration and their effectiveness. In secondary bronchopneumonia if there is a high leucocyte count Sulpha drugs may be given. But when there is leucopenia or when the primary disease is likely to have a depressive effect on the leucopoietic tissues, *e.g.*, kala-azar, typhoid fever, etc., Penicillin should be used instead of Sulpha drugs.

Of the Sulpha drugs, Sulphapyridine or M & B 693 has fallen into disuse at present because of its unpleasant toxic effects and because of the discovery of less toxic and equally effective derivatives. At present in all pneumonias Sulphadiazine is the drug of choice. It has several distinct advantages over M & B 693. Recently two other derivatives of Sulphadiazine have come into use, which are still less toxic and equally effective. These are Sulphamerazine and Sulphamezathine.

In using the Sulpha drugs certain general principles are to be remembered:

(1) A minimum concentration of the drug has to be constantly maintained in the blood for the optimum antibacterial effect. As the drugs are quickly absorbed and quickly excreted, a large initial dose, to reach a high concentration in blood immediately, and repeated administration at short intervals to maintain the concentration, are essential for success of the therapy. The newer compounds Sulphamerazine and Sulphamezathine are rapidly absorbed but slowly excreted in comparison with the others. Therefore these drugs can be given 6 to 8 hourly, whereas, Sulphadiazine or M & B 693 have to be given every 4 hours.

(2) They should be continued in sufficient dosage until 48 hours after the temperature has come down to normal. Then they can be gradually withdrawn.

(3) These drugs, or their acetyl derivatives, in which form hey are excreted in the urine are sparingly soluble in acid urine. o that if the urine is acid and highly concentrated there is precipitation of the drugs in crystalline form in the kidneys causing hæmaturia, scanty urine, albuminuria, casts etc.

They are soluble in alkaline urine, so, while these drugs are being given, a large amount of alkalies and copious fluids should be given to prevent damage to kidney by precipitation of the drugs. In comparison with M & B 693, Sulphadiazine and Sulphathiazole

are more soluble and less likely to cause hæmaturia or *anuria*. Sulpamerazine or Sulphamezathine are however least harmful in this respect.

(4) As leucopenia and agranulocytosis are two of the most serious complications after administration of the Sulpha drugs a blood count should always be done before they are prescribed, and if possible should be repeated, specially when the drugs have to be continued for several days. When there is obvious leucopenia, the drugs are contraindicated.

When the diagnosis is doubtful and in the absence of facilities for bacteriological and hæmatological investigations, if the drugs are used for a therapeutic trial, they should not be continued indefinitely, if the response has not been marked within 48 to 72 hours, provided adequate doses have been given.

DOSAGE.—Sulphadiazine should be given 4 tablets to start with and 2 tablets every 4 hours, until 48 hours after the temperature falls to normal Then 2 tablets every 3 hours should be continued for another 2 days. In very severe cases 6 to 8 tablets may be given as the initial dose followed by 4 tablets after 4 hours and then 2 tablets every 4 hours.

Dosage for Sulphamerazine or Sulphamezathine—4 tablets to start with and 2 tablets every 6 hours.

In very serious and urgent cases the initial dose may be given in the form of Sulphadiazine Sodium intravenously upto a dose of 2 gm. in an adult. The subsequent doses may be given orally.

Penicillin :—Penicillin may be given alone or along with Sulpha drugs, 20,000 units to 40,000 units intramuscularly every 3 hours. In acute infections it is preferable to use the crystalline Penicillin 'G' in aqueous solution.

Symptomatic treatment :—Chest pain—counter irritants, antiphlogistine or linseed poultice may be used to relieve pain. In cases where excessive cough is causing distress due to pleural pain, a dose of Dover's powder may be given.

Cyanosis :—This calls for oxygen inhalation. Some people advocate oxygen inhalation as a routine in all cases, even without cyanosis to ensure sufficient supply of oxygenated blood to the myocardium and central nervous system and thus avoiding serious complications. Considerable discretion has to be exercised in the use of oxygen in our practice. For one thing, it is not available everywhere, and that it often carries a sense of helplessness in the minds of the patient and his relations. But when cyanosis has developed it should not be delayed.

Oxygen is best given by the B.L.B. mask or an oxygen tent. But these are not commonly available in our country. So the best way to administer oxygen is by a nasal catheter. The rate should be 120 bubbles per minute. Oxygen given by a funnel held over the nose is greatly wasted and is of little therapeutic value.

Cardiac and circulatory stimulants :—Routine use of Digitalis used to be a vogue some years ago. It was supposed to tone up the heart and prevent cardiac failure. It has now fallen into disuse because of doubtful value.

Peripheral stimulants also need not be prescribed as a routine. But when the pulse tends to be of low volume and tension, or the blood pressure shows a downward tendency, or obvious signs of peripheral failure such as coldness of extremities, pallor, thready pulse are present, such stimulants are indicated. Coramine 2 c.c. Cardiazol or Cardiazol Ephedrine inj., etc. are useful. They should be repeated if necessary. Supra renal cortical extracts have recently been used in peripheral failure in acute infections with success.

Plenty of fluids, adequate oxygen supply and glucose, and reduction of toxæmia by specific therapy, instituted sufficiently early, will prevent circulatory collapse.

Sleeplessness :—Patient should have adequate sleep. Treatment of distressing symptoms will help the patient to sleep. But whenever necessary, sedatives should not be withheld. Bromides, Chloral Hydras, Barbiturates or Paraldehyde may be safely given.

Convalescence :—After the temperature has come down to normal and remained so for 2 days the patient should still be confined to bed until the resolution of the inflammatory changes in the lung is complete. During this period patient should be given adequate nourishment with liberal quantities of proteins and vitamins. General tonics in the form of Easton's syrup or similar preparations will be very useful. Expectoration should be helped and attention should be paid to adequate ventilation of the lungs, specially the affected parts, to prevent any residual collapse and subsequent complications. This is specially important in case of children.

Even in cases of mild respiratory infections a proper convalescence period should not be overlooked.

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The Chemical Nature of Vit. B_{12}—A Cobalt Complex

Emission spectographic analysis has revealed the presence of cobalt. The vitamin is a cobalt-coordination complex having 6 groups about the cobalt atom. The red colour of the vitamin is also perhaps due to the cobalt-complex character. Test for sulphur was negative while P and N were detected. The activity of B_{12} was not affected by autoclaving for 15 minutes at 120°C but exposure to 0·015 Normal NaOH and 0·01 N. Hcl, at room temperature resulted in progressive inactivation.—(*Science*, 108, 6-8-1948). T.N.S.R.

Laboratory Diagnosis in Clinical Medicine

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(Continued from page 833 of Nov. '49 issue).

Renal Efficiency Tests

Urea clearance test.—The patient is not allowed any tea or coffee on the morning of the test, but water can be taken liberally along with the breakfast at 8 A.M.

2. At 9 A.M. empty the bladder completely and discard urine. Give 100 c.c. water.

3. At 10 A.M. empty the bladder completely, saving the specimen, and give 100 c.c water.

4. At once secure blood for urea estimation.

5. At 11 A.M. again empty the bladder completely and save the specimen. The intervals need not be exactly 1 hour provided their length is precisely known. The patient should rest quietly during the test and avoid much exertion before the test.

6. Measure volume of each specimen and calculate output per minute in c.c.

7. Determine urea concentration in each specimen.

8. Determine urea concentration in blood.

Calculation :—If the volume of urine excreted is more than 2 c.c. per minute calculate the maximum clearance (cm.) by the following formula :

U—Urea concentration in urine.
B—Urea concentration in blood.
V—Volume of urine excreted per minute.

Cm=U x V x B. The average normal figure is 75, and the percentage of the normal=1·33 x U x V/B If the rate of excretion is less than 2 c.c. per minute, the standard clearance (Cs) is calculated according to the formula.

$$Cs = U \times \sqrt{V}/B.$$

The average normal (with 1 c.c. per minute) is 54, and the percentage of normal =

$$\frac{1{\cdot}85 \times U \times \sqrt{V}}{B}.$$

The chief source of gross error is incomplete emptying of the bladder. By making separate estimations on the two specimens a partial check on this is obtained, and, if the results correspond fairly well, the average may be taken.

Urea concentration test.—The patient is allowed no fluid after 10 P.M. In the morning the bladder is emptied, the urine being discarded, and he is given 15 grams of urea dissolved in 100 c.c. of water, and flavoured with lemon. The total urine is collected for three one-hour periods, and measured. If the volume of the first specimen exceeds 120 c.c. and that of the later ones, 100 c.c. the test is useless. Otherwise the concentration of urea is determined in each. Normally it should be between 2·5 per cent and 3 per cent in at least one specimen. A concentration below 2 per cent definitely indicates renal insufficiency. The converse is not true, a normal concentration figure can be reached with damaged kidneys if the blood urea is high enough.

Wassermann reaction

The Wassermann reaction can be represented as follows in a simplified form :—

(Antigen + Syphilitic serum + Complement) + (Antibody).
Sensitized cells = No haemolysis.
(Antigen + Normal serum + Complement)
+ Sensitized cells = haemolysis.

METHOD :—*Antigen* :—Ten grams of human heart muscle free from fat are ground up into paste with clean sand and added to 100 c.c. of absolute alcohol in a wide mouth bottle. The bottle is stoppered, shaken vigorously and kept in a cup-board for 24 hours. Next day the extract after another vigorous shaking is filtered into a narrow mouth reagent bottle. To 3 parts of this extract are added 2 parts of 1 per cent Cholesterol in absolute alcohol.

Another method of the preparation of the antigen is as under :—

20 grams of sheep heart muscle freed from fat and fibrous tissue are finely ground with clean sand in a mortar and extracted for four days at room temperature with 100 c.c. of absolute alcohol. The extract is filtered and pure Cholesterol is dissolved in it to the point of saturation.

The human heart muscle is commonly used for the preparation of the antigen. The antigen should be suitably diluted before it can be used in the actual tests. The required amount of saline should be poured quickly into the extract and then mixed thoroughly by repeated pourings. A 1 in 15 dilution in normal saline should be obviously turbid. The diluted antigen should not be hæmolytic and its anti-complementary power is not to be more than 1 MHD of complement.

Antibody :—The patient's serum inactivated at 55°—56°C for half an hour.

Complement :—The guinea-pig serum may be fresh or kept in the frigidaire for 18–24 hours.

Sensitized cells or haemolytic system :—A 3 per cent suspension of sheep cells containing 5 MHDs of the amboceptor is labelled

as "sensitized cells." The amboceptor can be prepared in the laboratory by the immunization of rabbits against sheep cells or it can be purchased in the market.

Complement titration (MHD determination) :—

Complement dilution 0·25 c.c. (1 vol.)	20	30	40	50	60	70	80
Saline	2 vol.	..	..	...	...	...	2 vol.
Sensitized cells	1 vol.	...	...	...	...	..	1 vol.

Incubate 30 min. 37° C. Trace marked just complete.

The tube showing complete hæmolysis in the presence of the smallest amount of complement (highest dilution of complement) contains 1 MHD.

For complement fixation dilutions are so prepared so as to contain the required MHD of complement in a constant volume; 3 MHDs and 5 MHDs of the complement are generally used. If the MHD of the complement is 1/60, then the required dilutions of the complement would be 3/60 = 1/20 and 5/60=1/12.

The Wassermann test should include a positive control (known syphilitic serum), a negative control (known non-syphilitic serum) and the serum under examination.

The amounts used are as follows :—

Serum dilution 1 in 5	1 vol.	1 vol.	1 vol.	Saline 1 vol.	
Antigen	....	1 vol.	1 vol.	1 vol.	30 minutes room + 30 minutes 37°C
Complement 1 vol. containing	2 MHD	3 MHD	5 MHD	2 MHD	
Sensitized cells	1 vol.	1 vol.	1 vol.	1 vol.	30 minutes 37°C.

A complement dose control should preferably also be concluded in the test.

Kahn Test

The antigen can be obtained commercially and is designated "Bacto" Kahn standard antigen. It can also be prepared from "Bacto" beef heart. The antigen is diluted with saline in the proportion prescribed for the preparation, usually 1:1·1. The saline should be added rapidly to the antigen and mixed by pouring five or six times from one container to the other. The diluted antigen should be used for the test not less than ten minutes and not more than thirty minutes after the dilution is prepared.

All sera tested are heated at 55°C for thirty minutes before testing. Adequate serum and antigen controls should be included in the test, *e.g.*, known positive and negative sera.

The test for each serum is set up as follows :—

Tube	...	1	2	3
Diluted antigen	..	0·05 c.c.	0·025 c.c.	0 0125 c.c.
Serum	...	0·15 c.c.	0·15 c.c.	0·15 c.c.

The tubes are shaken by hand or preferably in a shaking machine at 270 oscillations a minute for three minutes (after

shaking incubation in a water-bath at 37°C for fifteen minutes or an incubator at 37°C for twenty minutes is advantageous).

Saline is then added 1·0 c.c., 0·5 c.c., 0·5 c.c.. Readings are taken after the addition of saline.

The tubes should be held in a sloped position and the fluid viewed through a hand-lens in a strong light against a dark background. The presence of floccules indicates a positive reaction.

Widal Agglutination Test

Principle :—Varying dilutions of serum under test are mixed with a fixed quantity of a uniform and stable suspension of the organism, the mixtures being placed in narrow tubes, kept at 37°C or 50—55°C in a water bath for a certain length of time, and then examined for visible agglutination of the suspension. The strength of the reaction can be stated in terms of highest dilution of the serum which produces agglutination.

The following suspensions are generally employed in a widal test :—

TO, TH, AO, AH, BO, BH, B Melit and Proteus XK, X19 and X2.

H agglutinable formalized suspensions are prepared by adding 0·1 per cent of Formalin to a twenty-four hours' broth culture or by suspending an agar culture in saline containing 0·1 per cent Formalin.

O-agglutinable alcoholized suspensions are prepared as follows :—

Plate out the organism and select a smooth colony; sub-culture this on phenol-agar (1 in 800 phenol). Scrape off the growth in the minimum amount of saline, emulsify very carefully, and add about 20 times the volume of absolute alcohol, heat at 40–50°C for half an hour, centrifuge if necessary and suspend the deposit in saline to the proper density with chloroform as a preservative. This emulsion keeps moderately well.

A pure O-strain can also be used for preparing O-agglutinable suspensions.

At least 5·0 c.c. of blood should be taken and transferred to a sterile test tube or bottle. The blood is allowed to clot, serum separated and stored with sterile precautions.

The serum under test is diluted 1 in 10 by the addition of two drops of the serum to 18 drops of Normal Saline. The Dreyer's agglutination tubes are set out in a rack; then saline, serum-dilution and the bacterial suspension are added in drops as follows :—

Tube	1	2	3	4	5
Serum 1:10	10	5	2	1	
Saline	0	5	8	9	10
Bacterial suspension	15	15	15	15	15
Final dilution of serum	1/25	1/50	1/125	1/250	Control.

The tubes are incubated in a water-bath at about 52°C, one-third only of the column of fluid in the tubes being under the water level. Incubation is continued for two hours for H agglutination, and eighteen to twenty-four hours for O-agglutination, followed by fifteen to twenty minutes at room temperature.

If agglutination occurs up to the highest dilution tested, *i.e.*, 1/250, a further test can be put up to determine the highest titre of the serum under test.

Examination of sputum for tubercle bacilli

A film is prepared from the purulent portion of the sputum and stained by the Ziehl-Neelsen method. A prolonged examination may be necessary in some cases when the bacilli are relatively scanty. If the clinical manifestations suggest open pulmonary tuberculosis, and the direct examination of the purulent portion of the sputum gives a negative result, then antiformin concentration method should be employed.

Antiformin consists of equal parts of liquor sodæ chlorinatæ and 15 per cent caustic soda. It has the property of dissolving cells and other bacteria, leaving tubercle bacilli intact. A quantity of sputum is treated with three or four times its bulk of antiformin diluted 1 in 6 with water, and the mixture is shaken and allowed to stand at 37°C till it becomes thoroughly liquefied. This usually takes about an hour, but it is sometimes necessary to add more diluted antiformin to complete the solution. The mixture is then centrifuged and the supernatant fluid is removed. Water is added and mixed with the sediment. After centrifuging again, thick smears are made from the sediment, dried, fixed and stained by the Ziehl-Feelsen method, which is as follows :—

Ziehl-Neelsen Method :—The Ziehl-Neelsen stain can be prepared as follows :—

Basic fuchsin (powder)	.. 5 grams.
Phenol (crystal)	... 25 grams.
Alcohol (95% or absolute	.. 50 c.c.
Distilled water	.. 500 c.c.

Dissolve the fuchsin in the phenol by placing them in a one-litre flask over a boiling water-bath for about five minutes, shaking the contents from time to time. When there is complete solution add the alcohol and mix thoroughly. Then add the distilled water. Filter the mixture before use.

Films :—These are made dried, and fixed in the usual manner:—

(1) Flood the slide with filtered carbol fuchsin and heat until steam rises. Allow the preparation to stain for five minutes, heat being applied at intervals to keep the stain hot. The stain must not be allowed to evaporate and dry on the slide.

(2) Wash with water.

(3) Pour on the slide 20 per cent Sulphuric Acid from a drop bottle. The red colour of the preparation is changed to yellowish-brown. After about a minute in the acid, wash the slide with water, and drop on more acid. This process is repeated several times. The object of the washing is to remove the compound of acid with stain and allow fresh acid to gain access to the preparation. The decolorisation is finished when, after washing, the film is a faint pink.

(4) Wash the slide well in water.

(5) Treat with 95% alcohol for two minutes.

(6) Wash with water.

(7) Counter-stain with Loffler's Methylene Blue for thirty to sixty seconds.

(8) Wash, blot, dry and mount.

Acid-fast bacilli stain bright red, while the tissue-cells and other organisms are stained blue.

Gram's staining method (modified) :—Solutions required :—

(1) *Methyl Violet, 6 B. or Crystal Violet* 0·5 per cent solution in distilled water. (The solution keeps indefinitely and does not precipitate, but should be filtered just after preparation and again before use).

(2) *Iodine solution (Lugol's Iodine)* :—

Iodine	.. 1 gram.
Potassium Iodide	.. 2 grams.
Distilled water	.. 100 c.c.

(This solution does not keep well, a fresh solution should be prepared at intervals).

(3) *Counter-stain—Neutral red solution* :—

Neutral red	.. 1 gram.
1 per cent acetic acid	.. 2 c.c.
Distilled water	.. 1000 c.c.

Films :—These are made, dried, and fixed in the usual way.

(1) Pour on Methyl Violet solution and allow to act for twenty to thirty seconds.

(2) Pour off excess of stain and, holding the slide at an angle down-wards, pour on the Iodine solution so that it washes away the Methyl Violet. Allow the Iodine to act for half to one minute.

