JULY, 1928.

# The Antiseptic

## A Monthly Medical Journal

EDITED BY

THE HON'BLE U. RAMA RAU

AND

U. KRISHNA RAU, M.B. B.S.



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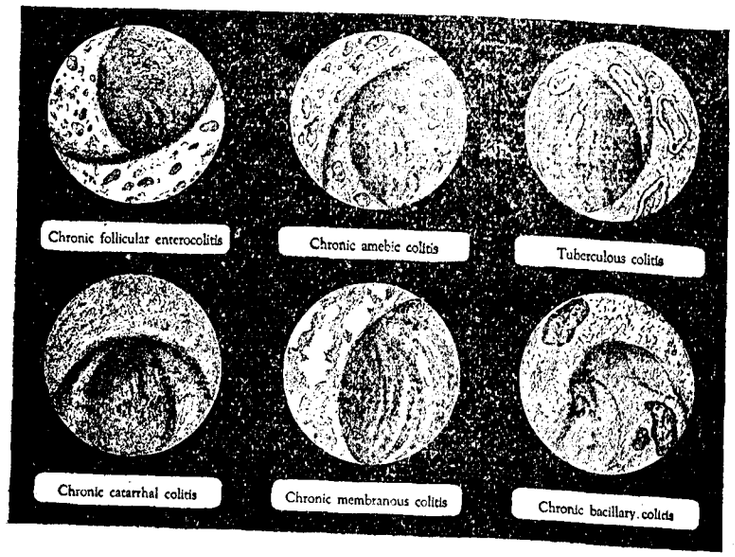


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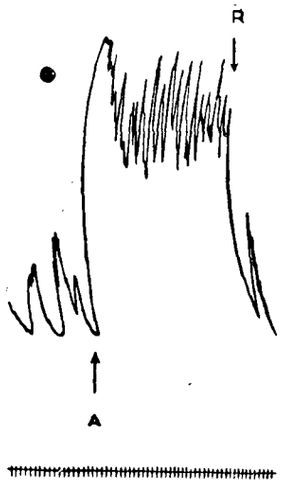


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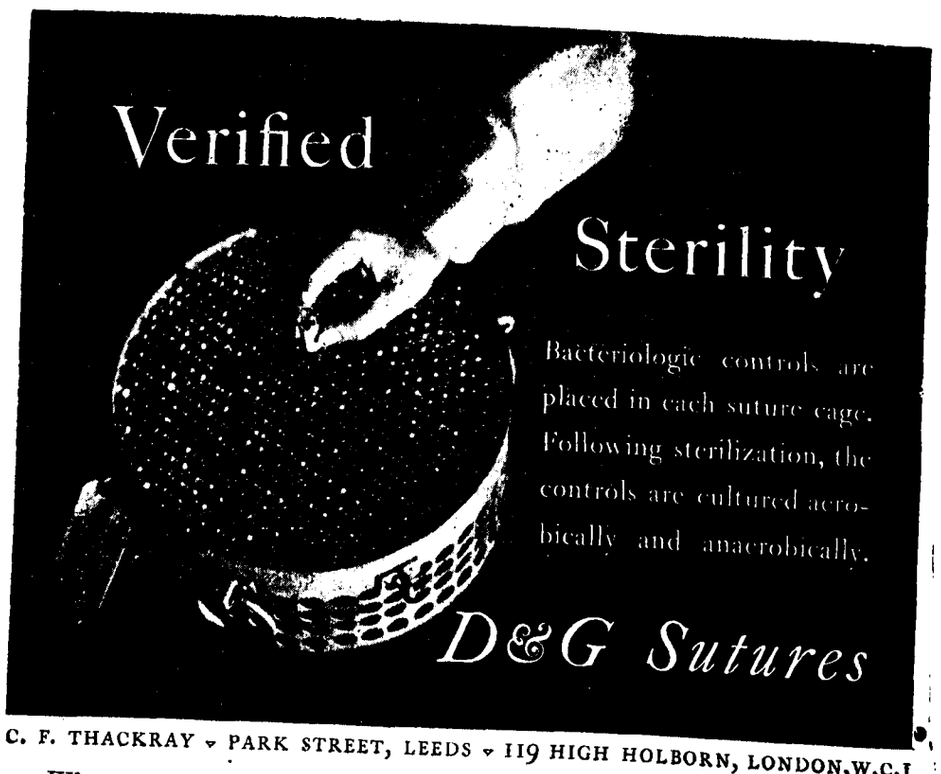







# The Antiseptic

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## ORIGINAL ARTICLES.

### * "PATHOLOGY OF TROPICAL DIARRHŒAS WITH SPECIAL REFERENCE TO SPRUE "

BY

DR. B. G. VAD, M. D., SIR J. J. HOSPITAL, BOMBAY.

To attempt this wide subject within the time at my disposal would show a want of appreciation of its complexity or its importance. I propose to try and require the honour done to me by presenting some information and my observations on this subject, and my desire in choosing this subject has been to attract your attention to this common ailment, not yet properly investigated.

How common is this form of ailment is well known to all and its magnitude can be easily appreciated by a reference to the annual reports of the hospitals and dispensaries in this country. The Sanitary Commissioner with the Government of Bombay states in his 59th annual report that there were 16708 deaths due to diarrhœas alone excluding dysenteries which took a toll of 4410, in a population of 19,165, 614 in the presidency. He makes a very pertinent statement that the death rate, high though it may look to you, was "lowest on record since 1879 A.D., the decennial mean being 36,330. "In one of his annual reports of the civil hospitals and dispensaries, the Surgeon-General with the Government of Bombay states that in

* Abstract of two lectures delivered as Lord Reay Lecturer at the Grant Medical College, Bombay.

the Government and State-aided institutions the number of cases treated indoors for diarrhœas was 1066, with 222 deaths; the number of cases treated at the out-doors for diarrhœas was 46,456. In special institutions such as for Police, Railways etc. the in-door admission for diarrhœas was 262. In private and non-State aided institutions the indoor and outdoor patients for the same ailment were 62,563 with 42 deaths, the total attendance for all diseases being 1,769,063. The number of cases treated for diarrhœa were 278 for total annual admission of over 2000 as indoor patients at the J. J. Hospital during 1924. It must be remembered, to appreciate the real significance of these high figures, that they do not represent a complete picture, as there is a large population that does not and in some cases cannot take the advantage of treatment at the recognised institutions.

Without getting entangled any further in figures, I shall now turn to the consideration of the subject proper. The subject can be subdivided according to the main causes of diarrhœas which are: (1) Climatic, (2) Dietetic, (3) Bacterial, (4) Protozoal, (5) Metazoal, (6) those due to chemical and mechanical irritants, and (7) unknown causes.

*The climatic conditions* vary markedly within wide limits. The atmospheric conditions are often very sudden and without doubt the tropical climate exerts sufficient influence on the physiology of man. When we contemplate the many and rapidly changing demands which modern life in tropical countries makes on our digestive tract and system, and side by side with this the marked slowness with which adaptive changes in the structure evolve, it is small wonder that there is an increasing strain on the functional efficiency, and that, ultimately that function may give way.

Professor Keith aptly compares the nervous mechanism of the alimentary tract to that of the heart. We are well acquainted with tachycardia, irregularities of rhythm, fibrillation, heart block and the responsiveness of the heart's action to extrinsic impulses. Why should not corresponding irregularities occur in the alimentary tract, which possesses Auerbach's mysenteric plexus with ganglion cells, net work of fine fibres and the nodal tissue called the intermediate cells.

Tropical heat has a great determining factor upon the physiological processes. Respirations may be reduced in



number, less oxygen is inspired, less carbon dioxide and water are given off by the lungs and there is therefore a tendency to the retention of carbonic acid and alveolar air, in people at rest and a tendency to the production of glycosuria and acidosis in the rich. The urine is reduced in quantity; there is reduction of chlorides and nitrogen excreted; and the blood may show an increase of sugar content. The digestive powers are less vigorous, and large quantities of food cannot be borne well in the tropics. Bosch, Van der Scheer and others are inclined to view that the hyperactivity of the digestive organs, occasioned by the tropical conditions, ends in exhaustion and apepsia, and may induce symptoms and pathological conditions peculiar to diarrhœas.

In the tropics the intestinal mucosa is particularly apt to be affected by a chill. Exposure to cold which in temperate climates would probably be followed by inflammation of the bronchial mucosa or of the alveoli of the lung, is in hot countries almost invariably reflected as congestion of the intestinal mucous membrane.