(3) Wash off the Iodine with alcohol, and heat with fresh alcohol until colour ceases to come out of the preparation.

(4) Wash with water.

(5) Apply the counter-stain for two to four minutes.

(6) Wash with water and dry between blotting paper.

Dilute Carbol Fuchsin (1:15) applied for twenty to thirty seconds may be substituted with advantage as a counter-stain for routine work.

Blood group determination

Required :—(1) Sera known to have high agglutinating activity from Group A and Group B.

(2) Serum from the patient and each prospective donor.

(3) A cell suspension from each, prepared by adding 1 or 2 drops of blood to 5 c. c. of a 1·5 per cent Sodium Citrate solution in physiological salt solution.

The following preparations should be set up with cells from each of the individuals to be tested.

(1) Unknown cells + Group A serum.
(2) Unknown cells + Group B serum.

A test with Group O serum may also be put up to act as a check on the results of the other preparations.

A full drop of serum and of cell suspension are mixed on a slide, preferably in the concavity of a hollow ground slide. Drying must be prevented and this can be accomplished by covering the hollow with a cover-slip and sealing with petrolatum. The slide is tilted and rotated gently so that the cells are uniformly distributed, and this is repeated every 2 minutes for at least 30 minutes, and preferably for an hour. A mechanical shaker may be used. The preparations are kept at room-temperature, and are examined with the naked-eye, aided with a hand-lens if necessary. True agglutination is easily visible. As a rule agglutination, if it occurs at all, will occur within 5 or 10 minutes.

The group can be determined easily with the help of the following table, the occurrence of agglutination is indicated by +.

Group A Serum	Group B Serum	Group O Serum	Group of cells tested is
+	+	+	AB
O	+	+	A
+	O	+	B
O	O	O	O

On the basis of these tests, select a donor belonging to the same group as the patient or, if this is not possible, a group O donor, and set up the following :—

Recipient's serum + donor's cells.

Donor's serum diluted 1:5 + recipient's cells.

If the preparation shows no agglutination or haemolysis, the blood is compatible, and the donor may be used.

Dives into Ancient Hindu Medicine

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(Continued from page 684 of Sept. '49 issue)

Masurika—(Small-pox)

Part I.—Teachings of Kerala Savants of Old

IN August 1944, I had occasion to attend on a patient afflicted with a virulent type of variola for about a week, when, as usually happens in such cases, the combined influences of no-longer-resistible entreaties from my kith and kin and the customary preference of the patient's relatives for "quack" specialists, made me retire and caused the specialist to enter. Being ever of the view that the quacks, if clever, might hold something useful, I wished to have a chat with my successor and so sent for him. These folks, (the vast majority of them, at any rate) are lovable and serviceable—if only one knows how to behave to and tackle them. He came; and when he left, he offered me a printed booklet for my perusal. The booklet was titled *Masuri-chikitsaa-maalaa* (Brochure on the treatment of small-pox), and was a treatise on small-pox reproduced in print from old manuscript writings on palm-leaves by some ancient savant or savants of Kerala. The treatise was a treat to me, revealing the acumen and industry of our ancestors and disclosing the pre-findings by our ancients of many a finding of today and possibly many an other that awaits 'dis'-covering. I copied the book from cover to cover, and am now presenting the contents in English and in a re-arranged form for the benefit of such of those who thirst for useful knowledge. Before concluding this portion, I am tempted to exclaim "Alas! how many more such manuscript gems lie in the enclave of cobwebs dimly shining there, because of the dog-in-the-manger-attitude of their legal owners? And how many, if brought to light, may help to relieve the pains of the ailing and aid to revive the faded glory of the land ?"

Sree Parabrahmane Nama:

Section 1. General Considerations

I. Causative factors.—The chief causes that occasion the affection are want of cleanliness, unhygienic habits about foods bath and sleep, black-art of foes, and machinations of evil spirits. Bad foods and unwholesome dieting are particularly responsible for *Aka-patuvan*—internal eruptions affecting the vital organs; and these invariably prove fatal.

II. General features.—The two governing symptoms of Masurika are the fever and the eruptions; these, in typical cases, run distinct courses, depending on the *dosha—vaatha* (Gases ?) or *Piththa* (Tissue fluids ?) or *Kapha* (Lymph ?)—that is affected,

The eruptions in small-pox are said to be of 96 types. But it is mentioned too that each type is an entity by itself, and no two kinds are super-imposed in a given case. [This fact, in modern teaching, is an important sign that distinguishes variola from varicella.]

During epidemics, especially when one's home is infected, sex intrigues are highly dangerous. And if, during an epidemic, a fever patient indulges in amorous affairs, alarming symptoms of affections of body and mind and mal-eruptions of a grave nature crop up; the *Patuthaamara*, as these eruptions are called, precede the typical eruptions, and appear on chest, below navel and over thighs, as prodromal rashes on the 2nd or the 3rd day of the onset of fever.

[*Notes* :—(1) "According to him (F. T. Doleman), the commonest modes of infection were occupation of the same bed-room and courting by young couples. No case of propagation by fomites was observed" J. D. Rolleston on page 491, *Medical Annual*, 1932. (2) "..... there may be a hæmorrhagic eruption either all over the body or in *the bathing-drawers region in the prodromal stage* of the disease, in which case the patient will almost certainly die before the true small-pox eruption develops, so that if there is not an epidemic at the time the diagnosis may be exceedingly difficult." —Herbert French on page 554 in "An Index of Differential Diagnosis of Main Symptoms, 1923."]

Affections of Vaata-disturbance :—'Vaata-masurikas' have their seat of mischief in the *Asthi-dhaathu* (the bony constituents of the body), and exhibit the genera lsymptoms associated with *vaata jwara, viz.*—fever with chill and rigour; general pains of 'break-bone' type; rough, harsh and congestive features; constipation; intense cephalalgia over whole head (splitting headache); and asthenia, slow cerebration and emaciation. The fever subsides with the appearance of the rashes.

'Vaata-masurika' is classified into 6 main varieties, each variety owning its own sub-varieties. These will be considered in detail in Section II.

Affections of Piththa disturbance :—'Piththa-masurikaas' have their seat of mischief in the *Maamsa-dhaathu* (the fleshy constituents of the body), and exhibit the general symptoms of *Piththa-jwara, viz.*—high fever with chill (rigour being rare); burning sensation over body; a rather swollen feature and a pungent sweating skin; burning in stomach, thirst, anorexia, vomiting and diarrhœa; injected eyes, temple-ache and burning over head; and fits of unconsciousness and frequent attacks of restlessness with the patient up in bed for one moment and down again the next minute. The fever subsides with the maturation of and pus-formation in the eruptions.

'Piththa-masurika' too is classified into 6 varieties, each variety owning sub-varieties. These will be considered in Section III.

Affections of Kapha disturbance :—Kapha-masurikas have their seat of mischief in *Thwak Dhaatu* (the integumentary constituents of the body), and exhibit the general symptoms of *kapha-jwura, viz.*—fever with but rarely chill or rigour; heaviness of and aching pains over body; pinkish glossy feature; vomiting of mucous; unbearable headache of thudding nature; frequent faintings; and redness of eyes, sweating on face and discharge from nose. The fever subsides with the dessication or drying up of the eruptions.

'Kapha-masurika' also has six varieties, each variety possessing its own sub-varieties. These will be considered in Section IV.

	'Vaata-masurika'	'Piththa-masurika'	'Kapha-masurika'
1. Fever	Till eruption	Till suppuration	Till desiccation.
2. Chill and rigour.	Both present	Chill is constant; rigour is rare.	Both rare.
3. Body pain	Break-bone type	Burning sensation	Aching pains.
4. Feature	Harsh, rough and congested.	Rather swollen; skin pungent.	Pinkish and glossy.
5. Sweats	Nil	Frequent and general.	Only on face.
6. Eyes	——	Red	Red.
7. Nasal discharge.	——	——	Present.
8. Abdominal symptoms	Constipation	Burning in stomach, thirst, anorexia, vomiting, diarrhœa.	Vomiting of mucous.
9. Head-pains	Intense cephalagia over whole head; splitting in type.	Temple-ache; head-burning.	Unbearable; thudding in nature.
10. Brain symptoms.	Dullness; slow cerebration.	Fits of unconsciousness; frequent attacks of restlessness.	Frequent faintings.

III. Complications and sequelæ.—*Aka-patuvan* and *Patuthaamara* have been already mentioned under causative factors and general features respectively. The rest will be discussed under the discussion of each variety of eruption

IV. Prognostic features.—*Good signs are* :—(1) A high temperature at onset, and continued fever till suppuration; (2) initial diarrhœa; (3) a neither too thin nor dried up nasal discharge; and (4) eruptions being discrete.

Signs of grave prognosis are :—(1) Low fever at onset; (2) appearance of *Patuthaamara*—the prodromal rash over bathing-drawers

area; (3) non-appearance or recession of rash, indicating formation of *Aka-patuvan*; (4) terminal diarrhœa; (5) droplet discharge (or discharge in dribbles) from nose or drying up of all nasal discharge; and (6) eruptions being too close and tending to become confluent—eruptions that are less than half a finger apart over vital members or vulnerable points over body, and eruptions that are less than one finger apart over the flanks are usually dangerous and ominous.

Astrologically, (1) The affection whose onset is in *Krishna-paksha* (*i.e.* the fortnight following the full-moon-day) proves grave while the one that has its onset in *Sukla-paksha* (the fortnight following the new-moon-day) proves less dangerous. (2) The disease with eruptions appearing on Monday, Wednesday or Thursday decidedly proves less serious than the one whose eruptions appear on Tuesday, Saturday or Sunday. [Nothing is mentioned about Friday; perhaps, no eruption appears on Friday (?) (3) The illness often—if not usually—proves grave when it is ushered in on (*a*) the star-day of the patient's birth; (*b*) the 3rd, 5th or 7th day of the star-day; (*c*) the *Sankraanthi day*; (*d*) the eclipse day; (*e*) the star days of Arudra, Jyesta or Poorva-phalguni; (*f*) the day of *Ashtama-raasi-koor*; or (*g*) the day of *Gulika*; (*h*) the day of *Vishti*; or (*i*) the day next to that of sexual intercourse.

V. Prophylatic measures—During expected seasons of small-pox—and more so, during epidemics—, the bowels should be kept free and regular through laxatives or purgatives, and plenty of lime juice should be taken internally; also, scrupulously hygienic habits about palatal and penile pleasures should be maintained. [In modern parlance, accumulated wastes should be eliminated, the body should be fortified with anti-infective or infection-resisting agents like Vitamin C, and all precautions should be taken not to weaken the system nor afford a weak spot for the infection to enter through.]

VI. Treatment.—Only the general principles and some measures under each are described here. Management of each type wil be discussed in greater detail under the consideration of each variety.

A. ELIMINATORY MEASURES:—At the onset of fever, one rupee weight (3 drams) of *A—Vipaththi—Choorna* should be administered in 2 to 4 fluid ounces of water; this moves the bowels satisfactorily and may cause emesis. The *choorna* consists of an intimate mixture of fine powders of ginger, black pepper, long pepper, cardamoms, cinnamon, tejpatra, cyperus rotundus, embelia ribes, and goose-berry, ā ā one part; fine powder of Ipomœa Turpethum 9 parts; and sugar 18 parts.

Diaphoresis may be induced through any accepted means. But caution! The sweating may be followed by generalised œdema of

small or great extent. If such occurs. the same should be treated by anointing the body with a decoction of leaves of Pongamia Glabra boiled in rice-washings-water (water in which unboiled rice is washed or has been steeped), or with a paste of *Kuttiparuva-ila* (leaves of common Indian Parselane ?) ground in pure water, or with the oil prepared out of a paste of black pepper or *Murba* (in Sanskrit) in the juice of cocoanut-fruit.

B. DIETETIC MEASURES.—An initial fast for a day or two at the onset of illness is worthy of observance. The diet should be light till the end and particularly 'cooling' (demulcent and astringent ?) in the initial stages and especially till the appearance of the typical rash. Any of the following singly or in combination may be tried as a 'cooling' diet, observing the principles that nothing should be overdone and that no liquid diet should be given within an hour of a solid or semi-solid one. The articles recommended are: Laja powder (Laja is the soft swollen spongy rice kernal got on frying the paddy on sand-bath and removing the partially separated husks); plantains, especially, the varieties known in Malabar as *Kadali and Poovan*; grapes; figs; onions; the kernel of very tender cocoanut or palmyra fruit, or their jaggeries; water of tender cocoanut or tender palmyra fruit, or tender toddy from the above; juice of sugar cane, cucumis momordica or Krishna-Tulasi; rice-washings-water or fermented gruel water; milk; pure water etc.

[It will be observed that the above diet is saccharine in character, practically devoid of fats or proteins, and rich in vitamin C and in one or other of the constituents of vitamin B.]

The following are a few of the many recipes invented for use both as a cooling diet and as a cooling drug, and these can be exhibited throughout the illness.

[It is noteworthy that *Oushadha*, in Hindu Medicine, does not connote 'drug', but means 'remedy'; and the *oushadha* or remedy prescribed may be dietetic articles like paddy and onions, or pure drugs like Embelia ribes and Ipomœa turpethum.]

The combinations are: (1) Vasaka-root, Neem-bark, Cyperus Rotundus, Cocculus Cordifolia, grapes, red-sandlewood āā 2 drams; milk 12 fluid ounces; water 48 fluid ounces–reduced to 12 fluid ounces through boiling, and sign 4 fluid ounce three times a day. (2) Onion, crushed and clean, 12 ounces; fresh buttermilk 48 fluid ounces—reduce to 12 fluid ounces, and sign 4 fluid ounces three times a day with Gorojan (Ox-Bile ?) and sugar candy (Dose of Gorojan is put as one 'Kalanju'—one dram ?—and that of sugar-candy as 5 'Kalanju'—5 drams ? (3) Juice of figs (ad lib). with sugar-candy (Q.S) added. (4) Decoction of tuber of *Kadali* plantain (*ad lib*), with honey added.

[Tuber of *Kadali* plantain is a blood-purifier and is one of the ingredients in the famous *Panchr-Valkaadi thaila*, a medicament

of real value in many a skin affection ; it is a diuretic, and is often prescribed with success for minor cases of gravel in urine ; it is a hemostatic too.]

C. SYMPTOMATIC TREATMENT.—The governing symptoms in Masurika, as have been already mentioned, are the fever and the eruptions. The fever being of secondary importance, all measures under symptomatic treatment mainly circle round the eruptions, and are directed towards aiding their happy coming out, their happy maturation, and their happy desiccation, and towards setting right the mischiefs that the eruptions break on the eyes, nose, throat etc.

1. *Fever* :—It has been already said that a rather high fever at onset, *per se*, is a good prognostic sign ; it indicates good systemic resistance, the virulence of infection being a constant. Being so, undue meddling to control it is uncalled for. If intervention is clearly indicated, the following are to be administered per os—(*a*) *Pathian-sarkara* (coarse brown sugar ?) and lime juice, mixed together in equal doses of 1–2 fluid ounces. This combination moves the bowels and brings down the temperature with but two administrations of it. [Coarse brown sugar contains vitamin B and lime juice contains vitamin C.] (*b*) Two-grain (gunja-size) pills of piney tallow or resin (got from white dammer tree) ground for about 12 hours (4 yaamams) in the juice of true indigo and dried in shade are prepared ; and one such pill is given 2 or 3 times a day in the juice of lime or that of Tulsi.

2. *Measures to bring out the eruptions* :—These consist in administering per os cooling oushadhas to withdraw a greater amount of blood and fluids with their toxins and heat to the surface from the interior and letting out the excess through the skin as fever and rash.

[It was my considered view till the other day that the use of external heat (as opposed to warmth) was irrational in the treatment of shock and other conditions with very low blood pressure. It is still my considered view that the use of ice and extreme cold in high fevers is not all to the good of the patient, but holds an element of recoil-danger in it.

I was delighted to read some five years back the following extract from an article in the *British Medical Journal* in an issue of the ANTISEPTIC. The extract said "It used to be claimed that the improvement in pulse volume following application of heat in shock was an indication of the benefit achieved..... But, vital organs are depleted..... It is estimated that, when the blood-vessels of the skin are dilated by the application of heat, as much as 500 c.c. of blood may be diverted to skin and superficial vessels from the vital organs."]

To our purpose now : If application of heat to skin outside can withdraw blood from the interior, it should stand to reason that

application of cold to the interior can drive the blood to the skin from the interior ; and the blood carries the raised heat and the toxins !

The same results can be obtained also through application of heat to outside. But "the increased heat leads to an increased tissue demand for oxygen which may further affect the vital organs" —as in shock ; besides, caution has been already sounded under eliminatory measures that induced sweatings may be followed by generalised œdema of small or great extent.

Perhaps, the savants of old Kerala had their own experiences of such occurrences, and so preferred "driving out" to "with drawing of" blood and fluids—and with them, their concomitants of raised heat and toxins—to the surface from the interior. The following are a few of a number of prescriptions directed towards this end ; some of them are usable in all cases, while others are intended for use in special types particularly.

(*a*) *For bringing out all Masurikas* :—(i) Indian Sarsaparilla, Tragia Involucrata (*Vrishikali* in Sanskrit), couch grass (*Usheera* in Sanskrit), Oldenlandia Corymbosa (*Kshetra-parpata* in Sanskrit), Glycerizze, red sandal wood—ā ā 3 drams; boil in 48 ounces of water, reduce to 6 ounces, and sign 2 ounces three times a day. (ii) Onion, flower buds of Krishna Tulasi, cumin seed, coriander, glycerizze, Sida Cordifolia, Strychnos potatorum, *Makkipoo* (?)—ā ā 2½ drams ; boil in 48 ounces of water, reduce to 6 ounces, and sign 2 ounces three times a day. (iii) Decoction of Triphala (the three myrobalam) or that of Glycerizze or that of Asparagus racemosus is recommended for variola in the pregnant, in whom Gorochan too (ox bile ?) macerated in rose water will be found useful per os.

(*b*) *For bringing out Vaatta-Masurikas* :-(i) Tricosanthes cucumerina, bark of neem, cyperus rotundus, gooseberry, heart-wood of acacia catechu, Sida Cordifolia, Zingiberis, Pierrorhiza kurrva, *Vayyam-katha* (?)—ā ā 2 drams ; boil in 48 ounces of water, reduce to 6 ounces, and sign 2 ounces T. D. S. (ii) *Dasamool* cyperus Rotundus, Vanda Roxburghii, Berberis Asiatica, Tragia Involucrata, coriander, cocculus cordifolia, couch grass—ā ā one dram ; boil in 48 ounces of water, reduce to 6 ounces, and sign 2 ounces, three times a day.

(*c*) *For bringing out Piththa-masurikas* :-(i) Neem bark, Oldenlandia Corymbosa, Cissampelos Pereira (*Paata* in Sanskrit), Trichosanthes cucumerina, Tragia Involucrata, red sandalwood, white sandalwood, Adhathoda vasika, gooseberry, couch grass, Picrorrize Kurruoa—ā ā 1½ drams ; prepare decoction and sign as usual. (ii) Fruits of Gmelina Arborea, dates, grapes, Trichosanthes Cucumerina, Adhathoda vasaka, neem bark, gooseberry, Tragia Involucrata, Laja (soft kernel from fried paddy)—ā ā 2 drams ; prepare decoction. and sign as usual.

(*d*) *For bringing out Kapha-masurika* :-(i) Roots of bael, Colosanthes Indica, Gmelina Arborea, Stereospermum, Premna Spinosa, (these five together are called Brihat—pancha moola), Adhathoda vasika—āā 3 drams ; prepare decoction, and sign as usual. (ii) Adhathoda vasaka, Trichosanthes Cucumerina, Triphala, Kurchi, neem bark, Solanum Indicum, Tragia Involucrata—āā 2 drams; prepare decoction, and sign as usual.

(e) For bringing out Masurikas over vital points :—Laja, Fennel, cumin seeds, Oakgalls (Quercas Infectoria), red sandal, white sandal—āā 1½ drams ; Adhatoda vasaka 9 drams ; prepare decoction and sign as usual.

(f) External applications to get the rashes well-defined and clear :—(i) sprinkle over the body a decoction of *Makkipooru* Dasapushpa (ten flowers), kusa grass, blackgram and sugar cane ; (ii) dash over the body a mixture of equal parts of fig-juice and breast-milk kept for 24 hours undisturbed ; and (iii) anoint the body with a paste of Pavonia odorata (*Hribera* in Sanskrit) in rose-water.

3. *Measures for maturing the rashes* :—(*a*) Dash over whole body a decoction of the barks of *Naal-paal-mara*, the root of Sida Cordifolia and the seeds of coriander prepared in the water of tender cocoanut.

[*Naal-paal-mara* are the four fig trees with milky juice, and they are the Ficus Glomerata, the Ficus Tjakela, the Ficus Religiosa and the Ficus Benghalensis].

(*b*) Anoint the body (from the top of the head to the tip of the toe) with the pressed juice of the plantain fruit *poovan.*

(*c*) Sprinkle over the body onion-juice mixed with rose water.

(*d*) Apply to Bregma pressed juice of Vitis Quadrangularis (or Indigofera Ennaaphylla ?)

If the pustules do not burst normally and on established days, they may be needled and opened artificially.

4. *Measures to help desiccation of rashes* :—(*a*) Acacia catechu, Trichosanthes cucurmins, Triphala, Adhathoda, Cocculus Cordifolius, Neem-bark, Alstonia Scholaris—ā ā 2 drams ; prepare decoction and sign as usual.

(*b*) Zingiberis, Neem bark, Cyperus Rotundus, Saussurea Lappa, Coriander, Gooseberry—ā ā 3 drams; prepare decoction and sign as usual.

(*c*) Cocculus Cordifolius, Zingiberis, Cyperus Rotundus, Neem bark, Bark of Berberis Asiatica, Adhathoda, Turmeric, Liquorice, Solanum Indicum, Triphala—ā ā 1½ drams ; prepare decoction and sign as usual.

(*d*) *Karin-kurunji* (Barleria Prionitis ?), Solanum Indicum, Nigella Sativa, Cedrus Deodara, Zingiberis, Adhathoda—ā ā 3 drams ; prepare decoction, and sign as usual.

(*e*) In intractable cases, powder of purified Chobchini may be tried, but with all the precautions and restrictions prescribed scrupulously observed.

(*f*) One to three drams three times a day in water or with honey of Liquorice, Cedrus Deodara, Triphala, Turmeric, Berberis Asiatica; Cardamoms, *Kariyilaanchi* (Lawsonia ?) in equal parts, finely powdered and mixed well. This is particularly useful in cases of variola in the pregnant.

(*g*) Cumin seed, Fennel seed, Cardamoms, Coriander, Saussurea Lappa, Berberis Asiatica, Embelia Ribes, Cedrus Deodara, Liquorice, Anantamul, Punarnava, Kurchi seeds, Neem-bark, Zingiberis, Cocculus Cordifolius, Solanum Indicum, Triphala, Adhathoda, Trichosanthes, Cucumina, Turmeric, Premna Spinosa, *Cherupunnayari* (Calophyllum Wightianum ? or Calophyllum Inophyllum ?)—ā ā one dram ; prepare decoction, and sign as usual. This decoction is specially useful in puerperal women afflicted with small-pox.

5. *Measures to control aural and nasal eruptions* :—(*a*) Bæl seeds and *Koazhi-kkaral* (stomach ? of fowl) are roasted in honey with frequent vigorous agitation ; when of proper consistency, the mass is bundled up; when cool, a few drops are squeezed into the nose and the ear (how many times a day and how constantly etc. are not given). (*b*) Horse gram (long stored) ; Earth worm (*Bhoonaagam*) ; Black-pepper—these in equal parts, are roasted in honey and used as (*a*).

6. *Measures to control oral and faucal rashes* :—(*a*) A gargle of the decoction of gooseberry and Glycerizze is to be used frequently and reaching it to the throat ; this has a beneficial action on facial and cervical eruptions also. (*b*) Calcined cocoanut-husk is finely powdered and rubbed into fauces.

7. *Measures to control eye troubles* :—(*a*) Pearl, gold, *peetharmani*, Bimsen camphor, coral, purified mercury, conch—mixture of equal parts of these is ground in breast-milk, made into suitable pills, and dried in shade ; one such pill is rubbed in tulasi-juice, breast-milk, python-fat or honey as indicated and applied to the eyes. (*b*) Dissolve 8 parts of calcined cowrie and one part of rock-salt in the juice of *Panam-thandu* (Palmyra stalk ?) Q.S., and use as an eye-lotion. (*c*) Cumin-seed, onion, coriander, flower-buds of tulasi—these are crushed and bundled ; the bundle is soaked in tender-cocoanut water and squeezed into the eyes in drops. (*d*) Juice of aloe plant mixed with honey, or juice of chameli leaves, or juice of *Pullaanni* leaves—any of the above may be used as *wash* or *dhaara* for the eyes. The following also makes an excellent wash or *dhaara* for the eyes—nutmeg, cumin-seed, cloves, punarnava (red and white varieties), Ceylon jasmine, Cardamoms, Ixora

coccinea, laja, mussænda frondosa, leucus cephalotes, vitis indica, sandalwood, tulasi leaves, coriander, kusa grass, liquorice, cow's milk—all boiled and digested in water of tender cocoanut.

[*N.B.*—The eyes, whether they are affected or no, should receive attention daily and in all cases.]

D. TREATMENT OF COMPLICATIONS.—The principal complications dealt with here are :—(1) Hæmorrhagic rupture of the eruption ; (2) appearance of maggots ; (3) brain troubles ; (4) diarrhœa ; and (5) respiratory mischiefs.

(1) *Haemorrhagic rupture of the eruption* :—These occur usually on some vital part like the head and the bleeding is usually profuse. If any such calamity occurs, apply purified castor oil to the part and pour lime juice (vitamin C !) over the part *ad lib*, suffusing the part ; these should be done immediately to avoid dangerous loss of blood.

(2) *Appearance of maggots* :—If these have entered the scene ; (*a*) Dress the part with an ointment of camphor in *Kandivenna(?)* or (*b*) Apply to the part a paste of Vatica Indica, Arrow-root powder, *Chenchalyam (?)* and opium in equal parts in breast-milk. (*c*) Anoint the body with the ash of the cow-dung.

(3) *Brain symptoms* :—For the pre-rash faintings, stupor etc., application to head (over the brega) of one of the following is recommended—(*a*) juice of *Kuppa-manjal* (the Annaatto plant) ; (*b*) a paste of *Shanka pushpa* (Clitoria Ternalia) in breast-milk ; or (*c*) an emulsion of castor oil and breast milk ; or (*d*) a paste of crab's eye and earthworm in the white of an egg. Any of the above will also bring out the rash.

(4) *Diarrhœa* :—Pavonia Odorata, Tragia Involuerata, Cissampelos Pereira, Kurchi, Zingiberis—ā ā 4 drams ; prepare decoction, and sign as usual.

(5) *Respiratory troubles (Kaasa-swaasa)* :—The following combinations are recommended :—(*a*) Nutmeg, mace, cardamoms, long pepper, saussurea lappa—finely powdered mixture of equal parts of the above with honey, frequently as linctus. (*b*) Sugar-candy, cumin-seeds, fennel, nutmeg, mace, cardamoms, long pepper, saussurea lappa—finely powdered mixture of equal parts of the above with lime juice, frequently as linctus. (*c*) Nutmeg, mace, (cardamoms, long pepper, cinnamon, *Samudra-pachchi* (elephant creeper ?). *Naaga-poo* (Cobra's saffron or Alexandrian laurel *?*), black pepper, ginger—all finely powdered, and ā ā one part ; powder of calcined spine of porcupine and powder of calcined feather of peacock, together equal to the total quantity of above (*i.e.* 9 parts); all the powders are well mixed and given with honey in requisite doses and as often as indicated. (*d*) *Kabala-gulika*.

Kabala-gulika :—This combination is acclaimed a boon for small-pox patients, being declared an all-round and a truly efficient medicament usable in all types of variola, in all stages of the disease, and in all conditions of the patient including those of pregnancy and puerperium. It is said to control fever gradedly ; promote the appearance of rash and help in the dessication of the eruptions ; relieve pains of diverse kinds, including general pains, pains over head, respiratory difficulties, abdominal troubles, and brain symptoms ; and, in short, make existence bearable to the patient.

'Kabala-gulika' is prepared as follows : Musk, Bhimsen Camphor, Civet, Cumin-seeds, Fennel, Pierorrize Kurruo, *Rudraaksham* Acorus Calamus, Nirvesi (?) *Paal-nirvesi* (?) Sahasravedi (?) Gold, Silver, red sandalwood, *Edampiri* (?) *Valampiri* (?) Conch, *Garuda-pachcha* (Mongoose plant ?), Shilajit, Cloves, Nutmeg, Mace, Quercus Infectoria, stag-horn, coral-reef, long pepper, tusk of rhinoceros, tusk of wild boar, liquorice, 'Magilosikam' (?), Saussurea lappa, Cardamoms, pearl, Gorochanam, ginger, coral, Indian Spikenard, tender shoots of fig, root of Sida Cordifolia—equal weights of the above are powdered and mixed, the mixture is ground into a pill mass by rubbing it with breast-milk Tulasi-juice and rose-water separately and for 3 hours in each, the pill-mass is made into pills of the size of a black-pepper, and the pills are dried in shade and stored.

The administration of 'Kabala-gulika' varies with the condition of the patient. It is given with the water of tender cocoanut at the onset of fever and before the appearance of rash; with breast milk or the juice of Ocimum Sanctum when eruptions have all appeared ; with ginger-juice in inflammatory affections of the throat and in affections accompanied by troubling mucus in the throat; and with honey in cases where the patient is pregnant or in puerperium.

E. BATHS AFTER RECOVERY.—Inunction of body with oil before bath should and would be welcome, as the same would soften the crusts (if any), 'lubricate' the body, and necessitate a good scrubbing to remove the oil and so a thorough cleansing of the skin. The following are simple recipes for use in uncomplicated cases where dermatitis has supervened, special and suitable combinations should be invented or selected from out of the varied prescriptions for general skin affections. The simple recipes are : (*a*) cocoanut oil as base and *Eladi* group of drugs for paste *(Kalkam)* ; and (*b*) Cocoanut oil as base, Pierorrhize Kurrus Saussurea lappa and black pepper for paste, and Camphor for *Paathra-paaka*.

Water for bathing should be boiled with the barks of *Naal-paal-mara*, gooseberry, couch grass, pavonia odorata etc., and sufficiently cooled.

VII. Classification of masurikas :—

	Main variety	Sub-varieties		
Vaata-masurikas	Aka-tharani(5 minors)	(a) Aka-tharani	(b) Aka-malari	(c) Aka-vaal
		(d) Samku-thiriyan	(e) Karal-thiriyan	
	Chem-karappan (6 minors).	(a) Chem-karappan	(b) Ven-karappan	(c) Neer-karappan
		(d) Pon-karappan	(e) Chaer-karappan	(f) Kal-karappan
	El-Poriyan (5 minors).	(a) El poriyan	(b) Ul-poriyan	(c) Kal-poriyan
		(d) Manal-poriyan	(e) Ninal-poriyan	
	Karuththanali (5 minors).	(a) Karuththanali	(b) Karthth-akam-kuzhiyan	(c) Kuthira-kulamban
		(d) Mukuta-valayan	(e) Aana-chuvatan	
	Muthira-ppiravan (5 minors).	(a) Muthira-ppiravan	(b) Badari-ppiravan	(c) Vaenthan
		(d) Villan	(e) Vishaman	
	Karinchappatta (6 minors).	(a) Karinchappatta	(b) Cheppitta	(c) Vattaththi
		(d) Kari-valayan	(e) Parangi	(f) Parayan
Piththa-masurikas	Veluththanali (6 minors).	(a) Veluththanali	(b) Veluthth-akam-kuzhiyan	(c) Vellaara
		(d) Patuthamara	(e) Thukalan	(f) Kann-chemappan
	Kalloori (5 minors).	(a) Kalloori	(b) Manian	(c) Saanthan
		(d) Koamalan	(e) Raktha-mukkan	
	Poozhi-kkalloori (6 minors).	(a) Poozhi-kkalloori	(b) Aani-kkallori	(c) Varasha-loohanan
		(d) Chathuran	(e) Umayaan	(f) Yamayan
	Kanaka-kkalloori (5 minors).	(a) Kanaka-kkalloori	(b) Thingal	(c) Theeyoan
		(d) Prabhaakaran	(e) Sraardhan	
	Ven-pulakan (5 minors).	(a) Ven-pulakan	(b) Chem-pulakan	(c) Karim-pulakan
		(d) Yama-doothan	(e) Neer-pulakan	
	Neer-karappan (5 minors).	(a) Neer-karappan	(b) Akshakan	(c) That-swaroopan
		(d) Thaamara-maniyan	(e) Oanthin-puravan	
Kapha-masurikas	Paaloori (5 minors).	(a) Paaloori	(b) Manal-paaloori	(c) Ari-ppaaloori
		(d) Visar-ppaaloori	(e) Ninal-paaloori	
	Ven-chilanni (6 minors).	(a) Ven-chilanni	(b) Vel-chilanni	(c) Aana-chilanni
		(d) Vatta-chilanni	(e) Vitta-chchilanni	(f) Koottu-chilanni
	Moar-chchilanni (5 minors).	(a) Moar-chilanni	(b) Pal-chilanni	(c) Kaal-chilanni
		(d) Thati-chilanni	(e) Vetti-chilanni	
	Neer-chchilanni (6 minors).	(a) Neer-chilanni	(b) Koor-chilanni	(c) Pon-chilanni
		(d) Aar-chilanni	(e) Poar-chilanni	(f) Veer chilanni
	Pon-chilanni (5 minors).	(a) Pon-chilanni	(b) Mani-chchilanni	(c) Maanikka-chilanni
		(d) Aani-chilanni	(e) Kata-chchilanni	
	Oatu-chilanni (5 minors).	(a) Oatu-chilanni	(b) Ul-chchilanni	(c) Kaatu-chilanni
		(d) Kaal-chilanni	(e) Maattu-chilanni	

(To be continued).

Vitamin E in Menopausal Syndrome

Ferguson recounts the successful results he obtained in 66 cases with the use of *a*-tocopherol (5 mg. twice daily) for 5 to 8 months. 59 of the 66 obtained complete relief. The author believes that Vitamin E has demonstrated its effectiveness although its mode of action is not yet understood. It does *not* induce carcinogenic cellular action which is stated to be aggravated by œstrogenic hormones.—(*Abst. J.A.M.A.*, 15-1-'49).

T.M.S.R.

Cases and Comments

Lactoflavin or Riboflavin Deficiency— A New Approach

MAFIZUDDIN SIRKER, D.T.M. (cal.),
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It has been designed as yellow fluorescent pigment in liver, egg, milk etc. and imparts greenish colour to whey. This vitamin has been synthesized and isolated in a perfectly pure stage. It is a yellow dye with a yellowish green fluorescence in aqueous solution. One rat unit represents that amount which must be given by mouth to young rats daily whose weights have been brought to a standstill by the appropriate diet in order to produce an over-age gain in weight of 20 grammes in 20 days. Although ariboflavinosis in its prominent form is often-times associated with angular stomatitis with fissuring (cheilosis), other forms of deficiency syndromes have also been noted such as failure of growth, skin affection of an unspecific nature, seborrhœa, interstitial keratitis. Many are of opinion that this vitamin is concerned with tissue oxidation as is entirely needed for cellular respiration. It is also mentioned that marked deficiency of this vitamin may also take part in the causation of pellagra symptoms. To put in other words, deficiency of extreme grade of essential protein or amino acid together with nicotinic acid deficiency ultimately lead to a failure in absorption, assimilation and utilisation of this vitamin in the body, Marked deficiency of one vitamin may also ultimately lead to a failure in the absorption, assimilation and utilisation of other vitamins. Frank deficiency of one vitamin or a single componment of a group of vitamins is rare.

After the Second Great War nutritional problem has caused us great trouble. It has led to intricacy of signs and symptoms of many common diseases, or it has simulated many common disease syndromes with the result of ultimate failure in diagnosis and treatment. It is well known to every physician that ours is a country where nutritional problem is intimately linked with many social customs and abuses, variation in climatic conditions etc. Hence elaborate research or observation in this line is needed in our land in our own light.

Gopalan (1946) in his well-known articles on riboflavin deficiency has attracted our attention to some manifestations of frank riboflavin deficiency which has received very scant or practically no attention from authority.

These are, in short, pruritis vulvæ and congestion of the vaginal mucous membrane leucorrhœa, anal fissure and hæmorrhoidal symptoms, ulceration of the prepuce, angular blepharitis etc. Being encouraged by his research, I set on seeking out other forms of frank deficiency on this line.

My observation is mainly clinical supported by therapeutic test or trial. Gopalan (1946) in his article on "the burning feet syndrome" has mentioned about the link of pantothenic acid taking part in the causation of this symptom and its efficacy in the treatment of this syndrome. But deficiency of this vitamin (Stannus, 1944) may also take part in the causation of this symptom in extreme form. Other causes *e.g.* vasomotor disturbances, allergy and anaphylaxis, anæmia etc. may participate in the causation of this syndrome. But my first case was one of frank riboflavin deficiency with intense burning feet syndrome, ulceration of the sole of the feet due to continuous pouring in of cold water as an effort in the amelioration of the burning syndrome.