As regards the zimotic diarrhœas and the earth temperture, Ballard showed, that no matter what the atmospheric temperature or that of the superficial layers of the earth might be, it had no influence on the course of the epidemic diarrhœas until the temperature of 56° F. was reached by the 4 feet deep earth temperature. This phenomena of the influence of telluric conditions on the disease is quite well marked. The diarrhœa cases due to this cause, may, in many cases, show no visible departure from the normal, or the only lesion seen may be a varying degree of catarrh or congestion of the mucous membrane. By itself this type seldom leads to any gross pathological lesions, though it may predispose to other infections.

*Dietetic causes*:—Famines are very common in this country. There are many districts which are self-supporting as regards food, and in case of failure of monsoon, these districts are put to all the rigors of famine, being unable and unaccustomed to import food stuffs from other parts. Some people in this country are always starved, an appreciable population is half starved and even those who can get two square meals a day, do not get the proper quality of food, though it may be sufficient in quantity. During 1924, 60 patients were admitted to be inpatients of the J. J. Hospital for starvation and privation.

Famines bring on destitution and we have the sad sight of crowds of attenuated limbed, pot bellied or sunken bellied almost naked men, women and children crowding stations and towns in search of food. They will put in mouth whatever they can lay their hands on and under the conditions of inanition and reduced resisting power, they fall easy victims to the severe forms of diarrhœa. The pathological picture is one of wasting of all organs with sometimes marked attenuation and thinning of the bowels, and the atrophy of the muscularis mucosæ. There may be cirrhotic changes in spleen, liver, pancreas etc.

Diarrhœas due to famine may sometimes be of the most severe type and in the great Indian famine of 1877 in Bombay, Mysore, and Madras alone, over 5 million people perished and this enormous mortality was due to a highly fatal form of atrophic diarrhœa. This disorder seemed to have much in common with the hill diarrhœa and other vague and undifferentiated types of enteritis in India, then prevalent elsewhere; and it was essentially of an insidious and progressive character attended by intense marasmic toxæmia. *Post-mortem* appearances as given by Cunningham, the Pathologist deputed by the Government of India to make a special report on the nature of the epidemic, were as follows:—"The mucous membrane of the stomach, jejunum and ileum is white, pale and pulpy, soft and bloodless; some traces of congestion, marks of disintegration of the jejunum etc."

*Dietetic errors*:—There are communities who take an excessive amount of fats, others an excessive amount of carbohydrates and another class which takes large amounts of proteins in their rations. Excess of any may upset the balance and induce looseness of bowels. If we could do more than guess at the nature of most of these disturbances that wreck the machinery and the constitution, it would be something; but that is commonly obscure.

Of all these substances, as long as we have been in the habit of separating them into three great classes, it has been the custom to regard the proteins as the most important, the real basis of life; the fats and lipoids or the fat-like substances as fuel for rapid burning. Now, however, in Ivar Bang's phrase, the lipoids are beginning to be recognized as actors of extreme importance with roles of unsuspected delicacy and complexity. Yet even carbohydrates have not met with what may be a deserved recognition; but it is becoming clearer that it is the



ensemble action and not the part played by the isolated fragments which we sort out or extract with ether, that brings abut the wonders of life. It is on this account that we do not meet with more cases of digestive disturbance than can be warranted from any particular dietary.

The digestion is weakened in hot climates as I have already mentioned and the liver is inclined to be torpid; hence the ingested fats when in excess are prone to be split up into Butyric, Caproic and other irritating acids, which the diminished secretion of the liver is unable to neutralize. As the intestinal digestion cannot proceed in the presence of these acids, the condition known as biliousness is established, with putrefaction of intestinal contents and the production of various alkaloidal substances. A catarrhal inflammation of the bowel results and it is followed by diarrhoea, which is at first an advantage in eliminating the harmful substances, but which under the continued irritation of unsuitable diet is liable to progress and become aggravated. And naturally therefore Major Keen, Surgeon-General U.S. army, recommends for soldiers while in Tropics, less fat and more carbohydrate, less stimulating proteins and a greater variety of both meat and carbohydrates with fresh vegetables and fruit. These cases of diarrhœas due to an excessive fat intake are common in certain communities habituated to take large quantities of fatty substances in their daily diet. The advanced cases of these types are often mistaken and wrongly diagnosed as Sprue. The patient generally passes whitish, large, soft, pultaceous and bulky stools, and in progressive chronic cases the tongue is raw and inflamed, but the emaciation is not generally marked except towards the close of the picture in rare and advanced cases. On examination, the faeces are found to contain large proportion of fat, fatty acids etc. varying in quantity from 20 to 30% in mild cases and as much as 70% in severe cases. I have observed the high percentage on continued examination of faeces of these cases and an almost dramatic change in the quality and quantity of stools on putting the patient on fat-free diet. The quantity is markedly diminished and the frequency is less. On examination of blood, I have generally seen a picture of secondary anaemia. The cases are not generally fatal and I have had no opportunity of seeing the post-mortem of any such cases.

Excess of proteids stimulates over production of acid in gastric juice, or what amounts to the same thing may lead to a

(4) The scantier and occassional denizens of the human gut are B. Faecalis Alkaligenes, B. Pyocyneus, and B. Proteus Vulgaris. Considering the relation of the normal flora of the intestine to the disease, we know that in the healthy body, this rich and varied intestinal flora is a purely saphrophytic one; but almost all the common bacteria of the gut are potential parasites, capable under suitable conditions of setting up disease; and in the intestinal disease of any sort, are apt to acquire an enhanced virulance with change of characters and pathogenicity.

In search for a causal agent in the diarrhoeal conditions extreme care must be exercised in interpreting the results of cultures from faeces. It would seem possible for an unusual bacterium to be seen in such large numbers in the stools under these conditions, as to suggest its causal relation with the disease, yet the actual cause may be something quite different. It may be that the abnormal conditions set up in the intestines by the other cause, have favoured the multiplication of one of these organisms, and so have allowed it to exhibit a deceptive prominence. Before we accuse an organism as a cause of enteritis, there must be some reasonable degree of conformity with the so-called Koch's postulates.

Certain forms of enteritis may be due to organisms which are normal inhabitants of the human intestines, but foreign to the individual concerned. It has been asserted that individuals have their personal strains of B. Coli and the facts of agglutination certainly indicate serological variations among strains from different persons. We probably interchange our bacteria pretty freely; but little harm results as a rule from this, where the personal strains of a community have much in common. But if this is true that intestinal bacteria are kept at bay by a local immunity of the bowel against the races to which it is habituated it is also probably true that this local immunity will fail, if the bowel is invaded by the foreign sect of bacteria. It is notorious that a new comer to a tropical place often gets diarrhœa soon after his arrival and is assured by the inhabitants that this is the rule and that it will pass off as soon as he is acclamatised. One possible and likely explanation of this would lie in the invasion of his intestine by a new set of bacterial races to which in a short time he will in his turn get acclamatised. The faecal bacteria of the Turks



invaded the intestines of the British troops on the first day of their landing for the invasion of the Gallipoli. Practically every man got diarrhœa and solid stools were unknown for some days. Some of those bacteria were of a known pathogenic species and dysentery and enteric fever were correspondingly rife, but the report of the British Ministry of Health concludes that much of the diarrhœa seems to have been of a non-specific nature and may well have been due to causes suggested above. Plate cultures from the convalescent cases of these enteritis displayed a remarkable assembly of unfamiliar bacteria, including many lactose fermenting forms such as paracolon bacillus, and on recovery in England this varegated flora returned to that customary to that country.

Turning to the other causes where the causal organisms are not normal to the human intestine, we find the dysentery bacillus to be the commonest. But this organism gives rise to acute and severe forms of dysentery and chronic cases of this type are very few. Bacillary dysentery is not common on this side. A vast majority of the dysenteric cases seen at the J. J. Hospital is due to amaebic infection, though a few cases of mixed infection are met with. I have observed during the year 1924—25 among the cases of dysentery seen at the postmortem room only 2 cases of bacillary infection and a large number due to amaebic infection, as confirmed by the macroscopic and microscopic finding at the autopsis. Sir Leonold Rogers reports similar findings in Calcutta and Bengal, Dew and Fairley also reported similar findings in cases among the Expeditionary forces at the No. 14 Australian hospital, Alexandria. Some allowance must however be made for the fact that the bacilli of dysentery disappear rapidly from the stools of acute cases left for a few hours at room temperature and the great difficulty of isolating the B. Shiga and Flexner Y from even the fresh stools in chronic cases. The differentiation of these bacilli rests upon motility, cultural and biochemical reactions, Immunity reactions, especially agglutination and allied tests. Macroscopic agglutination in a dilution of 1 in 100 after incubating for 6 hours at 37'C. or for 4 hours at 55'C. on a water bath can be regarded as diagnostic. High titre Flexner Y sera are not always specific in low grade dilutions and sometimes agglutinate certain strains of B. Coli. According to Kruse, there are several serological races in Flexner Y group such as V,W,X,Y,Z.