Another case having skin manifestations like vitamin A deficiency (toad skin) and dermatitis resembling to some extent seborrhœic dermatitis with burning sensation, itching of skin especially of the scrotal pouch, angular blepharitis etc. Insomnia, irritability owing to itching and severe burning sensation of the patches were quite unbearable for him. He was treated outside for this complaint, but there was no amelioration of his symptoms in the least. The patient was treated with lactoflavin alone parenterally and with no other medicine with rapid amelioration of the symptoms.

Another case was of facial paralysis. His blood was examined for W. R. and was reported to be negative. He was treated outside for more than a year but to no effect. The patient happened to be serving under me nearly 15 years ago and I found him suffering off and on from ulceration of the tongue and angular stomatitis, although he did not have any complaint of this nature for the past several years. I decided to try the effect of riboflavin. Nerve injury of extreme grade including thalamic injury interfering with sensory nerves may cause paræsthetic sensation as suggested by Stannus (1944). My idea is that it may also lead to degeneration, paralysis etc. However, the effect of riboflavin is extremely satisfactory. The case is still under observation.

Case I.—A Muslim male, aged about 40, came to me in a bullock cart complaining of extreme grade of burning feet syndrome. His soles of feet were riddled with ulcers and no external application of any nature could cure the ulcer, and these were aggravated by continuous pouring in of cold water day and night. The burning syndrome started nearly one year ago and no treatment of any kind was of any avail. His blood was examined but revealed no abnormality suggesting either anæmia or allergy of any nature. Stool—No parasite and no helminthic ova. No impairment or loss of sensation, wasting of muscle, tenderness, no loss of knee-jerk, no foot drop etc. The patient gave me a history of having suffered off and on from mild ulceration of the tongue, also a history of angular stomatitis now non-existent. Having concluded it to be one of frank riboflavin deficiency I at once decided to try the effect of riboflavin

parenterally and the effect was dramatic. Five injections within a space of 15 days' time was enough to cure him. No other medicaments either external or internal was necessary.

Case II.—A Muslim male, aged about 30, he gave me a history of insomnia and irritability due to itching and burning sensation. The patches of the skin, itching and burning resembled in some respect toad skin and in other respects seborrheic dermatitis. He had ulceration of the tongue with some atrophy of the papillæ. His blood was examined—W.R.: negative, no leucocytosis or eosinophilia. Stool—No parasite, no helminthic ova, no impairment of sensation, knee jerk, wasting etc. suggesting nerve injury. He gave me a history of ulceration of the tongue previously and angular stomatatis now non-existent. I decided to try the effect of riboflavin in this case. The effect of it was extremely satisfactory as only two parenteral injections ameliorated his symptoms. He received in all 18 injections on alternate days and riboflavin per os subsequently. He is now perfectly cured and is under observation for one year.

Case III.—Patient, male, aged about 35 years, treated outside for facial paralysis, lachrymation, dribbling of saliva. Blood—W.R.: negative. I knew him for some years having suffered from ulceration of the tongue and angular stomatitis. Now both the troubles non-existent. However, I thought that deficiency of this vitamin may participate in the formation of the symptoms. He was placed under riboflavin treatment parenterally and he responded to this treatment very satisfactorily. He is still under treatment and observation.

Summary.—1. Atypical forms of riboflavin deficiency not mentioned heretofore have been mentioned.

2. Though the observation is mainly based on clinical signs and symptoms and therapeutic test or trial, yet they are conclusive evidence in favour of newer forms of frank riboflavin deficiency inasmuch as no other medicaments were used save and except riboflavin.

3. Cheilosis (angular stomatitis with fissuring) as mentioned in the literature as one of the prominent symptoms of ariboflavinosis may not exist throughout the disease-period and it may vanish long before frank deficiencies make their appearance.

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2. C. Gopalan, (1946)—Ibid., 22.
3. Stannus, H. S., (1944)—Brit. Med. J., ii, 140.
4. R. Passmore—Nutritional Diseases of India.
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Rangpur, (E. Bengal).

A Few Therapeutic Suggestions

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1. In filariasis a course of intravenous pentavalent Antimony injections followed by Arsenotyphoid injections gives better results than Arsenotyphoid injections only. The newly introduced remedy "Banocide" of Burroughs Wellcome & Co., London, should receive a fair trial as the treatment of filariasis is still very unsatisfactory.

2. As many cases of chronic pulmonary tuberculosis are relapsing after Streptomycin treatment before the year is out, a course of Lipolytic Enzyme injections should be given after completion of the Streptomycin course. [Reference: "Chr. Pulmo. Tuberculosis" by N. P. Kundu, M.B. (Cal.), I.M.S. (Retd.), which appeared in June, 1947 issue of *Journal of the I.M.A.*]

3. Milk and Pedunculin injections should be tried for residual spleens after thorough treatment of malaria or K. A. cases.

4. Malarial vomiting should be treated by Adrenalin m. viii or x by mouth in a little water in addition to Quinine injections. The dose should be repeated after 1 hour. Ice should also be given to suck.

5. As long as Chloromycetin is not cheaper and easily procurable severe cases of typhoid fever should be treated by Felix's Antityphoid Serum and other recognised detoxifying agents, *e.g.*, Liver Extract, Vitamin C, intravenous glucose and blood plasma injections. Internal and external hydrotherapy should also be given wherever possible. Moderate cases should be treated by hydrotherapy, Oro-typhin (Union Drug Co.) and Polydin (*Glaxo*) or Sterodin (Union Drug Co.)

6. Boldo preparations are useful adjuncts in the treatment of gallstones with biliary colic.

7. Chronic diarrhœas not responding to Emetine, Enteroviоform and digestive mixtures should be treated by Folic Acid and Thiamine.

8. Where true meningitis and meningitic type of *pernicious* malaria cannot be differentiated by blood examination or lumbar puncture, combined treatment should be given.

9. Jambol Codein preparations and B complex are useful adjuncts in the therapy of diabetes mellitus.

10. In severe tetanus Penicillin and Sulphamerazine should be given in addition to massive doses of Antitoxin (1 lac to 2 lac units) intravenously diluted with half to one pint of Hypertonic Saline and 500 mg. of Vitamin C which prevent acute anaphylaxis.

11. Paroxysms of asthma associated with glycosuria have been relieved within 15 to 20 minutes by a drink of glucose water

in some cases. The dose of Glucose required in these cases is usually two ounces.

12. Some paroxysms of Migraine also have been relieved by glucose drink. In these cases the blood sugar has been found to be below normal level.

13. Some cases of fatigue and neurasthenia also have been relieved by glucose drink. In these cases hypoglycæmia has been found.

14. Essential hypertension cases should be treated by X-ray exposures to the adrenal and posterior lobe of the pituitary glands.

15. As herniation of the intervertebral disc of the 4th or 5th lumbar vertebra has been found to be the etiological factor in sciatica, operation should be advised in intractable cases.

16. In spite of the discovery of Mepacrine, Paludrine and Plasmochin, arsenical preparations still hold a distinct place in the treatment of relapsing malaria. The relapse rate after simple Quinine treatment of malaria is not less than 50%.

17. Aerosporin has been found to be a specific for pertussis.

Reference: Lancet, 1: 133, 1948.

Occurrence of Oedema During Treatment of Macrocytic Anæmia with Liver Extract

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OCCURRENCE of œdema during treatment with Liver Extract in cases of macrocytic anæmia (nutritional) is not a new feature. Das Gupta and Chatterjee (*I. M. G.*, April 1947) described a case where inspite of vigorous treatment the patient died of a condition which they styled as "malignant hypoproteinæmia." Amongst vegetarians it is always the rule than the exception that a transient sort of œdema appears within a few weeks of Liver Extract treatment. In some cases only, it is so much, that it begins to cause concern both to the patient and to the doctor treating him. The following case report is one of such a patient, which is described as he recovered after persistently enforcing a high protein diet:

D. M., male, aged 35 years, school teacher and a strict vegetarian. He gave previous history of recurrent malarial attacks and diarrhœa. His main complaint was great weakness, sore tongue and diarrhœa. An examination revealed a fairly nourished middle aged individual with a puffy face and swollen ankles. There was marked dyspnœa. The tongue was pale and atrophic and there were a few ulcers on its margin. The liver was enlarged, one finger below costal margin, and so was the spleen, which was also hard. A hæmic murmur was audible over the pulmonary area and the pulse was soft and indistinct. His blood count was 1,000,000 c.m.m. and hæmoglobin (Sahli) 25%. His blood Kahn was negative,

Gastric analysis and blood protein estimation, however, could not be done in the absence of these facilities. Urine and stool examination revealed a mild ascariasis infection in the latter. Repeated smears for M.P. were found negative.

He was put on Liver Extract (T.C.F.) 5 c.c. daily for the first three days and then 2 c.c. daily for further two weeks. Blaud's pills grs. 10 t.d.s. and multi-vitamins were also given. He was put on a high protein diet. This became particularly difficult as he was a strict vegetarian and so a form of jawar* flour kanjee cooked in curds and sweetened had to be given in addition to his normal diet, which was revised to supplement all natural vitamins.

After about a week of this treatment the œdema on his feet began to increase. This went on increasing and finally a general anasarca supervened. There was free fluid in the peritoneum. The patient's general condition was however very much better and he could eat twice as before. Taking this opportunity the patient was put on egg-emulsion (to which a few drops of Tincture Card. Co. were added to make it look like a medicinal dose)—starting with two per day and increasing it to about eight a day in a week's time. Surprisingly enough the œdema began to subside and within two more weeks it completely disappeared. His hæmoglobin at this stage was 72% and R.B.C. count had gone up to 4,000,000 c.m.m.

Discussion.—It is unfortunate that an estimation of blood proteins could not be made in this case. It would probably have revealed a marked hypo-proteinæmia, a condition which presumably always co-exists in such cases of nutritional macrocytic-anæmias. As in the present case, the hypo-proteinæmia becomes worse as erythropoiesis starts. The increased amount of hæmoglobin drains the plasma-protein which, in turn, draws this from the tissues. The osmotic tension somehow is upset and a general plethora results. This also is noticed in fasting individuals. Substitution of these body proteins by adequate intake of animal proteins has to be zealously guarded from the very beginning. In this particular case it was fortunate that the patient's appetite had not much impaired. In cases where there is complete anorexia a blood or plasma transfusion must be given to replace this drain on proteins in time. A fairly large amount of such proteins must be given to be of any avail, the quantity depending upon each individual case. A blood plasma estimation in the beginning of the treatment and a subsequent estimation during treatment should help these calculations.

Summary.—1. A case of nutritional macrocytic anæmia has been described.

2. Urgency of a high protein diet has been stressed.

3. Causes of hypoproteinæmia and recrudescence of œdema have been discussed.

* Buttermilk, oil atab and jaggery described by Dr. E. G. H. Koenigsfeld, *Journal of the I.M.A.*

Can Streptomycin Give Rise to Diabetes?

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STREPTOMYCIN is a highly antibiotic compound, which displays a bacteriostatic effect against several gram-negative organisms, many of which are not sensitive to Penicillin and against the acid fast bacilli.

Certain signs of hypersensitivity or toxicity may occur during the administration of the drug, and all patients should be carefully watched for the following reactions:—

(1) Fever; (2) skin eruptions; (3) eighth nerve disturbance *e.g.* vertigo, tinnitus, deafness; (4) renal irritation; (5) parasthesias about the face; and (6) peripheral neuritis.

However, I have not come across with any case during my extensive use with this compound in pulmonary tuberculosis that it gives rise to diabetes. The case notes described hereunder will be of interest to the medical profession from this point of view:

S. P., aged 24, of thin-build, complained of cough, expectoration, profuse night sweats, raised evening temperature, emaciation and occasional hæmoptysis of about six months' duration.

Skiagram revealed tubercular infiltration of the right upper and middle zones with few small cavities. The left lung showed slight exudative infiltration of the upper zone. The sputum was positive. The urine was free from protein and sugar and the blood showed no abnormality except a slight degree of anæmia.

Family History.—Mother died when he was a child of two years—cause of death not known to the patient. Father, paternal uncle, elder brother and only sister alive and healthy. Both the brothers are married and their wives are healthy.

The patient was put on A.P. and Streptomycin. The primary A.P. was started on 15-1-'49 with first refilling on 17-1-'49. He was then having weekly refillings up to 5-3-'49 and then fortnightly. Along with A. P. he was given a course of Streptomycin—a total of 60 grammes. The course of Streptomycin started on 1-2-'49 and ended on 1-4-'49. During the course of injection he did not complain of any untoward symptoms other than a minor degree of vertigo on exertion. He was progressing slowly but steadily. On 30-4-'49 he had twelfth refill. From the next day he developed severe pain at the site of needle puncture accompanied with fever with definite rigor and remission with sweating. The temperature was controlled with Alkaline mixture and Paludrine but the pain persisted. The patient developed a certain amount of pleural effusion, and A.P. was stopped temporarily. On or about 10-5-'49 the patient noticed that he was passing a large quantity of urine frequently, had excessive thirst and general

prostration. His urine showed 3 per cent sugar. He was immediately placed on Zinc Protamin Insulin, 40 units per c.c. 1 c.c. intramuscularly daily and restricted diet. A check was kept on his sugar in urine every fourth day, which was declining after he had had 8 c.c. Zinc Protamin Insulin. A total of 12 c.c. was given.

It was unfortunate that I lost contact with him at that stage. After a period of about four weeks I was able to contact him and his urine was free from sugar and had kept so up to the date of writing although he had discontinued A. P.

Discussion.—The patient never suffered from diabetes mellitus before, nor was there a family history. He had developed it about 5 to 6 weeks after the cessation of Streptomycin. The condition was controlled with Zinc Protamin Insulin and enforcement of restricted diet and the glycosuria cleared up within a very short time. Unfortunately the blood sugar could not be estimated due to lack of co-operation on the part of the patient and also partly due to the economic factor. Had it been a case of ordinary diabetes mellitus occurring in an young adult suffering from pulmonary tuberculosis, it would not have been controlled within such a short time and with such a small amount of Zinc Protamin Insulin.

From insufficient data it is difficult to say how Streptomycin could give rise to glycosuria.

Personally I am of opinion that Streptomycin caused some pathological change in the pancreas, which was reversible. Of course it is too early to make any such speculation and it needs further confirmation from my professional colleagues.

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Hetrazan in Filariasis

(A Short Report)

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THIS article is based on a few filarial infections treated with Hetrazan under close observation and laboratory control. No startling discoveries or unalterable conclusions are claimed. Hetrazan being a new anti-filarial drug in the early stage of its trial in this country, where its applicability is extensive if proved useful, it is hoped, in spite of its extreme "smallness", the article will be found journal-worthy.

In regulated doses Hetrazan did not appear to be a drug of much toxicity, although distressing dizziness, headache and nausea were sometimes seen. It is suggested that such symptoms might be "allergic reactions" resulting from the sudden death of a large number of microfilariæ killed or otherwise acted upon by Hetrazan. This may be a possibility, but I have seen them occur in patients in whose blood microfilariæ were not present.

There is no doubt that Hetrazan can get rid of microfilariæ (Bancrofti) from the blood-stream of infected persons, often with astonishing rapidity. In one of my cases with a very high count, microfilariæ completely disappeared after taking only 18 standard-size tablets in three days' time! This man had no clinical symptoms of any kind. He simply harboured swarms of microfilariæ which fact was casually discovered at a general filarial survey carried out in his notoriously infected locality. It is noteworthy that in spite of such quick and complete disappearance of microfilariæ, no allergic symptoms developed, as might be expected, in this case.

Equally remarkable was another case in this group which presented not only microfilariæ in the blood, but also clinical filariasis to be remedied. In this case, too, the microfilariæ promptly disappeared under the influence of Hetrazan within a few days.

Four, more or less long-standing, cases, including the one referred to above, took Hetrazan in substantial doses in the hope of obtaining permanent relief from their frequently recurring febrile and inflammatory attacks of filarial origin. The immediate outcome was not bad considering that alleviations of symptoms did result in all the cases. But in the follow-up observations, one failed to experience that thrill of conquest which physicians invariably felt when Sulpha drugs and Penicillin were on trial for the first time!

Hetrazan was also employed to produce cures in three well-formed elephantoid conditions—one of them (Mr. K.) with a young elephantiasis of the lower limb, consuming over 350 expensively bought Hetrazan tablets, spread over a period of 4 months—with most disappointing results. My own feeling about it is that there is no more sense in treating elephantiasis with Hetrazan than there is in vaccinating patients to cure blindness resulting from small-pox!

From the literature now available on the subject it is not clear how precisely Hetrazan attacks microfilariæ in human blood. I have microscopically examined dozens of wet and stained slides of filariated blood when Hetrazan was actually at work and after expecting to find dead, dying or disintegrated microfilariæ, or leucocytic changes suggestive of mass destruction of the parasites, always with negative results.

Whether Hetrazan directly kills the microfilariæ or just 'opsonizes' them for phagocytes to engulf or merely scares them away from peripheral blood to their less assailable, inner bases, are minor details to be perfected. But the main discovery that Hetrazan is capable of getting rid of well over a thousand yards of these embryonic nematods—roughly the aggregate length of four hundred million microfilariæ, estimated to be the number present in the circulation in a moderately heavy infection—literally, within the space of a few hours, appears to remain on a "well and truly laid" foundation.

The Town Clinic, Cannanore.

Toxic Reactions of Paludrine

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IT is an established fact that Paludrine is the best anti-malarial drug so far available. This is far superior to all other drugs for malaria as its toxic effects are almost nil.

I have tried this rather extensively, but only about 1% of cases complained of any adverse symptoms.

Slight dizziness and abdominal discomfort are felt in certain cases, while a burning sensation at the lower end of the gullet is complained of by some.

Nausea and occasional vomiting is brought about in a few individuals. This is very rare, and if it does occur it is after taking a large single dose of Paludrine.

My experience is that the burning sensation of the gullet and abdominal discomfort are relieved by a copious draught of water.

As a matter of fact, all these symptoms can be avoided if plenty of fluid is taken with these tablets.

No mention has yet been made of any action of Paludrine on the uterus. However, it is interesting to note that I had a case of threatened abortion within two hours of taking 3 tablets of Paludrine.

Mrs. D. H., 27 years, multipara, 3 months amenorrhœa, had an attack of malaria. She was seen by me at 6 p.m. on 1-5-'48 when her temperature was 101°F. 3 tablets of Paludrine were given statim with a tumbler full of water. At 6-45 p.m. she complained of a slight discomfort in her abdomen which gradually grew to be a severe abdominal colic and at 7-30 p.m. she became very restless. A slight bleeding P. V. was noticed, which was suggestive of a threatened abortion. Morphia gr. ¼ was administered immediately and she was given a mixture containing Bromide and Calcium. Fortunately, the symptoms of threatened abortion disappeared by the following morning and her temperature dropped down to normal. No Paludrine was given afterwards and she is since keeping up her normal health.