Bacillary dysentery stools always contain red blood corpuscles and pus cells and macrophage cells are seen in about 50% of the specimens.

With bacillary dysentery, cure or kill is generally the rule; though a few cases of chronic ulcerative type are seen. Here the ulcers are numerous, large and shallow, with shelving sharp cut edges and a smooth firm base. Sometimes the margins are heaped up and but for the presence of pigmentation, the intervening areas of the colon are normal Microscopic examination of the earlieast ulcers revealed vascular dilation and engorgement of vessels with infiltration of the mucous layer with mononuclear cells. Increase in the mononuclear elements was most marked in lymphoid areas. Later types show early coagulation necrosis of the parenchyma of the cells of the mucosa, which is infiltrated with fibrin, R. B. C s. W. B. C.s and mononuclear cells. The vessels were engorged, some are thrombosed, and sometimes perivascular haemorrhages may be present; similar vascular changes may be noted in the sub-mucous coat. In most severe types (B. Shiga) the whole mucous layer may be structureless, owing to a generalized necrosis of the glandular and connective tissue elements. Sections of the snail-track ulcers always showed the superficial nature of the lesions, the depth scarcely extending beyond the muscularis mucosæ and the ulcers were frequently related to the lymphoid areas the walls and base being composed of granulation tissue with a superficial coating of fibrin and cellular exudate. In later stages, this disappeared and an epithelial layer derived from the proliferation of the glands could be traced in various stages growing over the granulation tissue surface of the ulcer.

The pathological changes in other organs, to mention in brief, were a gelationus œdema of the mesentery, congestion and softening of the spleen with rare multiple splenic abscesses from which Dew and Fairley could isolate B. Flexner, degeneration and cloudy swelling of the liver and kidney, toxic spoiling of the myocardium with occasional serous pericarditis, lungs may show a terminal broncho-pneumonia.

No intestinal perforation, severe hæmorrhage or local extracolonic abscesses were observed owing to the superficial nature of the ulcers. Even in chronic cases the cicatrical contractions of the ulcers did not tend to produce intestinal obstruction.



The only other bacillary condition producing chronic diarrhœa to which I wish to draw your attention is the infection of the intestines by the tubercle bacillus. Though this infection is not quite peculiar to the tropics, I believe that the cases of intestinal tuberculosis are more common here than elsewhere. The reason is not far to seek. Owing to the various causes, some of which are already mentioned, the condition in many cases is below par, the vitality being diminished by constant irritation and congestion. We know that tuberculosis is a septicæmia manifesting as a disease of a particular part or organ which is devitalised. In the large number of post-mortems that I have carried out during the year 1924-25, I noticed the tubercular infection of the intestines in many cases in which the condition was never suspected ante-mortem. The macroscopic findings were always confirmed by the microscopic examinations. There is generally some evidence of healed or active tuberculosis in one or the other organ. In some cases though the ulceration was very pronounced in the cæcum and intestines, no sign of tubercular infection was seen in the lungs. From ante-mortem and post-mortem evidence, I am inclined to view that the tubercular infection of the intestines is a very cognizable and probable cause in some of the chronic diarrhœas seen here, at least it is far more common in post mortem than is recognized in ante-mortem. The stools are generally semi-solid or liquid, with undigested food particles, mucus and pus cells and occasionally even blood. In some cases the patient may have constipation. The blood shows a picture of secondary anæmia, generally with increase of lymphocytes.

I shall not consider here the other bacillary infections giving rise to diarrhœa, which are not peculiar to the tropics.

*Protozoal cases*:—Amœbic infection is the commonest of these causes. It may cause either acute dysentery or chronic diarrhœa. The Entamœba Histolytica is recognised to be pathogenic, though of recent years some observers claim for the Entamœba Coli some pathogenic role giving rise under certain conditions to diarrhœa or dysentery. Some observers put forth a view, which is however not accepted by all, that both the amœbæ are one and the same thing, only varying in some developmental grades with different habits.

In an acute case of amœbic dysentery, the fæces contain dark blood and discoloured mucus intimately mixed with fæcal matter which is foul smelling and rarely contains sloughs. The

active amœba may be found in the stools freshly passed, and due to proteolytic enzymes liberated by the E. Histolytica, the cytoplasm of the polymorphonuclear cells may be degenerated and ragged but the true nuclear degeneration is not well marked. In chronic cases cysts are generaliy found varying in size from 7 to 14 micro millimeters. In uncomplicated cases, the leucocytosis is generally below 15,000 per cm. I have observed at the J. J. Hospital cases of persistent diarrhœa due to chronic amœbic infection, and on proctoscopic examination large and shaggy ulcers are seen in the lower part of the bowel.

At the autopsies I have seen that the lesions are in a large number of cases confined to the colon especially the rectum and pelvic portions, though in some cases the cæcum and the ascending portions may be involved. The general appearance of the colon does not suggest an acute inflammation as in bacillary dysentery. The process seems to be chronic or subacute in character and presents marked patchy thickening, involving all the coats of the bowel with scattered ulcers. In the intervening areas the gut wall may appear a little changed. The ulcers vary in size from 0.6 cm to 6 cm., are always deep with frequently the circular muscular coat exposed. On section they appeared bottle-necked, with maximal involvement of the submucosa. The base of the ulcer is often composed of the necrotic black tissue or purulent sloughy material with edges ragged and undermined. The ulcer may sometimes communicate by tunnelling the submucosa. In the vicinity of the ulcers the bowel wall is generally thickened, and it may be thinned and ballooned elsewhere. Sometimes a massive gangrene of the wall of the colon occurs. The cæcum is often so involved and presents an œdematous, friable, black, thickened wall. All the coats are involved and large shaggy perforations even up to 6 cm. in diameter may often be seen with adhesions round about. The commonest sites of perforations are found to be at the cæcal region, the flextures, the sigmoid and rectum and in a few cases even huge gangrenous casts may be observed protruding through the perforations. The amœbæ appear to travel the mucous layer and lodge in the submucosa, where they are easily demonstrated in sections under microscope, and by elaboration of toxic substances cause a gelatinous hyaline degeneration unassociated with any marked cellular response. Thrombosis of vessels is readily observed in the microscopical



sections and is due to the degeneration of the endothelial layer of the vessels with consequent clotting, and such thrombosis is responsible for the metastatic and gangrenous liver abscess. Cæcum is often thick, friable and sloughing but I have never observed cicatrical contraction of the deep amaebic ulcers leading to intestinal obstruction. Hepatitis and liver abscess are common and the abscess as seen at the post-mortem table is often single. But I have seen in a few cases that the abscesses in the liver may be multiple and amæbæ could be demonstrated between the liver cell and the lining membrane of the abscess in microscopic sections. Probably it is the coalescence of these small abscesses that often gives the appearance of a huge single abscess. I have not seen any cases of amæbic pulmonary abscesses, as recorded by some observers. About 3% of the cases of chronic diarrhoeas observed at the post-mortem table were due to amoebic infection and definite amoebae could be demonstrated in the microscopic sections of these intestinal ulcers; and some of these cases may give no history of having ever suffered from acute dysentery.

I have not observed any cases of diarrhoeas due to infection by Leishman Donovan bodies. They are however observed by people where the Leishmaniasis is common. Archibald records that diarrhoea and dysenteric symptoms are frequently seen more especially in the terminal stage of the disease. The stomach and small intestine are rarely affected and the large intestine may show areas of congestion with ulceration extending throughout its whole length. Smears from the base and the margins of the ulcers may show the Leishman Donovan bodies. They are not demonstrated in the fæces. Intestinal ulceration is more common in the Indian type of the disease.

Though I have observed cases of malarial dysentery in a few cases, I have seldom seen a case of diarrhœa due to malarial infection only. In the War records is noted a case of a native soldier admitted for attacks of diarrhœa, which had come on regularly every week or ten days for over a month. The motions were grass green in colour, the temperature being 102·4° F. Many malignant rings and crescents were found in his blood. On intramuscular administration of quinine, both diarrhœa and fever subsided. James and Christophers describe the pathology of the digestive tract. The digestive system is

affected in all cases of malaria. There may be constipation in mild cases and diarrhœa, often of a choleric type, in severe cases. It may show acute malarial pancreatitis. There may be deficient gastric secretion and it may cause diarrhœa. When there is a special localization of the infection in the intestines, the capillaries of the mucosa and villi are found to be blocked with red corpuscles containing parasites in all stages of the growth and with leucocytes and other phagocytic cells containing masses of pigment. There may be small hæmorrhages in tissues of the mucosa and villi and patches of the necrosed epithelium also. There may be a massing of parasites in the capillaries of the pancreas with small hæmorrhages and deposits of malarial pigment in the pancreatic tissue.

The other protozoa found in human intestines may be subdivided for description into:—

(1) *Rhizopoda*—(*a*) Entamœba histolytica.
(*b*) ,, Coli.
(*c*) ,, Limax.

(2) *Mastigophora*—(*a*) Trichomonas intestinalis.
(*b*) Tetramitus mesnili.
(*c*) Lamblia intestinalis.

(3) *Flagellates*—(*a*) Bodo.
(*b*) Cercomonas.
(*c*) Prowazekia.

(4) *Ciliata*—Balantidium coli.

The common protozoa observed in about 30 % of the cases are Lamblia intestinalis, Balantidium coli and Trichomonas. Though it yet cannot be proved that these intestinal protozoa can by themselves cause diarrhœic symptoms, it appears probable that some of them may under suitable conditions set up an attack of diarrhœa. From its wide distribution as an intestinal parasite Lamblia intestinalis may be suspected to be harmful to its host. Wenyon and Dobell observe that flagellates are passed during the attack of diarrhœa only and they are very persistent. It sometimes causes irritation of the small intestines and invasion of their glands. Dew and Fairley also observe that Lamblia intestinalis has the greatest claim to pathogenicity. Maxcy observed only three out of 89 cases showing increased frequency of the stools.

Since the work of Strong and Musgrave, Balantidium Coli has come to be regarded as the cause of a particular type of



dysentery simulating the amœbic one. It may cause the symptoms of the chronic diarrhœa also. At autopsy catarrhal congestion and diphtheritic patches of extensive ulceration are found. Strong demonstrated on section the Balantidium not only in the exudate on the surface of the bowel, but congregated in large numbers in the follicles and imbedded in the tissues forming the bases of the ulcers, including submucous and muscular coat and even in the lumen of the lymphatics. Bowman stated that the colon may be affected throughout its whole extent, with a mass of ulcers from which hang shreds of necrotic tissue-lesions resembling those of amaebic dysentery. The Balantidium Coli infection is not peculiar to the tropics but cases are reported from all over the world.

In all these intestinal protozal infections, the infection spreads in man from one individual to another by means of the encysted forms, which are very resistant and which undergo no development outside the body, but simply lie about the water till ingested by another individual, except in Trichomonas intestinalis which survives in faeces for a week or more after leaving the body in the unencysted form.

*Metazoal causes*:—Of the many intestinal metazoa, only some are capable of setting up diarrhoea. Of the large number of stools of the diarrhoeal as well as non-diarrhoeal cases examined about 50% or more showed one or more of these parasites, the commoner ones being often Ascaris Lumbricoidalis, Trichocephalus Despar and Ankylostama Duodena, the rarer ones being the Taeneas. At the autopsis, I have often seen these intestinal parasites in a large number of cases.

*Nematodoes*:—Ascaris Lumbricoidalis is the commonest worm seen in the human intestine, and the infection may be sometimes very heavy. At the autopsy in one case, I have observed 207 round worms packed right from the trachea and pharynx to the anal canal. R. Hutchison writes in the Medical Annual of 1924 that as a result of recent invetigations, fresh light has been thrown upon the life history of Ascaris. According to Ransom the larvae that hatch out in the small intestines, after the eggs containing them have been swallowed, enter promptly the walls of the small intestine, thence they pass to the liver in the portal circulation and after crossing the capillary zone of the liver lobules, enter the central vein, by which they reach the hepatic veins, the vena cava and the right side of the heart. The newly hatched larvae measure about 0.25 mm. in length

and about 0·012, mm. in diameter. They pass rapidly through the liver or are delayed for several days, in the latter case, undergoing growth and development before they continue their journey. Some larvae may be permanently lodged in the liver, may become encapsulated and die there. From the right side of the heart the larvae are carried to the lungs, in which they enter the air sacs. Finally after having developed to a length of 1 to 2·5 mm, they pass up the trachea and down the oesophagus through the stomach to the intestines and develop to maturity in about two months. Some larvae that reach the lungs may apparently return to the heart and are then distributed to the various parts of the body in the peripheral circulation. They may be recovered from the peripheral lymph nodes as early as 24 hours, after the eggs from which they hatched have been swallowed and have been found still alive in such locations as late as 30 days after infection.

The peculiar tendency of round worms to wander about has often produced severe surgical complications.

Schwartz has shown that the extract of ascaris destroys the erythrocytes and that its body fluid contains hæmoglobin even normally. It seems that blood is its normal food and this it cannot be normally obtaining without injuring the mucosa.

The ova are easily found in the stools and in diarrhœal cases the stools are liquid with or without a trace of blood and sometimes even mucus. The eosinophilia in blood varies, the maximum I have seen 70%. Ascaris can give rise to severe spasms of the intestines producing transient occlusion.

Nicoll thinks from animal experiments that there is reason to believe that the larvae in their passage through the lungs may occasionally produce pneumonia in human subjects.

In the intestines only congestion may be seen. In severe infection, intestinal obstruction may be produced, and this is not surprising considering the highest record of 600 or more worms being present in the intestine of one individual only.

*Ankylostomiasis*:— From the large number of stools that I have examined, I believe that Ankylostomiasis is far more common even in Bombay than is commonly believed. The worms may set up diarrhœa and owing to gradual loss of blood produce anæmia. In mild cases, one gets a picture of secondary anæmia, and in severe cases, it is just like pernicious anæmia, there being no difference either clinically or pathologically. High or low eosinophilia gives no indication as to the severity of the



infection; and the number of ova or worms in the fæces and intestines is no criterion as to the severity of the cases. Even one fertile worm may produce severe symptoms, whereas a person harbouring hundreds of these worms may feel no symptoms and show no appreciable signs. Muscles are faded, friable and atrophied. The heart may be dilated and lungs œdematous and congested. Liver is brownish yellow or light in colour and looks fatty, kidneys are enlarged and pale, the capsule stripping easy. Parasites are rarely found in the stomach, which may be dilated with gastric catarrh. The bite of the parasite is limited to the mucosa, which is a tiny superficial erosion, not a deep ulcer about 0·5 mm. in diameter. Spleen is soft, small and wrinkled, and the retroperitoneal glands may be enlarged, non-adherent and soft. The bone marrow may be greyish and very soft. Under the microscope the heart shows fatty degeneration and brown atrophy, liver shows fatty degeneration and fatty infiltration, the kidneys show chronic parenchymatous or diffuse non-indurated nephritis. spleen shows great paucity of the lymphoid element, the malphigian corpuscles very small, sparse and widely seperated, the central artery showing hyaline thickening. The bone marrow may be the same as in pernicious anemia, with numerous eosinophilic myelocytes. Retroperitoneal glands, hemolymph glands and peripheral channels are filled with endothelial cells stuffed with R. B.Cs.

*Strogyloides Stercoralis*:—Has been seen by me in very few cases but it does produce a diarrhoea with anemaia. There may be cellular proliferation of the intestines, with congestion of the stomach and liver, and rarely its passage from the pulmonary capillaries produces alveolar hemorrhage.

*Trichuris Trichiura*:—Is commonly present in the human intestine, and the ova may be easily found in the stools. It may produce no symptoms. However its frequency of infestation and its resistance to disinfection render difficult the estimate of its ill effects. Some authorities however have credited these parasites with a pathological role, causing inflammatory symptoms of the intestines and appendix and probably they facilitate the entry of bacteria in the intestinal wall.

*Enterobius Vermicularis* which is very rare, may show congestion of anus and rectum with red points and smeared with mucus often blood-stained.

Trichostrongylus Colubriformis inhabits the stomach and intestines but is not to produce any lesions.

*Trematodes*:—Intestinal Schistosomiasis is not common in India. Pathological lesions induced by S. Mansoni infestation are found mostly in the lower part of the large intestine, especially in the sigmoid flexure and rectum. Liver is affected by the pipe stem cirrhosis, and pancreas and spleen may rarely be affected.

The uncommon trematodes are Chlonorchis, which may cause diarrhœa with congestion of the stomach and intestines. Liver and pancreas may be enlarged and shrunken, but the main infection is in the biliary ducts which are dilated and may be fibrosed. This same kind may be produced by Heterophyes infection.

There are a number of trematodes with habitate in the human intestines but are not capable of producing any pathological lesion.