This, I believe, is a very exceptional case which may or may not have been due to Paludrine. Incidentally, this was the only case of mine where Paludrine was discontinued when any toxic reaction appeared. However, I am of opinion that Paludrine does not bring about any bad toxic effect which warrants the withdrawal of the drug.

A Case of Infantile Cirrhosis of Liver

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Patient :—Manik, aged 2 years, Hindu, male child.

Family history :—Another child of the same parents died of infantile liver about 3 years back.

Previous illness :—Nothing particular except that the child suffered from colitis about a year ago, the cause of which was ascribed to dietetic error.

Present illness :—The child was attacked with fever on 2-5-'49. The temperature was at first low but gradually it rose high and became continuous ranging from 102°F to 104°F. There were two cases of enteric fever in the neighbouring houses and two cases in the same house as well.

Result of blood examination :—No M.P. found ; Diff. counts—Poly. 25%, Lympho. 65%, Large mono. 6% and Eosino. 4%.

There were tympanitis, mental dullness and the case was clinically diagnosed to be of enteric group in the absence of facilities for widal test. The following were prescribed and the diet consisted of barley water, glucose, orange juice and whey.

1. ℞

Hexamine	..	grs. ii
Soda Citras	..	grs. iv
Soda Bi-carb	..	grs. iii
Liqr. Ammon acetas	..	♏ x
Spt. Ammon Arom	..	♏ iv
Syr. aurantii	..	♏ xv
Aqua ad	..	℥ ii

Mft. mist such 6 t.d.s.

2. ℞

Sulphathiazole	..	½ tab.
Celin	..	½ tab.
Lactose	..	gr. v

Mft. Pulv such 6 t.d.s.

On the 13th day the child developed diarrhœa for which Sulphaguanidine with Kaoline was given but the result was not very satisfactory ; on the contrary, the condition was changed into colitis with tenesmus.

On the 17th day the temperature came down to normal but slight œdema was noticed specially on the face, hands and feet.

On the following day, the œdema was much increased and there was marked dyspnœa. Number of respiration was 36 per minute. On examination albumen, epithelial cells and a few pus cells were detected in the urine and the following treatment was adopted in consultation with Dr. Bhubaneswar Barua, M.B., B.S., the eminent physician of Assam.

1. ℞

Soda Citras	..	gr. v
Soda Bi-carb	..	gr. iii
Liqr. Ammon acetas	..	♏ xv
Liqd. Ext. of Punarnava	..	♏ xv
Syrup Glucose	..	♏ xv
Aqua ad	..	℥ ii

Mft. mist such 6 t.d.s.

2. Coramine Liqd. and Adrenalin (P.D. & Co.) 5 ms. alternately every 3 hours.

On the following day dyspnœa and œdema were much reduced, but there were jaundice, nausea with occasional vomiting, marked anæmia, enlargement of liver and ascites. Colitis with tenesmus also continued.

Result of stool examination :—Pus cell—present, R.B.C. present, vegetable cell present. Fat globules present.

From the family history and the present condition it became evident that the child had developed cirrhosis of liver after enteric fever.

Meonine (John and Wyeth) was given for cirrhosis of liver along with high protein diet *e.g.*, chicken soup, fish soup, chana and skimmed milk.

Folvite with Liver Extract (Lederle) ½ c.c. I.M. every day upto 20 injections, for anæmia.

Multivitamin in the form of Nestrovit lozenges were also given.

Thalazole with Kaolin was given for colitis.

The progress of the case was not satisfactory though the ascites which reached to the extent of causing distress was slightly diminished.

It was then decided to try another new product namely Delphicol Choline with Methionine, (Lederle), in this case. Accordingly Delphicol was ordered for and given orally ½ teaspoonful twice daily for first two days and then 1 teaspoonful twice daily.

After the institution of this treatment the total quantity of urine was enormously increased, stool became bile pigmented and normal œdema and ascites disappeared within a week and the result appeared to be miraculous.

Now the child is making steady progress though there is rachitic condition which is not unusual after cirrhosis of liver.

All medicines except Nestrovit lozenges, Delphicol in smaller doses and massage with Codliver oil have been discontinued. Diet still consists of meat soup, fish soup, skimmed milk and soft boiled rice once a day and it is hoped that the child will make an uneventful recovery.

The points of interest in this case are the onset of infantile cirrhosis of liver after enteric fever and the result achieved by Delphicol in such a short period which other measures failed to do.

I am thankful to Dr. Bhubaneswar Barua for giving instructions to treat this case and permission to publish this case note.

C/o Hisusthan Medical Stores,
Panbazar, Gauhati (Assam).

An Interesting Case of Black-water Fever

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ON 20-9-'49 I was called to attend a patient, named Mrs. Chattaraj, aged 26 years, at about 9-30 a.m. She was carrying nine months.

COMPLAINTS.—Severe vomiting; vomited about seventy times; patient cannot retain anything. She had nausea, severe epigastric pain and intense thirst.

History of past illness :—Patient gave history of two previous premature deliveries in 1947 and 1946, every time preceded by vomiting and pain in the abdomen. Vomit was not so intractable. Only first issue living, aged 5 years.

History of present illness :—Sudden onset of nausea and repeated vomits from 12-30 a.m. (20-9-'49). No temperature.

On examination :—General condition—patient anæmic. No jaundice, patient restless, pinched facies, sunken eyes. Patient exhausted. C.V.S.: pulse rate 128 p.m., volume and tension poor. Resp. system: N.A.D. Abdomen: Spleen 1" below the costal margin. Liver ½" below the costal margin, tender. Uterus above the umbilicus.

Treatment adopted :—Symptomatic treatment for vomit and severe epigastric pain was given.

Glucose solution 25% 50 c.c. with Coramine—injected I.V. stat. To give complete rest and to relieve pain Morphine gr. ¼ with Atropine gr. 1/100 was injected I.M. as no oral administration of any medicine was possible.

At 4-30 p.m. patient's condition better. No vomit. Nausea present. No epigastric pain.

Glucose and Coramine was repeated; dab-water, glucose water and plain water in sufficient quantity was given.

On 21-9-'49. At 9-30 a.m. No temp., no vomit, nausea present. 2-30 p.m. Temp. 104°F.; 9-30 p.m. Temp. 98°F. Glucose and Coramine repeated morning and evening. Advised to bring ice from town.

On 22-9-'49. At 9-30 a.m. temperature normal. Pain over loins. 12-30 p.m. Temp. 104°F. with chill and rigor. Severe headache. Loin pain—not severe. Epigastric pain—mild. Vomits three times, bilious. Stool 6 times, loose motions, soiling the bed. Blood slide for M.P. was taken. Glucose and Coramine injected again. Quinine bihydr. gr. x injected I.M. stat. In examining the blood slide one M.T. ring was found.

At 4-30 p.m. I visited the patient to inject Quinine again, Temp. 102°F. patient restless, severe headache, vomits persisting,

pain in abdomen. Uterine contraction detected. Patient passed urine—quantity about ½ ounce. Colour almost black.

Sodibicarb solution 7½%—20 c.c. injected I.V. Glucose and Coramine injected again. Coramine liquid at intervals. Pedunculin amp. (Gluconate) injected 6 hourly I.M. till 5 such. Quinacrine 3 gm. amp. injected I.M. 12 hourly till 4 such.

Patient's attendant was advised to collect urine each time in different bottles. Patient was advised to take complete rest and use bed-pan and urinal when necessary, ice bag over the head and hot water bag over loins.

On 23-9-'49. At 1-30 a.m. I was informed that patient had still-birth but placenta not yet come out. I visited the patient again and delivered the placenta by the Crede's method. Patient too exhausted, Temp. 97°F. oral; no urine passed since 4-30 p.m. last. No vomit. Glucose and Coramine injected again. Coramine liquid oral continued.

9-30 a.m. Patient profusely sweating, Temp. 95°F. oral, patient conscious. No urine passed. Cold and clammy limbs. Glucose solution 100 c.c. injected I.V. Getting no response of Coramine, one Camphor-musk-in-ether amp. was injected and satisfactory result was obtained.

At 4-30 p.m. Temp. 102°F., passed urine—quantity about one ounce. Colour dark red. No sweating. No vomiting. Glucose solution 25% 50 c.c. injected again. Sodibicarb solution 20 c.c. injected I.V. Patient was advised to take iced dab-water, glucose water, orange-juice and Horlicks.

At 9-30 p.m. Temp. normal. No epigastric pain or loin pain. No headache. Urine passed five times, quantity varying from 6 to 10 ounces every time, the colour of urine becoming lighter.

On 24-9-'49. At 9-30 a.m. patient's condition much better. Temp. normal. Urine clear. Patient too weak, no pain, either epigastric or loin, no headache.

Alkaline mixture was prescribed. Patient was advised to continue Ferradol and Anahæmin which was prescribed last. Patient made an uneventful recovery.

Lastly I cannot but note that though in this case there was tremendous destruction of R.B.C. resulting in hæmaglobinæmia with consequent hæmoglobinuria, there was no jaundice from the beginning. Where urine became clear and patient's condition was much better, I noticed yellowish tinging of the patient's conjunctiva and fingers which, in my opinion, was due to administration of Quinacrine.

I invite comments on the absence of jaundice in this case.

The Antiseptic

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Wanted More Nurses

"The nurse is a more important factor in the hospital than even the doctor. One doctor can look after a big hospital, but you want many nurses, as there are patients.

"If I had not taken up the profession of a lawyer, later of a politician, and later still of a functionary without responsibility, I would have very much liked to be born a girl and become a nurse."

—H. E. SHRI C. RAJAGOPALACHARIAR.

IN unveiling the foundation stone of a new hospital to be built at Jowai, Assam, by the Welsh Mission, the above observations by His Excellency Shri C. RAJAGOPALACHARIAR, the Governor-General, stresses the nobility of the nursing profession and the importance of providing hospitals with an adequate number of nurses to attend on the patients who have sought admission there to get relief from their ailments. As H. E. has observed a doctor can attend on a number of patients, examine them daily, prescribe the proper medicines and give instructions as to how they should be attended to. But it is the nurse who has to bear the brunt of the responsibility. It therefore goes without saying that though the provision of one nurse for each patient should be the ideal to be aimed at, there should at least be an adequate number of nurses to attend on the patients with that care and attention which these unfortunate people require for the early betterment of their condition.

But unfortunately the steps taken in this country in this regard have neither been satisfactory nor helpful to attract people to this calling. The reorganisation plan, carried out in our own Province some years back, worsened the pay and conditions of service of nurses employed in Government hospitals, and the speeches made

at that time by some Ministers tended very much to belittle the calling itself. The result had been that the service ceased to attract the right type of people and the hospitals in our Province—the same is the case in other Provinces also, that special efforts have become necessary to attract more people to this calling through the medium of celluloid—in spite of the pronouncements of Ministers that the strength of the nursing staff is adequate, are short of nursing personnel. The Ministers base their claim of adequacy of the nursing personnel on the basis of standard scales fixed with reference to bed strength. It may be that when the bed strength of a hospital is increased by the provision of additional accommodation and the like, the Surgeon-General applied for permission to entertain additional staff and the same was sanctioned by the Government without demur. But the question that arises in this connection is whether the standard scale is the right scale and the staff fixed on that scale is sufficient to meet the requirements. There is also another factor to be considered in this connection, namely the admission of more patients than the actual bed strength in the hospitals allow and whether additional provision is forthwith made to meet the emergency requirements. So far as we are able to see, special arrangements do not appear to be made to meet the extra requirement and the permanent staff have to look after the additional beds also with the result that the unfortunate patients do not get that amount of attention which they deserve and to which they are entitled to.

The visit of DAME KATHERINE WATT, who is closely associated with the British Red Cross Society and the Order of St. John and who is the Chief Nursing Adviser to the British Ministry of Health, to India, at the instance of the British Council, in order to make contact with her colleagues in the nursing and medical profession, to study the conditions in the country and to exchange ideas and information, and the opinion she gave expression to at the Press Conference held at Madras on November 19 should compel the people to focus their attention on this all-important and urgent matter.

As we have stated very often and as stressed by her at the aforesaid Press Conference, the essentials for the building up of a healthy nation are good housing and good feeding. In spite of the fact that Great Britain was dependent entirely on the import of foodstuffs from other countries, to meet the needs of the people, and in spite of the fact that conditions for transport became very difficult during the war period owing to enemy submarine and other activities, the Government in that country made special efforts to import the required foodstuffs and keep the people above want, with the result that during that critical period the nation's health was at the highest peak. The housing problem assumed serious proportions in that country as a result of the devastation caused

by bombing and yet the Government came forward with huge building programmes and had a large number of new houses constructed to house the people thrown on the streets. No wonder that positive health is assured to the people and they are in a position physically and mentally to step up production to meet the economic crisis that has engulfed them. But here, in India, the position is very far from satisfactory in regard to both these essentials. The country is yet in the primitive stage so far as housing, sanitation and environmental conditions are concerned. As regards food, the less said the better. While the deficit is only a small percentage of her total requirement,—India is an agricultural country producing foodstuffs on a large scale and crores of rupees are spent on Grow More Food campaigns—she is not able to make both ends meet with the result that she has to send out of the country crores of rupees for the import of foodstuffs, and yet the people are placed on a starvation ration. No wonder here the result is the reverse of what it is in England and the number of the sick and the ailing is increasing by leaps and bounds, not to speak of highly infectious diseases taking a heavy toll of precious human lives to the serious economical detriment of the country. With facilities for medical relief few and far between in rural areas, the sick and the ailing are left uncared for. In towns where there are hospitals, overcrowding has become a normal feature and many people have to be denied admission for want of accommodation, and among the lucky few getting admission some have to be accommodated in floors, verandahs and between beds. This is a very unsatisfactory state of things and, as DAME KATHERINE WATT observed, there is a serious shortage of nurses. Such a state of things cannot be allowed to continue for long and even the emptiness of the national or provincial exchequer cannot be allowed to stand in the way of making suitable provisions immediately. It is an expenditure worth incurring in view of the bumper harvest it will bring in return.

Apart from making sufficient financial allotments for this purpose, steps have to be taken to attract the right type of people to the ranks of the nurses. When Dr. T. S. S. RAJAN was Minister for Public Health and Medical Relief in the first Congress Ministry, he effected a radical reform by appointing male nurses. A certain amount of opposition was voiced to the scheme then on the ground that women are more fitted than the males for this profession. All that is wanted is the spirit of fellow feeling and the desire to serve others. It cannot be argued that males are devoid of all such feelings. They are as human as the members of the other sex are, and if the right type of people are chosen they are bound to make good and remove the stigma attached to their sex. Even in England males are recruited for this service, and, from what DAME KATHERINE WATT told the Press the other day, they are found as useful and serviceable as females. Our own experience in Madras

also confirms this view and we think it is time the scheme is further expanded to provide greater opportunities to the males to take to this noble profession.

In regard to the recruitment of female nurses, the restriction placed on their marrying is a really serious obstacle in the way and prevents many willing sisters from joining the ranks. No such restriction exists in England and the working hours of married women are so adjusted as not to come in the way of their attending to their household responsibilities. The removal of the ban here also would attract a better class of people for the service and there will be less cause for moral lapses of which we hear occasionally. We trust that this matter will receive due consideration at the hands of our present Minister for Medical Relief who is himself a veteran in the field and who understands the requirements of the situation.

We are glad that DAME KATHERINE WATT was all appreciation for the great and good work done by *Asokh Vihar*. This institution, the first of its kind in India, was started by the Corporation of Madras, during the Mayoralty of DR. U. KRISHNA RAU. But if the purpose underlying the establishment of such an institution is to be achieved, there should be established hundreds of such institutions all over the country, and we hope that the successful working of this institution and the encomiums showered on it by every one who has visited it, will induce the Government, Local Bodies, and philanthropists to come forward and establish a chain of such institutions all over the country.

It is but natural that DAME KATHERINE WATT should have shown considerable reserve in expressing her opinions on many matters in spite of repeated questions. She is only on a visit to this country to establish contact and to see for herself things and not to express her opinion on the present state of things. But we are sure she would communicate her views at least informally to those responsible for the administration of these two departments and it is our hope such action as is immediately called for and possible will be taken without avoidable delay.

Exit Communalism

IT is a scathing condemnation of the present system of communal preferences, now in vogue in many parts of the country, and fostered by some Ministries, that has been voiced by the Scientific Man-Power Committee appointed by the Government of India, in the final report that they have submitted to the Government. The recommendations of the Committee are pregnant with great possibilities for good that we take the liberty of reproducing them for the benefit of our readers. And nowhere are they more applicable than in the field of medicine where it is a question of life and death:

> "In certain University and Government institutions, admissions are still being made on communal and caste considerations and communal influences play a considerable role even in such an important matter as the appointment of teachers. Communal policies are irrational and dangerous especially in educational matters, and denial of opportunities for higher education to any particular section of the people for reasons of caste, creed or community (and we may add, region.—Eds.) represents, to say the least, a most reactionary step, and the pursuit of such a policy is bound to have far-reaching repurcussions on the quality of scientific man-power as well as on the calibre of post-graduate research in the Universities.
>
> "We are of the opinion that it is most important for the progress of education and research in this country to completely jettison the irrational restrictions and prohibitions which have been erected in certain places to defeat the wholesome principle that admission to collegiate institutions should be by merit alone and strongly urge that Government should take immediate steps to investigate the conditions obtaining in educational institutions in the country with particular reference to the principle of admission of students, appointment of teachers, etc., and adopt suitable measures to discourage the institutions from following a policy which is likely to militate not only against the efficien y of scientific man-power but also clearly defies a fundamental right envisaged in the Constitution of the country."

We are informed that this report is under the consideration of the Government of India and we hope that communalism will be buried many fathoms deep to enable the country to rise to the greatest heights and on a par with, if not higher than, other nations claiming to be advanced.

It is not that those who are responsible for the present irrational and dangerous policies and who foster its growth are unaware of the serious harm that it has done and is doing to the country. But they claim to follow this principle on grounds of communal justice. We have always been among those who are pleading for communal justice. We want every community to advance fully so that it can take its rightful place in the body politic. But it is only in the manner in which it is sought to be implemented that we have to differ from them. The process of levelling up any community should not be such as to result in the levelling down of any particular community. Such an action, while suppressing the latter, would deprive the spoon-fed communities of the incentive to achieve greatness and distinction through their own effort and, in that view, it would result in the greatest harm to them. May be, in the early stages, they might not look far ahead to realise the dangers that are inherent in such spoon-feeding, but sooner or later, sooner than later, they are bound to realise them and all their wrath will recoil on the heads of those who have been responsible for creating that inferiority and fear complex.