*Cestodes*:—In 1922, I had an opportunity of studying a case in the senior medical wards of Hymenolypis Nana. It produced most toxic and fatal symptoms. No autopsy on this case was available. This worm may box deeply in the mucous membrane of the intestine and irritative changes are set up and mucosæ in the vicinity may become swollen, injected and covered with a thick layer of grey coloured mucus, and hemorrhagic spots may be seen where heads had been attached. There is chronic intestinal catarrh. The infection is not common, though not unknown in India.

Tenea Saginata and Solium may set up an intractable diarrhœa, the worm is attached by its head to the mucous membrane of the intestine and extracts its juices from the bowel but does not seem to set up definite pathological changes.

The non-pathogenic intestinal parasites are (1) Oesophagostomum Staphaustomum, (2) Ternideus Demimstus, (3) Mecistocirrus Digitatus (4) Belascaris Mystax, (5) Toxascaris Limbata, and (6) Physaloptera, etc. Under suitable conditions, even these parasites are credited with a pathological role by some workers.

*Mechanical or Chemical irritants*:—Drinking water containing salts such as Sulphates of Calcium, Sodium, Magnesium or else suspended particles of clay, mica or vegetable debris, or much organic debris may produce diarrhœa with slight congestion and hyperæmias of the bowel.

*Hill Diarrhoea*:—The etiological cause of this obscure disease is not yet proved. The stools are pale drab or muddy grey in



colour, frothy and feculent. In early stages the stools are white and loose after becoming pultaceous. The colourless appearance of the stools shows derangement of the liver and arrest or diminution of the biliary secretion. Vaughan, Harley and others have shown that stools of this kind are not acholic, but contain a colourless derivative of bilirubin called leucobilin, in place of the urobilin present in normal faeces. This condition may be produced when the pancreatic secretion is withheld from the intestinal contents; it is probable therefore that other secretory glands are also involved in the morbid process. A defective digestion with increased fermentation is thus produced, which either causes or increases irritation of the intestinal mucous membrane.

The lining membrane is often aphthous and congested, the irritation often extending to the oesophagus. The small gut may be thickened and congested, and in a few cases even contracted. There may be fibrosis in chronic cases, and generally there is no ulceration of the mucous membrane. There is catarrh of the secretory glands but there is no extensive degeneration or desquamation of the epithelium. There may be congestion of the gums and tongue with inundations round the margins in severe cases. The liver may be small and friable, heart small and flabby with walls attenuated and spleen small but not diseased.

There are many theories as regards the etiology of hill diarrhœa. The theory of the congestion of the intestinal mucosa resulting from sudden contraction of the external circulation, offers the best explanation of the disease. Mica, sewage contamination and other theories are now sufficiently discredited. Many years ago, Grant regarded the disease as a manifestation of scurvy. There seems to have been a confusion in the minds of the observers of the last century regarding Sprue and Hill diarrhœa and in their descriptions they have mixed one with the other.

*Flies and insects*:—In passing, I would like to make a brief mention regarding the flies and insects passed in faeces from the human intestines. Ronald A. Senior White describes the occurence of Coleoptera in human intestines, where they produce a pathological lesion. Living beetles may be passed in the invaginal state. In Ceylon cases are seen where they are common in children of 3 to 8 years though they may be seen even in the adults. Probably infection takes place by ingesting

ova or larvae in one or other of the odoriferous forms of the dried fish, which forms a regular article of diet with both the Sinhalese and the Tamil estate coolies.

Such are the varied causes of the tropical diarrhœa, and in every instance, a legacy is left of impaired digestive system, which in itself may jeopardize the health or at least pave the path for some more serious ailment. Next time, I will devote the entire lecture to consideration in detail of Sprue—its etiology, chemical pathology, and morbid appearances.

*Sprue*:—I shall now consider in detail this most interesting and intriguing complex group phenomena known as Sprue, but the task is rather difficult. Though many observed phenomena are now established facts, there are bound to be some, which will be only speculative. The signs and symptoms are most complex and bizarre, yet it is a complete known entity. My observations are rather limited, as I find that cases of true and real Sprue are very few in Bombay, particularly amongst Indians. Since 1922 I have been studying these cases of Sprue at the J. J. Hospital, and I find that there never have been more than about 10 cases a year though the indoor admissions are well over 2000, of the medical cases. Even in private practice, these cases of typical Sprue are not commonly seen. A larger proportion of cases are seen at the St. George's European General Hospital. I have often seen cases of chronic diarrhœas due to one of the many causes mentioned already in my last lecture, diagnosed as Sprue. This mistake is most common in cases of excessive fatty intake, chronic dysentery and tuberculous diarrhœa. As regards autopsis on true cases of Sprue, my experience is meagre. In other parts, starvation diarrhœa and Hill diarrhœa in their severe forms are often described as Sprue. The diagnosis of Sprue has come to epend entirely on the idiosyncracy of the medical man. Sprue does not seem to have been common in Bombay even during the middle of the last century and in this connection the observations of Sir Charles Morehead, first Principal and Professor of Medicine at our College, published in 1856 in his book "Clinical Research on Diseases in India", are really interesting. He does not seem to have seen any case of Sprue and had no experience of any affection resembling Sprue. In the long list of post mortem records by which Morehead illustrates his remarks on dysentery and other intestinal disorders, the absence of any mention of atrophic lesion of the intestines or



other post-mortem phenomena of Sprue is indeed somewhat remarkable and would seem to indicate that in Bombay at least cases of real Sprue were very rare. With these remarks, I will now turn to the consideration of clinical and chemical pathology of Sprue first.

The colour of the stools is mainly influenced by the composition of the bile pigments, though the character of the food and the time the faeces have remained in the intestinal canal exert an influence to a little extent. The pale white colour of Sprue stools has been accounted in the past as due to many causes. Bile pigments were supposed to be absent, but Brunton ascribed the pale colour mainly to a large percentage of crystalline fats. Later on Sidney and Martin showed that the bile constituents such as the bile acids (Glycocholate and Taurocholate of Soda) were present; and still more recently it was proved by Blyth that the bile pigments were really present but in the form of a colourless compound called Leucourobilin, a reduction product of hydrobilirubin. Such a reduction occurs in certain diseases in which the pancreatic juice is either not secreted or is unable to enter the intestinal canal; and Mayo Robson asserts that the faeces in interstitial Pancreatitis may resemble both in colour and size those of Sprue. It is now fully recognised that the bile elements in Sprue stools are either by reason of liver atrophy much diminished in amount or that in the presence of some unknown factor such as the absence of pancreatic ferments, the pigments have undergone some chemical change resulting in a colourless compound. It is partly due to diminished secretion or altered bile (chemically), partly to abnormal proportion of crystalline fats, that the pale colour of the stools can be ascribed. There is some justification in concluding that hydrobilirubin is present in Sprue faeces, but the greater part is reduced to the colourless form called Leucourobilin and that the oxidation of this substance readily takes place in the faeces on exposure to the air outside the body. Size and weight of the stools may vary according to the diet. The loss of the body weight in Sprue and the large amount of the excreta passed, are due to some deficiency in the power of assimilation and any increase in patient's body can be attributed directly to an improvement in the process of digestion and absorption. Normally 87 % of the solid matter ingested in food is absorbed but this absorption is reduced to 40 to 45 % in cases of Sprue.

*Chemical composition*:—The process of fat digestion and absorption is in some way markedly affected in Sprue, since in a normal person on a milk diet, the fat absorption is found to be over 95% of the total amount ingested, whereas in Sprue it is markedly diminished and the figures may vary according to the severity of the case. The fat absorption in Sprue cases is 5 % according to Harley and about 70% to 90% according to Bahr and van der Scheer. In a normal man on an average and well balanced diet, the amount of fat passed in faeces is about 3.75 grms. per day, and in Sprue it is between 7 to 30 grms per diem, using the Soxhlet apparatus for estimation of fat in dried fæces.

*Carbohydrates*:—Strasburger's simple apparatus gives a rough estimation. In a Sprue case almost double the quantity of carbohydrates may be passed.

*Reaction of Sprue stools*:—The nature of the diet has an influence on the reaction of the normal stools, and according to Strasburger, they are alkaline in milk and meat diet, and neutral on mixed diet. But Sprue stools were invariably acid to litmus paper. However the acid stools may be found in chronic diarrhoeas, amaebic dysentery etc. The acidity of Sprue stools is not due to free HCl., but apparently to the presence of Lactic and Butyric acids.

The odour of the Sprue stools though not definite is often peculiarly sour.

*Ferments*.—Pepsin is seldom found in normal stools, but is often found in diarrhoeas. Bahr in his series found Diastase in stools and only occasionally a saccharose inverting ferment, presumably invertin. Rademaker's investigations also indicate a diminution of the pancreatic ferments and sometimes their entire absence.

The three ferments Trypsin, Lipase and Diastase are often absent as estimated by the modification of Wohlgemuth's method for diastase, Fuld and Cassein method for the trypsin and the 1%. Monobutyrin for Lipase. Brown mentions in the American Journal of Medical Research, that whether in stools or the duodenal contents none of the pancreatic ferments were found or in minimal amounts.

*Urine*:—This is generally diminished in chronic diarrhoeas. The specific gravity and reaction are generally normal. Even when the diet ingested contained physiological amount of proteids, the urea excretion was found to be lower than normal,



and varied slightly in different cases from 20·5 to 25·5 grms daily average. However, I have found here from the large number of urines examined irrespective of any particular disease, that the urea percentage is lower than that is given as normal in standard text-books. The urea in Sprue is of exogenous and not endogenous origin derived from any excess of tissue metabolism. Inorganic Sulphates and Uric acid are generally found in normal amounts. Indican is not invariably present, though Rademaker thinks Indicanuria to be a diagnostic point. Urobilin is sometimes present in the urine of the Sprue case and appears to be intimately dependent on the degree of blood destruction in any particular case. Albumen in urine may be found occasionally, but no evidence of kidney disease could be found. In uncomplicated cases I have never found any sugar, Bile, Acetone and Di-acetic acid in urine.

Cammidge and Begg lay stress upon the presence of Cammidge's test in Sprue urines, as 60% of their cases gave a positive pancreatic reaction, indicating some affection of the pancreas. On the other hand, Bahr records negative results in his Ceylon cases.

*Saliva in Sprue*:—The reaction of inflamed toungue in all cases of Sprue was acid. Van der Scheer however found the reaction to be alkaline to litmus in mild cases and acid in more advanced cases. Van Hæften and others have found the absence of Potassium Sulpho Cyanide reaction in Sprue saliva, whereas Mense and Bahr got contrary results.

*Gastric juice*:—In my series I found the free HCl diminished in about 60% of cases, within normal limits of the physiological variations in about 30% of cases, and in 10% of cases it was fairly increased. Total acidity is often increased. In less than 10% of cases fermentative acids were seen. Blood was never found.

Van der Scheer found in majority of cases increase of free HCl, in others a normal amount and in a few cases it was entirely absent.

*Blood picture in Sprue*:—In my series the red blood count has varied from 2 to 4 millions and the hæmoglobin percentage varied from 20 to 70% and the total white cell count varied from 3000 to 11000. In differential leucocytic count nothing particular was noticed. Poikilocytosis and Anisocytosis with polychromatophylia were seen in some severe cases, sometimes with nucleated red cells also. The blood was generally hydræmic,

In a few cases the serum was tested by Sach George's method for Wassermann reaction which was negative in all those cases.

According to Thin, Richartz, Van der Scheer and Low a grave degree of anaemia is found only in advanced cases of Sprue; there is no marked change in the early stages of the disease, but as it progresses the number, size and shape of red blood corpuscles is altered and even a few nucleated R.B.Cs. may be seen. The lowest blood counts so far recorded in Sprue are 960,000, by Richartz with 20% haemoglobin and by Low 1,200,000. R.B.Cs. and 30%. haemoglobin. In a few cases, the blood picture may resemble that of pernicious anaemia except perhaps for the absence of Megaloblasts.

*Morbid Anatomy* :—All pathologists are aware of the doubts and difficulties which, even in well-equipped laboratories, beset the examination of the alimentary canal and which in the tropics are emphasized and exaggerated by the rapidity and extent of the post-mortem change and disintegration. More especially is this true of the wasting and atrophic diseases and of the investigation of lesion associated with them. It is often a matter of much difficulty to decide whether some particular variation seen at the autopsy of a case of Sprue is morbid or not, whether an alteration in colour and thickness, an apparent loss on epithelium, a deposit etc. is process of disease or decomposition; whether attenuation of the intestinal wall is the result of atrophy or their being naturally thin. So deceptive are the appearances presented by the developmental depressions or old cicatrices, especially when they are stained by the intestinal secretions, that sometimes it is almost impossible to say whether or not there is ulceration and in many cases loss of continuity can be verified only by the microscope. The conflicting conclusions which have been formed both as to the morbid appearances and the nature of Sprue and its relation on one hand to catarrhal enteritis and on the other to chronic dysentery, are to a large extent explained by these facts. Generally speaking, in cases of Sprue the morbid changes in the alimentary canal are those distinctive of a chronic progressive subacute inflammation and followed by degenerative and destructive changes in the tissues which are chiefly affected. During the earlier stages of the disorder, limited to the mouth and pharynx, the inflammation invades in turn the pharynx, stomach and intestine and its progress is marked by characteristic lesions in all of them. Though varying somewhat in the



different sections of the alimentary canal, the lesions possess many features in common. They are always at first inflammatory, they invariably appear to originate in reaction to local irritation, they are further marked out by much round celled infiltration and superficial necrobiosis and all of them tend to terminate in the atrophic fibrosis of the invaded tissues.

Van den Burg considered the lesion to be gastric with secondary atrophy of the intestinal walls and of the liver. Manson considered that the disease especially affected the small intestines which were attenuated to such a great extent as to be diaphanous, the muscular coats to be atrophied and the submucosa infiltrated with round cells. Le Dantec and Schenbe also state that the gut wall is thinned and the glandular elements atrophied. Spencer and Williams and Bassett-Smith, on the other hand, aver that the main and principal lesion is a fibrosis of the pancreas. This view receives some degree of support from the semblance of Sprue to certain cases of chronic pancreatitis and by the fact that in Cammidge's hand the urine of a large proportion of cases gave the positive pancreatic reaction. Justi and Faber think that the destruction of the villi and the loss of the surface epithelium seen at autopsy as a post-mortem phenomena are especially liable to occur under tropical conditions. The thinning of the small bowel was found together with superficial ulceration and thickening of the large intestine. All the organs are wasted to the same degree in proportion.

*Macroscopic appearances* :—External appearance of starvation with absence of subcutaneous and body fat. Muscles are dark brown, heart dark brown and atrophied, with all the organs wasted, most of them weighing less than half of the normal. This is especially the case with liver which may weigh as less as 25 ozs. and spleen only 1½ oz. The liver was yellow friable and fatty, the gall bladder being full of normal looking bile. There was complete absence of fat in the omentum and appendices Epiploica, ileum transparent and distended with no intestinal ulceration, the whole of the intestinal canal being sometimes covered with a ropy mucus.

*Microscopic* :—The bone marrow is dark in colour and exhibits no peculiar features. There is desquamation of the stratified surface epithelium of the tongue and œsophagus, several petechial spots in the stomach and œsophagus, chronic inflammatory changes from duodenum to rectum. In the small

intestine, the villi are quadrangular in shape and shrunken, the columnar epithelium is for the most part preserved but the cells stain badly and the nuclei can be distinguished only with difficulty. The capillaries are congested and the interstitial tissue is packed with small round cells and large cells, leucocytes and plasma cells; the vessels of the submucosa are greatly dilated, there is general fibosis and the goblet cells at the fundus of the Lieberkuhn's crypts are distended, with leucocytes invading the crypt and lying between the secreting cells. The muscular coat may be affected by the same inflammatory condition.

Parenchyma cells of the liver undergo fatty degeneration at the periphery of the lobules and contain numerous granules of hemosideri and a few granules of the bile pigment.

Spleen shows hyaline degeneration. In the trabecular fibrous tissue, there are to be seen large and dilated venules, the swollen endothelial cells of which are packed with round gram-positive bodies evidently of the hyaline nature which distend the cell to a bursting point. The nuclei of the cells affected are either absent or degenerated. With giemsa, these hyaline spheres take on pink or purple colour, but unlike Russell bodies. they are not acid fast to fuchsin though strongly eosinophilic. These bodies are commonly seen.

Russell bodies are comparatively large hyaline spheres varying in size and occuring in clumps or chains in small size or large and solicitary. They are markedly gram-positive and in contradistiction to the bodies in the splenic capillary endotheliun are feebly acid fast.

Bodies identical to the Rusell bodies are commonly found in Sprue tissues, especially in the alimentary canal. They are also found in the tongue, mucosa of the esophagus, stomach, duodenum, ileum cæcum, sigmoid and rectum, in the heart, pancreas, suprarenals, bone marrow, mesenteric lymphatic glands and splenic Pulp cells. However these bodies are also found in the Ankylostomiasis in duodenum etc., in amæbic abscess of the liver, in Lympho-Sarcomatous gland, in a tubercular gland and intestine, all of which are diseases of the chronic inflammatory nature. They are not found in the intestines or other organs in pernicious anæmia and in acute conditions of the intestinal canal such as bacillary dysentery.