From among the communities on behalf of which claim is made for preferential treatment both in the matter of education and in

the matter of appointments, there have risen many to the highest ranks, not only in this country but abroad also, by dint of sheer merit, perseverence and industry. If they had been spoon-fed, and had been deprived of this incentive in those days, it is extremely doubtful if they would have attained the eminence in their respective fields as they have done. And the country would be the poorer for it. The Constitution for the Indian Republic which has been adopted recently and which will be inaugurated on January 26 next, guarantees equal rights to all, irrespective of caste, community, region or other considerations. It would therefore be a violation of the rights guaranteed in that Constitution, to deny any one the right to which he is entitled with others, on the so-called grounds of communalism. Besides, if the nation is to prosper and rise high in the estimation of the world, every one possessing merit should have the fullest scope and opportunity for service. To close the doors of educational institutions and government offices against these would certainly deprive the country of the benefit of their capacity and learning. Further, the people of a free country are entitled to demand that the administration of the country should be run by persons of real merit so that the benefit of their knowledge might accrue to them in the day to day administration. We would therefore appeal to the Government of India to accept immediately this part of the recommendations of their own Committee and take steps to have it implemented. They would thus not only be rendering justice to the communities which have been denied it so far, but also be creating the incentive to spoon-fed communities to try to achieve greatness and distinction through their own efforts. This is the least they should do, and we trust that necessary action will be taken in the matter.

Temporal Arteritis

Based on the review of 75 cases, Harrison has the following observations to communicate:—(1) Giant-cell or temporal arteritis affects the elderly people of both sexes. (2) It usually runs a course of about six months with malaise, fever, severe headaches, and prominent thick and painful temporal arteries as the main symptoms. (3) Leucocytosis, anæmia, and a raised E.S.R. are usually present. (4) Blindness and cerebral disturbances are complications often met with. (5) It subsides slowly and recovery is the rule, though a few cases have had a fatal termination. (6) It may involve other large elastic and muscular arteries, including the aorta and in most cases a number of cranial arteries also get affected. (7) Biopsy of the affected temporal artery seems to relieve the severe headache. (8) No specific treatment is known. (9) The arterial lesions are characterized by lymphocytic and plasma cell infiltration of the media with giant cells. The intima undergoes fibroblastic proliferation; thrombosis is rare. (10) The disease is histologically and clinically distinct from both periarteritis nodosa and thrombo-angitis obliterans.—(C. V. Harrison, *Jour. Clin. Path.*, 1, 197–211, Aug. 1948).

T.N.S.R.

Gleanings From Medical Press

MEDICINE AND THERAPEUTICS

Artificial pneumothorax in the treatment of pulmonary tuberculosis.—Dr. F. H. Young in a discussion on the above subject which took place in the Section of Medicine of the Royal Society, (April 1949) points out that even at the present moment there is no general agreement as to whether to use this method of treatment in individual cases and also as to how to handle details of treatment. It is, however, generally agreed that apart from the potentiality of certain antibiotics the selective collapse produced by the ideal pneumothorax is the most efficient method by which we can encourage the resistance of the patient to overcome the tuberculous process in his lungs, provided that all complications could be avoided. Therapeutic pneumothorax has been very popular for the last 25 years and more. But lately the balance has swung the other way and some authorities seem to regard it as a dangerous proceeding which should only be used in exceptional cases. The author, however, does not agree with this view. He is of the opinion that the trouble has been that the technique seems so easy that it is carried out by inexperienced workers who do not understand either the proper selection of cases or the finer points of its conduct. According to him the following types are unsuitable for artificial pneumothorax even if possible: (1) cases with dense fibrotic disease, especially of the upper zones. In these a primary thoracoplasty is preferred provided that it is not otherwise contra-indicated. (2) Cases with active tracheobronchitis within the limits of bronchoscopic vision unless a subsequent pneumonectomy can be envisaged. The writer is of the opinion that the main complications are threefold: (*a*) the occurrence of tuberculous empyema with or without a bronchopleural fistula, (*b*) bronchogenic spreads of disease mainly to the other lung, and (*c*) the production of an inexpansible lower lobe.

Recent advances in the treatment of bubonic plague.—(Wagle, *Ind. J. Med. Sci.*, Aug. 1948, 489–94).

The results of trials carried out in many stations in India show that anti-plague serum (Bombay Haffkine Institute) Sulphonamides and Streptomycin have been found very useful in bringing down the mortality rate in bubonic plague. The results obtained in septicæmic cases have been grouped and classified by Wagle in proportion to the number of colonies of B. pestis grown from the blood of patients, using a particular technique. (*vide Table*).

Sulphadiazine is the best amongst the Sulpha drugs and Streptomycin is the most effective drug in the treatment of bubonic plague in the light of present day experience. The dose of Sulphadiazine usually employed was 4·0 gm. initially followed by 2·0 gm. four hours later and then 1·0 gm. every 4 hours till temperature remained normal for 2 days, but the maximum duration of the course was 10 to 12 days. The above doses are for oral administration. In cases where patients were unable to swallow the drug an initial dose of 2·0 gm. intravenously was given.

Streptomycin was given intramuscularly; the 1st dose was 0·6 gm., then 0·3 gm. every 4 hours till temperature remained normal for 24 hours; in very

	Group I 1 to 10 colonies			Group II 11 to 300 colonies			Group III 301 and over		
	Cases	Deaths	%	Cases	Deaths	%	Cases	Deaths	%
Serum ...	29	7	24	30	17	56·6	12	12	10·0
Sulphathiazole ...	41	9	22	61	23	37·7	30	23	76·6
Sulphadiazine ...	24	1	4	21	4	19 0	16	8	50·0
Streptomycin ...	12	0	0	9	0	0	11	3	27·2

severe cases 0·6 gm. was continued every 4 hours till temperature reamained normal for 2 or 3 days. Total dose varied from 4 to 25 gm. but the latter dose was given in only one case. 2 patients developed a mild psychosis and another a mild dermatitis; otherwise there were no toxic reactions. T.N.S.R.

Positive Wassermann reactions.—(*Jour. Am. Med. Assoc.*, 23-4-1949, p. 1237).

Besides syphilis, positive serologic reactions of the blood may occur in such conditions as infective mononucleosis, malaria, yaws, leprosy, relapsing fever, trypanosomiasis, after vaccination against smallpox, when the albumin globulin ratio is reversed as in acute lupus erythematosus, infections of the upper respiratory tract, in many febrile conditions in lymphogranuloma venereum, and hæmolytic jaundice. Usually quantitative blood tests are apt to give biologic "*false*" positive reactions. To rule out syphilis there should be a painstaking detailed history to determine if there had been a sore or rash, transitory alopoecia, sore throat, articular pains, previous blood tests or previous antisyphilitic treatment. A neurologic and cardiovascular examination and a full examination of the cerebrospinal fluid should also be made. It is well to examine other members of the family for evidence of syphilis. T.N.S.R.

Streptomycin in whooping cough.—(*Sem. Medica. Buenos. Ayres.*, 55: 1948, *Eng. Abst. J.A.M.A.*, May, 1949).

Albores reviews the literature and comments on the value of early Streptomycin therapy in whooping cough. The daily dose for infants is 0·5 gm. and for children 1·0 gm. administration 4 to 6 divided doses, at regular intervals. The treatment is given for 5 to ten days consecutively; nebulizations with Streptomycin are also given as adjuncts. Albores considers the drug to be very useful in (1) infants less than 1 year of age; (2) acute forms complicated with dyspnœa, cyanosis, or nervous and pulmonary symptoms; and (3) as a prophylactic. As a preventive measure, the drug is given in a nebulized form to infants and children who are living in an epidemic environment and who begin to cough. T.N.S.R.

Quinidine sulphate for hiccough.—(*Am. Jour. Med. Sc.*, 216, 680–687, Dec. 1948).

Bellett and Nailler used Quinidine Sulphate in 9 cases of hiccough. It stopped the paroxysms in 6 cases, was partially successful in 2 and failed in only one case. The usual methods of treatment had been tried in 7 of these patients without success. They suggest an initial dose of 10 grains preferably given by the intramuscular route and repeated hourly for 3 doses. If the paroxysm stops the patient should be put on a maintenance dose of 5 grains *orally* every 2 to 3 hours. If the paroxysm recurs the initial high doses should be repeated. The mode of action of Quinidine in checking hiccough is perhaps due to:—(1) a direct effect of the drug on the diaphragm as well as on the muscles of respiration and (2) blocking the nerve impulses at the myoneural junction. There is some evidence also suggestive of the drug having a direct effect on the nerve tissue which may block impulses through the vagus and other nerves. T.N.S.R.

Para-aminobenzoic acid in pulmonary tuberculosis.—(*Jour. Am. Assoc.*, 23-4-'49, p. 1222).

P. A. B. has been used with success in leukemia, typhus and rocky mountain fever, but little known as an anti-tuberculous drug. *Beudal et al* of Paris-Beaujon Hospital, report on the very strikingly good results they obtained in 15 cases of various types of tuberculosis. In 6 cases in which the treatment has been continued for 3 to 4 months (in 1 case during one month) through the dose of 0·5 gm. per day given intramuscularly or intravenously in a 5% solution, elimination of cavities, disappearance of Koch's bacillus, radiologic improvement and increase in weight were obtained. In 5 treated for 15 to 30 days only with strong doses (24 to 32 gm. per day) 3 to 4 gm. orally every 3 hours, or 1 gm. intramuscularly and remainder orally everyday the authors noted on four occasions a fall of

temperature, on five occasions great improvement of the general condition and once the diminution of a cavity. Prolonged treatment with small doses was considerably better than massive doses in short time.

The anti-tuberculous action of P.A.B. does not seem to have any connection with the blood concentration. There is not only an exclusively bacteriostatic action but also a pharmaco-dynamic and a vitaminic action. P.A.B. is absolutely non-toxic. T.N.S.R.

Penicillin by mouth for infants with diarrhœa:—(Harefuah, Jerusalem, *Tel. Aviv. Eng. Abst.*, 35, 65-68: 1948).

Verbin administered Penicillin by mouth to 95 infants with acute and severe diarrhœa. 90 of them rapidly recovered and 5 died. The author considers that this method of administration is effective in purely intestinal disturbances as well as in parenteral complications. He also proved by experiments that Penicillin is absorbed in therapeutically active amounts after oral administration to infants. Laboratory tests showed that the acidity of the infantile stomach is lower than that of the adult stomach, the gastric juice of adults exerting a destructive effect on Penicillin whereas in infants this is not the case. The intestinal flora of infants with diarrhœa is mostly *gram positive*, and the administration of *Penicillin changes* it to *gram negative*. T. N. S. R.

[*Note by abstractor*:—This is an important finding and, if confirmed, would lead to very useful results].

Rheumatoid arthritis.—(Abstract of a special article prepared by the Committee of the American Rheumatism Association, *J.A.M.A.*, 23-4-1949, pp. 1139-1146).

Under the above caption a very elaborate, instructive and valuable article comprising the latest available knowledge on the subject of rheumatoid arthritis has been published, as the 2nd of a series of 3 articles on the rheumatic diseases. As the subject is a very important one touching many thousands of people in our country, a somewhat comprehensive summary is given for the benefit of the readers of the ANTISEPTIC. Many of them will be aware of the Congress which was held in June 1949 in U.S. A. where rheumatism in all its aspects was discussed by leading rheumatologists and radiologists of the world, our country being represented by our expert radiologist, Dr. P. Rama Rao, D.M.R. (Vienna).

Rheumatic diseases have baffled the physician, surgeon, and other medical specialists for ever so many years and so there has been a tendency to consider it inevitable and irremediable. But during recent years there has been considerable awakening on the part of the profession and separate departments of rheumatology have come into being in almost every western country. Extensive researches have been made and are still under way to elucidate the etiology of the disease and attempt to devise methods to treat and cure the cases successfully and permanently.

ETIOLOGY.—Is not clearly known. Several theories have been propounded from time to time: *e.g.* (1) an infectious disease; (2) a metabolic disease; (3) a disease with an endocrinological basis; (4) a disease of the peripheral circulatory apparatus; (5) a disease of the nervous system; (6) a psychogenic disorder; and (7) a disease of hypersensitivity; but none of these have stood the test of critical evaluation.

PATHOLOGY.—Rheumatoid arthiritis is invariably described as a systemic disorder. So early as 1827, the disease was considered by Scudamore and other surgeons to be essentially one of dense white fibrous tissue. Recently suggestions have been made that the disease primarily affects interfibriller substance of the connective tissue; this concept has found favour with the profession so far.

1. *Articular lesions*:—These vary with the stage and severity of the disease. There is proliferation of the synovial cells and thickening of the synovial lining early in the disease. The cartilage loses its normal colour; as the disease progresses the cartilage becomes greyish white and softer. The subchondral spaces show proliferating connective tissue. Fibrous ankylosis may also

occur. Later, the bony cortex of adjoining bones thins out and trabeculae are fewer in number.

2. *Subcutaneous nodules* :—These form the most characteristic pathological lesion of the disease. Proliferation and degeneration of the cells predominate and Aschoff nodules are rare. Thrombosis is observed very frequently in these nodules of Rh. arthritis.

3. *Infiltrations in skeletal muscles* :—Lymphocytic infiltrations in the skeletal muscles have been described. Collections of these lymphocytes are seen in the sheaths of large peripheral nerves.

4. *Extra articular lesions* :—These have been noted in rare cases in the pleura and the pericardium. Signs of cardiac valvulitis are more commonly noticed in life in Rh. arthritis patients, than in the general population.

CLINICAL FEATURES.—*Onset* is frequently insidious, though prodromal symptoms have been observed in some cases. 75% of cases begin insidiously. Fatigue, exhaustion, lassitude, vasomotor disturbances, muscular stiffness, loss of weight, and general debility, have been the initial complaints in many cases.

One or more joints become swollen and the condition spreads slowly to other articulations. During the early stages, there may be no systemic reaction. In some cases, the onset is sub-acute in character. Repeated attacks of polyarthiritis with swelling and pain, slight fever, tachycardia and mild leucocytosis may occur. The pain in cases of flat feet is relieved by rest, whereas in Rh. arthritis the foot pain is severe after rest.

Clinical features of the articular lesions :—In typical cases the articular involvement is symmetrical in distribution. The smaller joints of the hands are prone to be affected, especially the proximal interphalangeal joints of fingers, while the terminal ones usually escape. Owing to the thickening of the peri-articular tissues accompained usually by the atrophy of the muscles above and below, the joints have a spindle-shaped appearance The adjacent bursae and tendon sheaths get involved, but there is not as much increase in the synovial fluid within the joint as might be expected and much of the swelling being due to synovial proliferation when the joint becomes inflamed and painful, muscle splinting occurs involuntarily. The periarticular swelling subsides and contractures begin to become of greater importance. These changes are usually apparent in hands, wrists, knees, elbows and toes. All joints may be involved. Fibrous and bony ankylosis may occur in advanced cases, accompanied by subluxation or dislocation of the affected joints.

Muscular weakness and atrophy are prominent in rheumatoid arthritis. Atrophy is particularly noticeable in the muscles of the hands and is also visible in other extremities. The muscular atrophy is an integral part of the disease.

Cutaneous changes :—The skin of the extremities becomes smooth, glossy and atrophic, and there may be redness of the thenar and hypothenar eminences. The hands are usually cold and clammy and psoriasis is observed in a very few cases.

Subcutaneous nodules :—Characteristic subcutaneous nodules occur in about 20 per cent of the cases, and when present are found in the region of the elbows over the ulna just distal to the olecranon prominence. They vary in size from seed-like particles to lesions of the size of an olive or larger. They are not painful except under great pressure and last for several months to years, in contrast to those of Rh. fever.

Constitutional extra-articular manifestations :—In the acute stages, a slight rise of temperature will be noticed. In a few cases rise of temperature upto 104°F may continue for several days. Moderate tachycardia and decreased peripheral circulation occur. The general nutrition may suffer severely and profound cachexia may develop. Splenic enlargement is found in about 5 to 10 per cent of cases of Rh. arthritis ; a generalized glandular enlargement of moderate degree and pericarditis are commonly observed in many cases. Iritis and uveitis often of an intractable nature may accompany or precede rheumatoid arthritis.

LABORATORY OBSERVATIONS :—There is usually a hypochromic *microcytic* anæmia, of the iron deficiency type, which responds *little* if at all to iron.

The leucocytes count, the differential count, and the platelets are within normal limits in most cases. E S. R. is almost always rapid. The uric acid is within normal limits.

ROENTGENOLOGICAL OBSERVATIONS :—*Early*.—Early cases may show no characteristic abnormalities, except perhaps a generalised decalcification ; and as a result of the superimposed factor of disuse this process is more prominent in affected joints. Narrowing of joint-spaces and spotty marginal resorption of bone may also be noticeable. Cortical destruction of the metatarsal head may appear early.

Late.—Destruction of cartilage with small areas of cortical erosion appears. These small areas of bone destruction—the punched-out-areas are a prominent feature ; articular surfaces may get fused through fibrous or bony ankylosis. Subluxations or dislocations with or without destruction of the ends of bones. Some degree of bone production, lipping, osteophytes may also occur alongside.

DIAGNOSIS :—*Differential diagnosis*.—Degenerative joint disease must be clearly differentiated from rheumatoid arthritis as these two distinct entities account for nearly 60 per cent of chronic arthritis. The prognosis and treatment of these two conditions are very different. Rh. arthritis is a systemic disease and the patients are sick. Degenerative joint disease affects primarily hyaline cartilage, and the patients are generally otherwise well.

Muscular atrophy, weakness, and cutaneous changes commonly associated with rheumatoid arthritis, are not found in degenerative joint disease. Weight bearing joints are oftener involved in degenerative joint disease. The proximal interphalangeal joints are involved in rheumatoid arthritis, while the terminal joints most often in degenerative joint disease (Heberden's nodes) subcutaneous nodules are never seen in degenerative joint disease. Agglutination of patient's serum with group A hæmolytic streptococci is positive in rheumatoid arthritis but not in degenerative joint disease. E. S. R. is very little if at all elevated and osteoporosis and ankylosis are not seen in skiagrams of the latter (d. j. d.).

Gonococcal arthritis :—May be clinically confused with rheumatoid arthritis, especially when, as often it is, more than one joint is involved and if a recent attack of gonococcal urethritis is not recognized or is concealed by the patient ; the true nature of this disease should however be easily discerned.

Rheumatic fever :—Typical rheumatic fever does not present any difficulty in diagnosis but a chronic type of rheumatic polyarthritis. Very similar to that of rheumatoid arthritis is difficult to diagnose unless one is sure of the various manifestations of rheumatic fever.