Pancreas shows a fine intra-alveolar fibrosis,



Heart, small and soft, shows a hyaline change.

Lungs, brain and nervous tissues show no changes peculiar to Sprue.

From observations at laparotomies on Sprue cases, Davenport Jones suggests from facts two possibilities that (1) absorption takes place from the mucous membrane of the small intestine, and (2) there is a delay in the passage of chyle to the general system. The point arises where the delay occurs and I suggest the lymphatic glands of mesentery as most probable. Continued passage of toxin from intestine may inflame and finally sclerose the lymph glands of mesentery, hindering and finally blocking out the lymph passage way.

The problem presented to the pathologist by the symptoms and morbid appearances of Sprue is a complex and difficult one. To some extent the explanation of the various phenomena rests on the assured basis of ascertained facts and in so far is satisfactory and partly it is conjectural and will remain probably so. Though the inquiry is to a great extent speculative, it does not necessarily follow that it will be profitless or without result in the elucidation of the nature of this tropical flux. There is moreover reason to believe that the definite and the idiopathic character of the several intestinal disorders of tropical origin and further study of their phenomena may throw light not only on Sprue but also on the obscure problem of intestinal intoxication in general.

*The principle points for determination are*:—(1) Is the infection of Sprue specific and pathogenic, or is the disease merely an expression of the degenerative changes originating in the alimentary canal and resulting from climatic and other factors. (2) That relation exists between Sprue and similar affections, such as dysentery, Hill diarrhœa and other intestinal disorders. (3) What indications are there as to the nature of the characteristic signs of the disorder—the atrophy of the liver, the different types of diarrhœa, the colourless dejecta, the anæmia and emaciation. (4) How are the toxic symptoms to be explained, in what way are they produced and by what way does the poison reach the circulation?

There are various theories proposed to explain the ætiology and pathology of Sprue, some of which need only a passing mention.

(1) *The Microbic theory*: —There is no micro organism yet found to satisfy the necessary requirements before being accepted as the proper claimant playing that important role.

(2) That Sprue is due to some alterations in the life conditions of bacteria normally present in the intestine, by which their toxins become more virulent and more easily absorbed. This theory has been naturally discredited long ago, for want of reasonably sound proofs.

(3) That it is an expression of deterioration due to *climatic influences*. It is inconceivable that there should be such a marked divergence in its prevalence in localities that are geographically continuous and of practically identical latitude and climate as for instance, Shanghai and the ports of Japan, when common in the former—but not known in the latter, common in Malaya but not in Central America.

(4) *Relation of dysentery to Sprue*:—French physicians of Cochin China held that it was merely a terminal or variation phase of dysentery. This observation is based upon finding amebæ in the stools of these Sprue cases. But I think that could have been only a secondary infection either preceding or following the attack of Sprue but quite independent of it. One very important and suggestive point against this theory is that there are no liver abscesses in Sprue. There are a few advanced and chronic amæbic dysentery cases which simulate Sprue, and which under proper antidysenteric line of treatment improve.

(5) That sprue is a *moniliasis* and there are some who still adhere to this view. Monilia is a large, round, bright and clear cut yeast like organism from 4 to 7 micra in diameter, globular rather than oval in shape, with at most a few granules, usually a vacuole and a nucleus in its interior. Litmus milk is not rendered acid by it. It does not liquefy gelatin and in the gelatin medium produces a fine hair-like extension into the non-liquid medium. Glucose, levulose and maltose are always typically fermented, Saccharose often and Galactose only occasionally. The three types A, B, C. of moniliasis have different actions on Sacchrose, type A. producing acid and gas, type B. producing acid only, while type C. not fermenting this carbohydrate at all.

These moniliasis can be seen in some cases which are not Sprue and irrespective of any other disease, but they are not always seen necessarily in the Sprue stools though they are generally found.



Hannibal and Boyd conclude after animal experiments and cultural growths that the data collected does not impress us with the opinion that Monilia psilosis is the cause of Sprue, by reason of the fact that 50% of our controls including thrush cases were also harbouring the same organisms that we recovered from cases presenting sympotatology of sprue. We do not think the organism bears any specific relationship to Sprue, though it may possess pathogenic properties. Since it is present in large proportion of controls, than we probably are justified in regarding as healthy carriers of a pathogenic organism, it appears that some other factors are of causative importance in the production of Sprue, besides its presence in the gastro-intestinal tract.

Castallani at a meeting of the Society of Tropical Medicine in 1923, also maintained that the infection of monilia and Streptococci was always secondary in Sprue.

(6) Of recent years is advanced the theory of *Parathyroid and the Calcium metabolism disturbance.* The supporters of this theory maintain that the amount of calcium in the blood does not depend solely or in the main upon the amount of calcium salts taken in food or as medicine, but on the efficiency of the calcium regulating mechanisms, that is the parathyroids, with their twofold function of detoxication and calcium metabolism.

In the blood plasma there is normally between 10 and 11 mg. of calcium per 100 c. cm. of which 6· 5. m. g. or thereabout is in the ionic state and the remainder combined. This latter factor is mainly concerned with the process of coagulation and during the clotting this 4 mg. of combined calcium becomes changed to free calcium, due to a breakdown of a calcium lipoid complex. There is relative deficiency of the ionic calcium.

Kochmann and Petzsch by adding fats to the diet of healthy dogs showed that a considerable loss of calcium occurred, while Rothberg and others noticed that in children to whom excess of fat was given the retention of calcium was reduced. This can be explained by the increased formation of calcium soaps in the intestines, unabsorbed fatty acids being eliminated in the stools as soaps of potassium, sodium and calcium leading thereby to the impoverishment of the body in respect of bases. Again Korenchevsky found that in animals on a diet deficient in calcium diarrhœa

was noticed, together with such symptoms as loss of weight and increased nervous excitability.

The results of the Parathyroid therapy are not uniformly successful and it appears after all that deficiency of Parathyroid is only a side issue, but cannot be the whole story or its central figure. These disturbances of the parathyroid are only the result and not the cause of the disease; at best it can be one of its accompaniments or complications and not the disease itself.

(7) Recently Sprue has come to be regarded as Pernicious Anaemia. It is suggested as only an unusual manifestation of a common disease. There are many points of differences and the suggestion appears a far-fetched one. In pernicious anaemia the Arneth count deviates to the right, while in most cases of Sprue the Arneth count deviates to the left. The Achlorhydria or at least a marked diminution of free HCl in the gastric content of the cases of pernicious anaemia, is not always found in Sprue. Hæmorrhages especially common in the retina and the spinal cord are quite common in pernicious anaemia, but have never been seen in Sprue. There are many other minor but important points of differences, and after all what is in a name, if it does not lead us nearer to the solution of our problem; because the ætiology of both is not yet known.

*Summary*:—From all my observations and data collected I believe that in the etiology of Sprue two factors come in and though both are essential, one of them is constant and the other variable. I have already referred in my last lecture to the dietetic habits and the various causes of chronic diarrhœas which prepare the soil and with the deficiency of vitamins added to it may set up the disease. Due to these causes there comes on an enormous diminution in the intestinal ferments and the effects of the absence or diminution of certain of these such as Erepsin Enterokinase, the inverting ferments, possibly the Duodenal Hormone which brings about the pancreatic secretion, and at the same time the disturbances in the chemistry of the Chyme, notably as regards the reaction and character of bile, must play an enormous role not only *per se*, but in the effect of these variations from normal upon the secretion of the pancreatic juice. Whether this absence represents organic changes in the glands, whether this is due to functional disturbance or to destruction or due to lack of some ctaivation of the ferments after they have reached the



duodenum, are questions which cannot be answered at this stage.

Let us also refer to the close relation between the degeneration of the epithelium of the intestines, which is caused by so many ætiological factors and the contraction of the liver. The former is in some degree at least precedent to the latter. One of the most important functions of the intestinal epithelium is the preparation, by means of the selfcontained ferments of the food for assimilation. If an animal is killed after a copious meal of the starchy food, sections of the villi show the epithelial cells to be loaded with fat. Upon the efficient performance of the functions, their own nutrition and that of the liver cells depend, and it is obvious that the impairment of the structural integrity of the epithelial cells, whether by food deficient in vitamines or other causes referred to in my last lecture,—must be followed by at least a partial arrest of supply of fat to the lacteals and of carbohydrate suitable for transformation into glycogen to the liver cells. Owing to the stoppage of absorption and transformation of carbohydrates and proteids systematic malnutrition is but a natural consequence. When farinaceous carbohydrates are excluded from food and an abundance of fat is provided in a condition that approximates the form in which it is normally secreted into lacteals, the damaged epithelial cells are relieved of their function and that is why cases of Sprue are put on milk, because milk serves this purpose and the corpuscular redness in blood is out of all proportion to the nourishment given and far in excess of the results in other cachetic conditions on milk.