Gout :—Chronic gout may readily be mistaken for rheumatoid arthritis but not acute gout as a therapeutic response to colchicine is diagnostic. An elevated serum uric acid level will help to diagnose chronic gout tophi, as also X-ray pictures—punched-out areas are seen in the bone, both in gout and rheumatoid arthritis.

Tuberculous arthritis is usually monoarticular and after a few months X-rays will help to differentiate the two. Biopsy and culture of the synovium will be an additional method of clinching the diagnosis.

VARIANTS OF RHEUMATOID ARTHRITIS.—Four syndromes usually called by other and different names are but variants of this rheumatoid condition in the light of our present knowledge. These are :

Still's disease is probably juvenile rheumatoid arthritis. Except for the fact the streptococcus (hæmolytic A.) agglutination is negative in Still's disease, it resembles typical rheumatoid arthritis in every other respect.

Felty's syndrome is the name given to cases of rheumatoid arthritis in which the liver and spleen are enlarged and leukopenia is present. Typical subcutaneous nodules are invariably present and hæmolytic streptococcus agglutination is positive.

Psoriatic arthritis :—About 3 per cent of rheumatoid arthritis patients have psoriatic arthritis. Perhaps the two conditions co-exist. Cases are often observed

of psoriasis in which arthritic changes are seen *only* in the terminal phalanges of the fingers with overlying lesions of the skin and *nails*. These may be a distinct form of arthritis. The question at present (in 1949) remains open.

Rheumatoid spondylitis :—Variously known as ankylosing spondylitis, Marie-Strumpell arthritis, Von Bechtorew arthritis, spondylitis ankylopoietica and spondylitis rhizomelique, is regarded by many as rheumatoid arthritis of the spine, though the relationship is not clear. 20% of these patients show changes in peripheral points, indistinguishable from those seen in classical rheumatoid arthritis. This would rather appear to favour the view that this syndrome is merely a special form of the latter disease. The result of hæmolytic streptococcus agglutination is almost always negative in cases of spondylitis. The rœntgenologic findings are also different.

PROGNOSIS.—Is not as unfavourable as is ordinarily supposed by the doctor and patient. It is not sufficiently well appreciated or understood that a certain proportion of patients recover more or less completely. The process becomes arrested or quiescent in some instances and the patient is able to carry on activities with some little difficulty only. In a small proportion of cases only the disease pursues a cruel and inexorable course leaving the patient severely crippled.

TREATMENT.—There is at present no specific cure ; it is often possible to control the disease or improve its clinical course. Certain factors have to be remembered in evaluating results of any therapy :—

(*a*) The disease is subject to spontaneous relapses and remissions.

(*b*) Certain patients recover fairly quickly and the last therapy used is apt to be given the credit.

One should not be dogmatic about the success of any one measure The therapeutic agents used in the rheumatoid arthritis may be divided into 3 groups :- (*i*) Measures of proved value ; (*ii*) measures on which there is fairly uniform agreement but not complete unanimity ; and (*iii*) measures which are of doubtful value or useless.

1. *Measures of proved value* are directed towards improving the patients' general health.

(*a*) *Rest* :-For the body as a whole and for the inflamed joints in particular should be carefully regulated. Absolute bed rest is unnecessary. For local rest suitable splints of the "gutter" type are of great assistance.

(*b*) *Nutrition and general hygiene* :—The majority of patients are under weight, under nourished and chronically ill. Their nutrition should therefore be maintained in the best state. A well balanced diet is essential. Correct bowel function, dental care and removal of obvious foci of infection are to be emphasized. Extraction of teeth tonsils, gall bladders, and pelvic organs is to be condemned unless they are *so diseased* that they should be removed for their own sakes. Indeed *wholesale removal of teeth usually is not only useless but actually harmful through interference with nutrition.*

(*c*) *Drugs* :—Salicylates are of symptomatic value for the relief of pain. Occasionally it is necessary to resort to other drugs, such as barbiturates, for rest and sleep and small amounts of *codeine* for brief periods of time. *Morphine*, pethedine hydrochloride (demerol) *should be avoided.*

(d) Prevention and correction of deformities :—Deformities are due often to neglect and can be prevented by the skilful use of splints. Light aluminium splints are useful in correction of hand deformities, and deep 'gutter' splints of plaster are preferable for other joints. In rheumatic spondylitis, a suitable brace during the day and a plaster shell to sleep in, may prevent the spine from becoming rigid in a faulty position. When stiffness and pain are severe, weight bearing should be restricted. When flexion contractures have occurred, active and passive exercises in conjunction with repeated plaster casts made in increasing extension, may help to correct the contractures. If ankylosis is to be the end-result, it is of the utmost importance that the affected joint become ankylosed in the optimal position for use. The knee should be extended to 180° ; the hip in straight position ; the wrist in mid-dorsal flexion half way between pronation and supination and the elbow flexed at about 90°. Surgical procedures, if and when found necessary to correct deformities due to ankylosis, should be done when the activity of the disease has subsided.

(*e*) *Physical and occupational therapy* :—Physical and *spa* therapy are useful for many types of arthritis. Baths and exercises in warm pools, are often helpful.

Heat in the form of poultices, melted Paraffin baths, baking lamp or diathermy is often comforting but it is not curative. In acute conditions local heat is not well tolerated, so also violent massage and strenuous passive exercises. Occupational therapy will be of great assistance in awakening the patient's interest in exercising important groups of muscles.

(f) Psychotherapy :—The attitude of the physician to the patient is very important. Encouragement and an optimistic interest should be the physician's one great principle.

(*g*) *Rehabilitation* :—The training of crippled patients in regulated use of their limited capacities is important in the severely disabled.

Measures on which there is fairly uniform agreement but not complete unanimity :

A. *Chrysotherapy* in Rh. arthritis of peripheral points has been used widely in Europe and Asia for over 15 years and in America for about 10 years. *Gold* is the one agent which has been shown to change the course of disease in a significant number of patients. Its limitations have been recognized by even its most enthusiastic advocates :— (1) It is a toxic drug ; severe toxic reactions occur in 10–20 % of cases. (2) It does *not* benefit a considerable number of patients with Rh. arthritis. (3) The beneficial effects of gold are temporary and relapses may occur after its use has been stopped. The toxic reactions due to gold fall into 4 categories :—

(*a*) *Cutaneous* :—Varying from mild pruritus to fatal exfoliative dermatitis.

(*b*) *Haemopoietic* :—With depression of one or more elements, agranulocytosis, thrombopænia or even aplastic anæmia.

(*c*) *Renal* :—Varying from mild albuminuria to full blown nephrosis.

(*d*) *Mucous membrane* :—Stomatitis, gastritis, colitis. Whether gold is a hepatic poison or not is still a disputed question ; some maintain that it is while others consider that acute yellow atrophy may be due to homologous serum jaundice from needles or in transfusion of blood.

Toxic reactions may be prevented to a limited extent by due care on the part of the physician. The use of smaller doses (never above 50 mg. at a time) has reduced the incidence of renal and mucous membrane complications considerably. Gold should be stopped if albuminuria appears. Manifestations of skin toxicity are preceded usually by pruritus, but may appear without even that warning ; at the first sign of leukopænia, thrombopænia with or without purpura or pruritus gold should be stopped ; and BAL should be given to counteract the toxic symptoms.

B. *Transfusions* :—Hypochromic secondary anæmia, refractory to iron, is very common. 2 or 3 transfusions of 500 cc. of whole blood at fortnightly intervals may be of distinct value. (Recent claims of the specificity of pregnant *woman's* blood in treating chronic rheumatoid arthritis, have, however, been shown to have no real basis, as no definite superiority has been found for pregnant woman's blood over ordinary human blood from men or nonpregnant women). Some observers believe that transfusions exert a beneficial effect on the rheumatoid condition in addition to the antianæmic effect.

C. *X-ray therapy* is of considerable value in spondylitis (Mariestrumpell syndrome) but not in rheumatoid arthritis of the peripheral joints. Decrease in pain and stiffness and increase in the mobility of the spine occur as a result of X-ray therapy in about 80 % of cases, but rœntgenologic changes and increasing rigidity continue to progress, though the patient has relatively few subjective symptoms of pain and stiffness.

D. *Climate* :—Other factors being equal, it would be wise for patients of

rheumatoid arthritis to avoid cold winter climates, if possible.

Measures which are of doubtful value or are useless:—The following belong in this category and cannot be recommended:—

(*a*) Vaccine therapy; (*b*) foreign protein therapy; (*c*) vitamins in massive doses; (*d*) drugs vaunted as specifics; (*e*) endocrine preparations; (*f*) dietary fads; (*g*) fever therapy; (*h*) sulphur; (*i*) bee-venom therapy; (*j*) sulphonamides; (*k*) penicillin; and (*l*) antireticulocytotoxic serum.

Antihistaminic drugs in the therapy of the common cold.—J. M. Brewster (*U. S. Naval Medical Bulletin* 49: 1, Jan.-Feb 1949) reports the use of antihistaminic drugs in the treatment of common colds in 572 patients. In 21 patients who began treatment within the first hour after onset of symptoms, the cold was aborted in 19 or 90 per cent. In 55 patients treated within the first two hours, the cold was aborted in 48, or 87 per cent. When treatment was begun within six hours, symptoms were aborted in 74 per cent of 156 patients; and when treatment was begun within twelve hours, in 70 per cent of 234 patients. In those cases in which the cold was not aborted by the treatment with antihistamine drugs, the symptoms were mild and of short duration and there were few complications. Benadryl had a pronounced sedative effect; Pyribenzamine, Thenylene and Histadyl had moderate sedative effects; Neoantergan had little or no sedative effect, and was frequently used for ambulatory patients. Benzedrine or Dexedrine may be given during the day to correct the sedative effect of the antihistaminic drugs, but neither of these drugs should be given after 4 p.m. In most cases, antihistaminic drugs, given at any stage of a cold, greatly reduce, if not entirely eliminate, sneezing, coughing and profuse nasal discharge, and are therefore of special importance in preventing the spread of the common cold.—*Medical Times*.

The use of Benadryl in Parkinson's disease.—J. Budnitz (*New England Journal of Medicine*, 238: 874, June 17, 1948) reports the use of benadryl in the treatment of 8 cases of Parkinson's disease, all in the arteriosclerotic group. The usual dosage of benadryl was 50 mg. four times a day; in the cases reported it was continued for three to fourteen months. During the time of the administration of the drug, all the patients showed definite improvement in symptoms. Four of these patients continued the use of parasympathetic-inhibitory drugs of the atropine series while taking benadryl, and there appeared to be a synergistic action between such drugs and benadryl. Pyribenzamine, an antihistamine drug closely related to Benadryl, was substituted for it in some of these cases, but was entirely ineffective, and it was necessary to resume treatment with benadryl to maintain improvement.

On the basis of the favourable results with benadryl in these cases, the author suggests that it should be used in the treatment of Parkinson's disease as "an added therapeutic weapon," either alone or in conjunction with the atropine-like drugs. A foot-note states that since this report was prepared 2 other patients with Parkinson's disease have been treated with benadryl, and both patients showed an excellent response. —*Medical Times*.

SURGERY

Silent renal tuberculosis.—(*Tubercle*, London, 29: 269-274, 1948).

Dr Carver records his experience of cases of renal tuberculosis without urinary symptoms. These he calls cases of silent renal tuberculosis. It may exist unsuspected for many years before attention is drawn in the course of routine examination by the occurrence of tuberculosis elsewhere or by the disturbance of adjacent organs like the stomach or duodenum. Six cases are recorded to illustrate this condition. Four were operated on with satisfactory results. This condition involves the risk of miliary tuberculosis, metastatic tuberculous disease, secondary infection and disturbance of local organs. Operation is

indicated in all cases except those which have shown no symptoms, general, or local, for many years and in which the kidney is small and the calcification dense. T.N.S.R.

Treatment of parotitic orchitis.—Morin treated 6 men with parotitic orchitis by infiltration of the lumbar sympathetic nerve with 10 to 20 cc. of a 1 per cent solution of procaine hydrochloride. Within three minutes the patient's experienced a sensation of heat in the lower extremities at the level of the testicle, which transformed the painful distension into numbness. Within a short time the pain had disappeared completely and permanently in 4 patients. In 2 patients the pain recurred but was attenuated. Distal manifestations, such as headache, thoracic constriction and vomiting, subsided, and the patients were able to sleep. The effect on the temperature is doubtful since there was a rise of temperature within two to three days after the first infiltration. Defervescence occurred within three days whether or not the patients were treated by infiltration. The size of the testicle decreased, but a temporary increase was observed after infiltration in 1 patient. The course of the orchitis does not seem to be shortened by the treatment. Atrophy of the testicle resulted in 2 of the cases. Infiltration of the sympathetic nerve with procaine hydrochloride is recommended for the alleviation of pain in orchitis.—*J. A. M. A.*

Prevention of accidents.—In a recent discussion in the Section of Epidemiology and State Medicine as reported in the Proceedings of the Royal Society of Medicine (April 1949) Mr. William Gissane discussing on the prevention of accidents gave an admirable summary of his experiences in this matter based on the hospital treatment of all types of injury due to accidents. The importance of this can be easily understood if one is aware of the fact that accidents outnumber by approximately ten to one the combined medical and surgical emergencies received into casualty department of any busy general hospital. Another observation which requires consideration is the fact that having regard to the large number of accidents, it is a well known fact that hospital facilities for the reception of accidents, are totally inadequate. The third observation is that the events leading up to accidents as recounted by the victims, have their roots in very human and everyday matters. A large proportion of the national accident total is made up of home accidents of a domestic type, more than 60% of these are caused by falls in and around the home. A study of these accidents clearly indicates that many of these can be prevented by education through personal contact. With regard to industrial injuries, it is found that they are much more frequent in jobs that do not demand much thought from the worker. It has been found that really dangerous-looking jobs which demand full concentration by the worker are notable for the relative infrequency of accidents. The fourth observation and perhaps the most important from the medical point of view is that if surgical knowledge won during the last two decades be made available to the victim of every accident, much can be prevented in human suffering, permanent disability and prolonged illness. After mentioning these, he has come to very important conclusions. Firstly he is of the opinion that it is necessary to attract more senior medical men to our accident services and only surgeons of mature judgment should be made available to examine, to treat and to take a comprehensive view of every accident. The restoration of the victim to normality, the prevention of preventable deformity, the resettlement of the victim to normal domestic and occupational environment is the objective. All these require a new standard of assessment and treatment and new standard of hospital and private organisation.

While admitting that such alterations would require an enormous capital cost, the author is of the opinion that it is nothing when compared to the present cost of accidents. He is of the opinion that an over all economy in this cost can be made by reorganisation of our hospital services, so that each victim of an accident shall have the best primary treatment and over-all assessment, modern surgery can offer.

This can be done by concentrating the treatment of accidents to fewer hospitals and also by having in each, good facilities and adequate staffs capable of taking the essential over-all responsibility in the care of each patient. The training of efficient accident surgeons is also of prime necessity. In the reorganisation of hospital units, the first essential concerns the reception and casualties to hospitals. At these places matters can become chaotic so that the first thorough, quiet examination and over-all examination of the victim cannot be made. The public must be made aware of the seriousness of what to them might appear, a relative minor injury and *should* be asked to seek hospital treatment for such common conditions as cuts, abrasions, lacerations and *minor* fractures. These injuries are important and if neglected or poorly treated are often responsible for unnecesarily prolonged disabilities.

Another important point that has been stressed is in the treatment of an injury from accident. It is essential to correlate surgical treatment with a definite plan for the restoration of the patient to his pre-accident activities and occupation. For this purpose accident services require rehabilitation facilities and these should be available on a much more extensive scale than is usually recognised in hospital practice.

The importance of regional planning was also stressed at that meeting. By planning it is possible so to arrange the accident services for a region that a large Central Accident Department can very well serve a large densely populated area. While a large numbers of relatively mino injuries can be treated in the outlying hospitals, near the homes of the accident victims, serious accidents could be within reasonable treatment of the highest order and could be made available for all accidents on a twenty-four-hour service.

The use of Mobile Surgical Unit carrying its own equipment and surgical staff to serve outlying hospitals and general practitioners faced with the care of the seriously injured was also explained. This could save many lives and prove a useful link-up between the outlying hospitals and accident service.

Book Reviews

Medical Jurisprudence and Toxicology—By Dr. JAISING P. MODI, L.R.C.P. & S. (Edin.), L.R.F.P.S. (Glasgow), formerly Professor of Medical Jurisprudence, King George's Medical College, Lucknow; formerly Examiner in Medical Jurisprudence in The Universities of Madras, Patna, Bombay, Lucknow and Osmania Universities &c. 1949, 10th edition, 788 pages with three plates, and one hundred and seventy-nine illustrations in the text. N. M. Tripathy Ltd., Princess Street, Bombay-2. [Price: Rs. 21-8-0.

This popular text-book of Medical Jurisprudence has reached its tenth edition. This is enough evidence of its popularity and usefulness. Section I deals with Medical Jurisprudence, and Section II deals with Toxicology. Most of the Chapters in the two sections have been revised and re-written wherever necessary. In Section I, the Chapters on determination of age, examination of blood and seminal stains, dealt in its medico-legal aspects, sexual offences, insanity and its medico-legal aspects, and that on law in relation to medical men are well writtten. In the second section, the Chapters on poisons and their medico-legal aspects, irritant poisons, cerebral poisons etc. contain very useful matter. The Appendix deals with subjects such as, The Indian Evidence Act, The Code of Criminal Procedure, and The Indian Penal Code. The book maintains the excellence of the previous editions. It bears the stamp of authority. The printing, the illustrations and the general get up are good. We recommend it for all those who have to deal with medico legal work.

Surgery—Orthodox and Heterodox By SIR WILLIAM HENEAGE OGILVIE, K.B.E., D.M., M.Ch., F.R.C.S., HON. F.A.C.S., HON. F.R.C.S., Canada, HON. F.R.A.C.S., Surgeon, Guy's Hospital, Member of Council, Royal College of Surgeons. 241 pages. (Blackwell Scientific Publications, Oxford).

This book is a collection of some of the addresses and contributions to medical journals of the eminent and well-known author surgeon. All the Chapters are written in the easy style and in the lucid manner typical of Sir William Heneage Ogilvie. The essays on the training of a surgeon, a surgeon's life, the British and Continental surgeon, the American surgeon, delay in surgery, the physiological basis of peptic ulcer surgery and surgical handicraft give plenty of food for thought. In our opinion the essays written in recent years are very much sobered down and do not exhibit the originality, skill and dash of the earlier

essays written or delivered in the author's younger days. The author has spared none and his exposition of his views are straightforward and clear. The book is well-worth reading.

Physician's Handbook—By JOHN WARKENTIN, Ph.D., M.D., and JACK D. LANGE, M.S., M.D.—University Medical Publishers, P.O. Box 761, Palo Alto, California.

This useful handbook summarises clearly, tersely, and comprehensively diagnostic procedures and factoral data which a physician must have quickly available. The book is divided into two parts. Part I deals with Laboratory Diagnosis. Such subjects among others as renal function tests, liver function tests, gastric analysis, examination of punctature fluids, exudates, water and milk analysis, sero-diagnostic methods are thoroughly discussed. Part II deals with clinical procedures and facts. The Chapters on clinical history outlines cardiovascular and heart examination, fluid balance, the physiology of hormones, drugs and their dosages, and X-ray preparation orders are well written. Wherever possible the subject matter is presented in tabular form which will enable the reader to grasp the subject matter presented in a clear manner. The book is a very useful handbook for physicians.

Technique of Treatment for the Cerebral Palsy Child—By PAULA F. EGEL, Cerebral Palsy Director, Children's Hospital, Buffalo, New York. Introduction By WINTHROP M. PHELPS, M.D., Medical Director, Children's Rehabilitation Institute, Baltimore, Maryland. Appendix By MOSE P. TANNER, F.A.C.H.A., Superintendent, Children's Hospital, Buffalo, New York. 1948, 203 pages, illustrated. The C. V. Mosby Company, St. Louis.

Miss. Egel has been working almost exclusively with cerebral palsied children for many years and her experience has covered many different types. She has presented the problem of treatment from the point of view of one who actually carries out the treatment recommended by the physician. The book is short, well written, full of actual photographs showing physiotherapeutists at work with children handicapped by cerebral palsy. There is a useful Chapter on apparatus and training. The last Chapter on organisation of a cerebral palsy department in a children's hospital contains useful information.

Utero Tubal Insufflation—A Clinical Diagnostic Method of Determining the Tubal Factor in Sterility etc.—By I. C. RUBIN, M.D., F.A.C.S., 1947, Pp. 453 with 159 Illustrations including 4 in Colour. The C. V. Mosby Company, St. Louis.

The book deals with the utero-tubal insufflation in its completed form as a clinical and surgical method of testing for tubal pregnancy and as a therapeutic agent.

All factors in sterility in so far as they are connected with the various types of tubal obstruction, and amenable to tubal insufflation are dealt with fully. Various illustrative cases from the author's experience have been included which enhances the usefulness of the volume and interest in the clinical aspect of tubal insufflation. Much material hitherto unpublished is presented, as, experimental data throwing light on impaired tubal function, demonstrating various deviations not clinically suspected or ascertainable except by the method of kymographic utero tubal insufflation.

To these have been supplemented the data obtained by questionnaire upon the results of more than eighty thousand insufflations and an useful tabular data on these given. Coming as it does from one who has worked on this subject for over 25 years and whose name is well-known to the medical profession as the organiser of this method, we have no hesitation in recommending this useful volume to all medical men interested in this speciality, while its inclusion in the Medical Books Shelves is bound to be useful to many who seek after knowledge.

Ward Administration and Clinical Teaching—By FLORENCE MEDA GIPE, M.S.R.N. and GLADYS SELLOW, Ph. D.R.N., 1949, Pp. 357, Illustrated. The C. V. Mosby & Company St. Louis.

The book aims at giving a simple and workable principle involved in the ward work of a hospital on the basis of a medical team work. Though the book appears to be intended mainly for the head of the Nursing Department or Head Nurse, yet it will be appreciated by all interested in the services to the sick, and share the responsibilities of good administration of a hospital.

A novel feature of the book is the treatment of clinical teaching of Pupil Nurse, along with the ward administration, a link the importance of which cannot be overestimated, for after all the aim of teaching Nursing is to produce Nursing Service to the sick in the bed. These can be achieved only when teaching is coupled intimately with the sick in the hospital with good ward administration. We recommend this book to all those interested in the profession of sick Nursing and the Nursing Service.

Correspondence

The Indian Curds or *Dahi* as a Source of Vitamin B Complex and Growth Factors

To the Editors, THE ANTISEPTIC, Madras.

Sirs,

In the course of our investigations on the organisms in Indian curds or *dahi*, we found a species of yeast of the genus *Torula* which we consider to be an entirely new one because of the biochemical reactions and physiological activities displayed by it and hence the new *Torula* is named by us as *Torula dahi*, Nov. Sp.

Torula lahi was found in all the samples of *dahi* examined at a number of places all over India. In fact, Indian curds may be considered to be its natural habitat. Its function in our curds is rather interesting. It supplies vitamin B complex for the proper growth of the lactic acid bacteria, which turn our milk sour.

By the method of microbiological assay we were able to show that this yeast produces riboflavin, nicotinic acid, biotin, thiamine, pyridoxin, and the following growth factors, p-amino-benzoic acid and folic acid. In the several extracts of the cultures of this *torula*, each of the above constituents of vitamin B complex and growth factors was found in sufficient quantity to meet the full requirements of lactic acid bacteria. Only pantothenic acid was slightly less than the usual quantity required for the growth of the lactic acid bacteria.

It is generally recognised that the bacteriostatic effect of some of the sulpha drugs like 'sulphanilamide' are counteracted by even a small dose of p-amino-benzoic acid. In view of the fact that when we take curds with our rice or in a diluted form as *Maththa*, *Lassi* or *Chaas* as a drink or during our meals, we consume not only lactic acid organisms but also *Torula dahi*, which produces vitamin B complex and p-amino-benzoic acid etc.

In view of the above information the possibility suggests itself that sulpha drugs might prove ineffective in the case of patients, to whom these drugs are administered, if they happen to take a diet in which curds or other preparations of curds are included.

We wonder if any such effect has been observed in making the action of sulpha-drugs, sulphanilamide, for instance, ineffective because of the patients consuming curds or *dahi* and, if so, whether the physicians would consider the desirability of stopping curds in any form to the patients who are under treatment of sulpha drugs.

Biochemical and Microbiological Laboratories,
Fergusson College,
Poona-4.

Yours faithfully,
N. V. JOSHI.

Guidance Wanted

To The Editors, THE ANTISEPTIC, Madras.

Sirs,

I should like to request you to kindly suggest to me the line of treatment in detail in case of chronic opium-eater who wants now to give up the habit of opium-eating. The history of the case is as under:

History—Patient named A.B.
Aged—25 years.
Constitution—Fair.
Duration of opium-habit—10 years.
Other habits—Tobacco smoking. No (alcohol) drinking.
Quantity of opium consumed in 24 hours About 1 tola (180 gr.)

When he does not take opium at his fixed time, he suffers from severe insomnia, muscular cramps and diarrhœa.

For sleep he uses—4 tolas medinal 7½ grs. but he does not get sleep at all and keeps awake for the whole night.

T. Dhandhuka
Dist. Ahemdhabad
Sourashtra Rly.

Yours faithfully,
M. S. SHETH,
L.M.P.

Filarial Fever

To The Editors, THE ANTISEPTIC, Madras.

Sirs,

Filarial fever is highly prevalent in this part of Godavari Delta, and in Amalapuram centre of Konaseema it is endemic. The high periodical fever, preceded by a severe and prolonged rigor, which ends in profuse general diaphoresis and which resembles malaria, tempted me to use "Paludrine." So far I have treated twenty typical well established cases with glandular enlargement and its other manifestations of long duration. Malaria is excluded by detecting no M. P. in the blood of first six patients. The dosage adopted is as follows:

1st Initial dose 3 tablets of ·1 gm. followed by 2 tablets of ·1 gm. every 4 hours till the fever subsides, which was the 2nd day in some cases and 3rd day in some cases. Then 1 tablet of ·1 gm. three times a day for 3 days after the fever abates. Finally 2 tablets of ·1 gm. twice a week for six months. Two patients are still continuing the drug twice weekly even after 8 months, in spite of my instructions to stop the drug.

I am glad to say that all the cases treated so far some 8 months ago are free from fever and have no relapse. They are attending to their regular duties, which was a difficult task for them before, even though the other manifestations of the disease remained the same without any change.

This is definitely a small inadequate trial to arrive at a definite conclusion and as such it deserves further extensive trials and investigation in the matter.

Hemakuteeram,
Amalapuram,
East Godavari Dist.
22-7-'48.

Yours faithfully,
E. L. NARASIMHAM,
L.M.

The Problem of Rural Medical Aid in the Indian Dominion

To the Editors, THE ANTISEPTIC, Madras.

Sirs,

It is after an age I am addressing you on a very important problem, the concern of the Provincial Governments in the Indian Dominon. I claim to have some practical experience on this subject, having served as District Medical Officer of Health in a Bengal District for a period of 23 years and as Health Officer of a Pilgrimage Town at Nabadwip for sometime, with a view to improve the present situation. I have also gone through all suggestions made by the Bhore Committee and the I.M.A. I have just perused the letter of Dr. Girindra Nath Sinha, M.O., Barwadih, that has appeared in your issue of February 1949. The suggestion made should have due consideration of all concerned with some modifications.

2. The Secretaries under the Ministers-in-charge of Local Self Government and Public Health Departments should be allowed to keep all schemes in their table still waiting for better days as it is of vital importance for the safety of the nation for which funds are to be found even by raising Public Loan to give effect to what Bhore Committee recommended with modifications according to the circumstances of individual provinces.

3. The Government of Bengal has already started training classes for L. M. P's available to get special training at the Campbell Medical School, School of Tropical Medicine and at a training centre at Bariaghata to make them Rural Medical Officers, but the number of doctors under training is not even 100, nor the Government could organise Ch. Dispensaries as contemplated, so the progress is very slow. It all depends on the activities of Lt-Col. A. C. Chatterjee, I.M.S. to move the Government and Local Bodies to give sincere co-operation just at this critical time.

4. There are many difficulties and they are to be removed first. Donors made endowments to the Government, D.B's or to Municipalities for the Ch. Dispensaries. Most of them are not in this side of the world and the conditions made may be changed by their family members, if approached. As people have very little faith on the self-governing bodies, the Government should take up the responsibility and Provincialise M.Os. to enable them to enjoy all benefits as an employee, and there should be no interference by any local body except the Directorate of Public Health of the Province.

5. The staff should be adequate with reasonable remuneration and the programme of work should be drawn with every care to attend the Dispensary and Hospital from 7 a.m. to 11 a.m., while Public Health work should be managed from 2 p.m. to 5 p.m. or from 6 p.m. to 9 p.m. for magic lantern demonstration. They should have attached residential quarters close to the dispensary. Private practice may be allowed out of duty hours to avoid misunderstandings likely to crop up.

6. I have personal experience in organising 120 Ch. Dispensaries in a District where there had been only 19 Ch. Dispensaries in 1921. It requires arduous effort on the part of the organisers to approach villagers, members of U.B.'s. and Doctors to give ideas as to how they all may be benefited for the cause of the community at large. The Civil Surgeon or the District Health Officer or the like should be very courteous in approaching all concerned to give the scheme effect. The local village Registered Medical Practitioners will certainly take interest if they get the idea that it will make their position better than ever and all people will follow their instructions. All ex-service men may also be re-employed under this scheme till the newly trained doctor can join. Thus the work can be started at once.

7. The stock of medicine must be supplied from the Government Store to avoid misappropriation of the money given as grants. There should be a strict supervision over the compounder in every possible way so that medicine may not reach the black market. They are to be checked at the Provincial Laboratories.

8. As there is scarcely any regular supply of European drugs, the Government should make contracts with certain reliable firms to get the supply, and an attempt should be made to introduce indigenous drugs in the crude form which have shown good effects. A booklet containing the preparations should also be circulated to all M.Os., and the Ch. Dispensaries. There cannot be any objection if we can rationally use them.

9 It is a necessity to have a maternity clinic attached to each Ch. Dispensary where a midwife or a trained *dai* will be available and these should have at least 2 beds for delivery cases for every village Ch. Dispensary while 4 for Thana Charitable Dispensary and 8 for Subdivisional Ch. Dispensary (under a Health Visitor) should be provided.

10 The Dispensary Committee should have the representative for the Government as President, M.O. as Secretary as Presidents U.B.'s. concerned should be in the Committee, while all communities should have due representation. There should be representation for the ladies of such locality. A practising Doctor and Head Master of M.E. or H.E. School should be additions amongst the 14 members limited as in Dispensary Manual.

11. All the existing non-medical health staff should be placed under the M.O. Sanitary Inspectors can assist him in inspecting all huts, bazars, sweetmeat shops and in getting samples from the shops and chemist shops. Health assistants may also attend to vaccination and inoculation work.

12. All Vaidyas, Hakims and Homœopathic doctors should be given proper training to follow a rational system of treatment with indigenous drugs and to educate the masses. They are to be supported by the State in some shape.

13. All poor ladies may be given training as midwife and nurse to be employed at the Ch. Dispensaries to earn their livelihood. Short courses may be given for all such purposes.

14. All practising *dais* must be given *Dai* training and they may be allowed to practise under the control of the M.O. The Ch. Dispensaries may warn them if any case of sepsis occurs in any pregnant woman.

15. Co-operation of the village people is urgently required to make the scheme successful and this also depends on the M.O. He should carry on adequate propaganda to educate them on these lines.

16. Exhibitions should be *organised* every year during December and January for educating the *masses*.

17. I request the Editorial Board to *secure* all the schemes adopted in different provinces and a discussion on each should be held regulary.

175-A Raja Dinendra Street, Calcutta.

Yours faithfully,
Dr. A. K. Sarcar,
M.B., D.P.H.

News and Notes

Gujarat-Kathiawar Provincial Medical Conference

The 4th *Gujarat-Kathiawar* Provincial Medical Conference will be held at Bhavnagar *during the third week of March*, 1950. There will be a scientific section with the conference, where symposia have been arranged on following subjects :—

(1) Infantile Cirrhosis of the Liver ; (2) Tropical Ulcer ; and (3) Functional Uterine Hæmorrhages.

Medical profession is invited to speak on the *symposia*. *Papers on other medical subjects* are also invited.

All communications should be addressed to the Honorary Secretary, Dr. Rasik M. Kamdar, M.S., F.R.C.S., Kamdar's Surgical and Maternity Hospital, Bhavnagar.

Diagnostic X-Ray Apparatus

The X-ray and Medical Department of Philips Electrical Co. (India) Ltd. installed, early this year, what is considered to be the most up-to-date Diagnostic X-Ray Apparatus in India. The equipment, which was supplied to the Carmichael Hospital of the School of Tropical Medicine, Calcutta, comprises a 500 MA Control Table and Generator with Rotating Anode Tube, a Motor Driven Couch, a Serial Cassette Changer and facilities for Tomography.

It is understood that the Planigraph attachment incorporated on the Motor Driven Couch is the only one of its kind in India.

V. D. Control in S.E. Asia

One of the venereal disease control projects recommended in the report of Dr. George Leiby WHO consultant in V. D., who recently spent several weeks in India on the Government's invitation, is the development of a provisional V. D. Control training centre for India.

The training centre is planned to be in Simla where a WHO V. D. Control team has been operating since the summer and has established a diagnostic laboratory along the most modern lines. It is proposed that the centre *will train doctors, laboratory* technicians, nurses and public health workers in the latest advances in methods of control of syphilis and other venereal infections. The existing WHO team in Simla, it is stated, is already able to accept a limited number of trainees.

Under an agreement being negotiated by the Government of India with the UN International Children's Emergency Fund (UNICEF), doctors completing a course at the WHO Simla Centre will be equipped by UNICEF with indispensable medical supplies for the application of new techniques At present V. D. control supplies and equipment, and especially penicillin, laboratory, diagnostic and educational material, are often difficult to get.

Ceylon has also expressed great interest in WHO's V. D. control plans. Dr. Leiby, who is Professor of Internal Medicine and Syphilology at the University of California at Los Angeles, gave several lectures in Colombo on modern treatment methods, attended by over 600 doctors, public health officials and medical students.

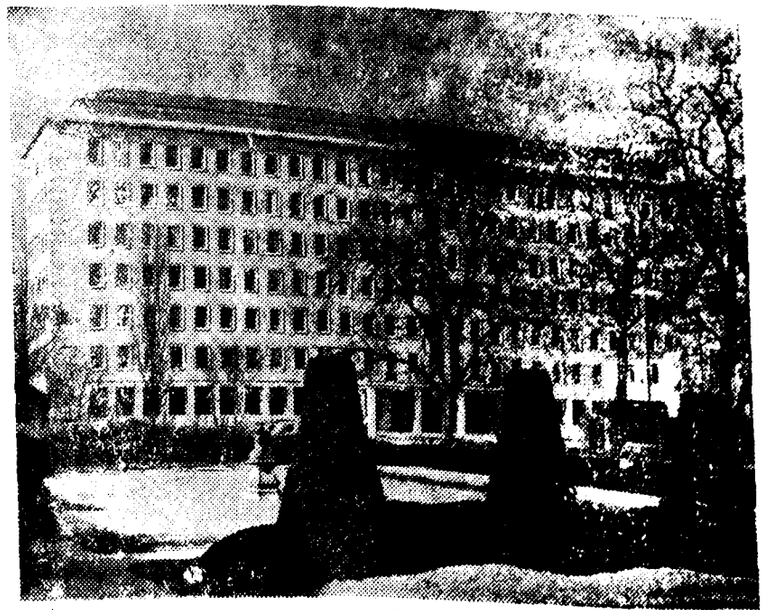
It is believed that adequate V. D. services can be introduced in Ceylon in conjunction with *the excellent* Mother and Child Welfare Organisation already existing there. On the basis of data furnished by Dr. Leiby, the experts of the WHO V. D. demonstration teams, and the surgeon in charge of V. D. control in Ceylon, the Ceylon Department of Medical and Sanitary Services *has already* issued a publication "Modern Concepts of Syphilis Control." One injection of 300,000 units of procaine penicillin G with aluminium monostearate, the experts agree, is sufficient treatment for the majority of cases of syphilis.

Among other V.D. control plans being drafted by WHO in S. E. Asian countries is a yaws eradication project in Indonesia, with the help of UNICEF which has allocated 700,000 dollars to this project. Yaws, a syphilis-like disease, non-venereally transmitted, is especially prevalent among children (up to 75%); it incapacitates an important proportion of the rural population in many tropical areas, and has a deteriorating effect on agricultural productivity and development.

The yaws eradication project in Indonesia would be combined with a syphilis control programme, since penicillin is the therapeutic agent employed for both diseases.

Dr. Leiby is at present visiting Rangoon and Bangkok to work out V. D. control measures in consultation with the Burmese and Thai Governments. After making a final report to WHO he will return to the United States.

Dr. N. Jungalwalla, it is announced, will shortly take up his *post* as permanent V. D. advisor to the WHO Regional Office in South East *Asia*. Dr. Jungalwalla was a member of the WHO Study Commission *on* V. D. which recently toured the United States.



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