On the analysis of dietary of most of these cases of Sprue we find (1) generally a marked deficiency of fresh proteins and of fat soluble vitamine, (2) sometimes a probable deficiency in certain mineral constituents, (3) bare sufficiency of vitamine B., a balance easily disturbed when the bean and the green vegetable and fruit constituents are considerably reduced, (4) generally enough of water—soluble substances, (5) large amounts of condiments, etc. Lack of vitamins when associated with a diet too rich in starch is seen to lead to disordered function of the whole endocrine system. This disturbance of function is due in part to nuclear starvation of the organs, which compose this system, in part to failure of their efficient sympathetic control and in part to their disturbances in correlations. Disordered endocrine function leads in its turn to the imperfect carbohydrate

assimilation, to marked disturbances of carbohydrate metabolism and amongst other things to the resultant atrophy of muscular tissue, which is such a conspicuous feature in these cases. And it appears from animal experiments of McCarrison that each endocrine organ requires from the food some specific substance for the normal synthesis of its secretion; and in their absence the changes in the organs influence the factors which determine their departure from health.

Food deficiency at least lays the foundation of a breakdown in the glandular apparatus of digestion, under the strain of one or more of the causes referred to in my last lecture, besides monotonous daily life, infections, bad hygiene, poverty, or repeated pregnancies or such other debilitating factors.

Typical Sprue is preceded by physiological glandular deficiency, marked reduction in the output of digestive glands particularly, pancreas, liver etc., and the resulting change in the reaction and composition of the intestinal contents, which bring about a high acidity.

This physiologic glandular deficiency counts a pathologic breakdown. And whatever might be the primary cause, digestion and absorption are very markedly affected by the pathologic conditions produced and the acids produced in such abundance must markedly disturb the digestion, notably the emulsification and digestion of fats, so that there may be often large percentage of fats in the stools. Changes in liver leading finally to atrophy lessen so markedly the detoxicating properties of this organ as to add a definite picture of intestinal toxæmia to the other symptoms of this disease. The inflamed and cirrhotic pancreas plays an important role of aggravating the breakdown and giving the main and characteristic appearance and size of Sprue stools.

Experiments were performed by McCarrison by feeding monkeys rabbits, pigeons and other laboratory animals on various kinds of diet deficient in vitamins. Though the purity of laboratory experimentation is seldom repeated in nature, their post-mortem findings and the other data are very interesting and instructive. The macroscopic and microscopic appearances of all the organs of the body at the autopsy present a picture almost identical to the one seen in cases of Sprue. The atrophic liver, the attenuated thin intestines, the small size of the pancreas with evidences of the inflammation and fibrosis, in the experimented animals is suggestive and



significant enough. He concludes from his experiments that: (1) Dietaries which are deficient in vitamins and in proteins and at the same time excessively rich in starch or in fat or in both, are potent sources of disease, especially of the gastro-intestinal system.

(2) Excess of fat in association with deficiency of vitamins B. and proteins, and super-abundance of starch is especially harmful to the organs.

Thus it can be argued that the parathyroid disturbance is only a result of deficiency diet, just the same way as in the case of liver and pancreas.

My first lecture must have convinced you of the great variety and number of the causes capable of producing either functional or pathologic disturbances in the digestive tract and when to such a condition is added the vitamin deficient diet, the trigger is pulled and the serious illness ensues. Vitamin deficiency is the last but necessary straw to break the camel.

*Conclusions*:—For the causation of sprue two factors are essential that is (1) Vitamin deficiency, and (2) Debilitated digestive system due to one of the many causes already discussed.

It is due to the want of this latter factor that Sprue is so common all the world over, though there are a few cases of vitamin deficiency everywhere. It is only seen where the two factors are present together. It is difficult to state at this stage, which of the two factors precedes and the other follows, but I think that the vitamin deficiency is the determining factor on an already tilled and soiled ground. It is common knowledge that however any line of treatment may differ in drugs it always includes an easily digestible diet rich in necessary vitamins. Various drugs are recommended because there are various causes responsible for the other factor; and that is why the problem has eluded the solution so long. Treat the first cause with diet and the second with specific drugs for the specific cause, whatever it might be.

# *VACCINE FOR THE TREATMENT OF PHTHISICAL PATIENTS WHO EXPECTORATE TUBERCLE BACILLI IN THE SPUTUM

BY

DR. S. MALLANNA, M. D., HYDERABAD-DECCAN.

The search for a specific remedy against Tuberculosis is as old as the history of the medicine itself and hence there exist host of drugs recommended for the purpose but there exists no drug which has a specific action against Tuberculosis except Tuberculin discovered and introduced by Koch in the year 1891. Koch advocated Tuberculin especially in afebrile and incipient cases and there is no doubt that in such cases there is no remedy that can surpass it as regards its efficiency. He also warned emphatically against its use in advanced and febrile cases. But unfortunately the drug was abused and it came into disfavour. Besides in advanced cases there is always a secondary and mixed infection, the significance of which was then not fully recognised and hence tuberculin was found useless in advanced cases. In actual paractice Tuberculosis of lung is diagnosed when it is far advanced and not amenable to Tuberculin treatment. Later the use of very small doses producing no reaction known as reactionless method of injection was advocated by Gœtsch in Germany in the year 1901. Wright in England in the year 1903 introduced the use of minute doses of Tuberculin after estimating the opsonic index of blood as a guide to treatment. But later the estimation of opsonic index was given up as it was found unessential and took much time in its technique. This method is largely used in localised tuberculosis such as lupus, tubercular ulcers of the skin, tubercular adenitis of the neck, and tuberculosis of bone, joint and urogenital system with marked success. But in case of Pulmonary Tuberculosis, especially in advanced cases, this treatment is useless and there is no treatment known which is satisfactory. During the last few years I have been working at the preparation of a vaccine for the treatment of such cases and I have secured a vaccine which seems to me to possess a remarkable influence in reducing the temperature and the number of germs in the sputum of patients treated with it.

The method of preparing the vaccine is as follows :—

Sputum of the particular patient is collected in a sterile wide mouth glass-stoppered bottle and then an equal volume of

* Specially contributed to the "Antiseptic".



carbolic acid solution (5 p. c.) with distilled water is added. The whole is well shaken and heated in a water bath at 70° C, for an hour on three consecutive days. It is then treated with an equal volume of chloroform and ether for an hour while shaking the bottle well all the time. The supernatent fluid after removing chloroform and ether is taken and sterile vaccine bulbs of 1 c.c. capacity filled with it and sealed. These bulbs are heated in water bath at 70° c. for an hour on three consecutive days.

The emulsion thus treated and purified is a clear opalescent fluid and is free from living germs. When injected into a healthy rabbit it produces no local reaction or rise of temperature and it is harmless.

I have named the vaccine Phthisin in order to distinguish it from Tuberculin and it differs from Tuberculin in four following points:—

1. It is an auto-vaccine of Tubercle Bacilli derived from the patient.

2. It also includes auto-vaccine of other organisms of mixed infection which may be present in the patient.

3. Tubercle Bacilli are here defatted and hence they are easily attacked by phagocytes and body fluids of the patient.

4. As the vaccine contains inflammatory exudation, there is a probability of the existence of anti-tuberculin in it.

This vaccine when injected subcutaneously into a phthisical patient produces no reaction or rise of temperature but, on the other hand, it reduces the existing temperature. This decline of temperature lasts for three or four days and patients feel relieved for the time being. Injections beginning with ½ c.c. and gradually rising to 1 c c. are given once a week.

On repeating the injections the germs in the sputum are not only decreased in number but become thinner and shorter and ultimately become highly granular until they disappear altogether from the sputum. Physical signs in the chest gradually clear up if the case is not far advanced. Meanwhile the patient's strength has to be supported by means of nutritious food in the form of eggs, meat and milk and a tonic (such as Scott's Emulsion of codliver oil with Hypophosphites). I have found administration of fresh normal goat serum 10 c.c.

(obtained from Bengal Immunity Company Calcutta) intramuscularly now and then helps to keep up the strength. As fresh air is very important, patient must be kept in the verandah day and night and as exertion of any kind causes rise of temperature, absolute rest should also be enforced. In my private practice I am in the habit of prescribing Musculosin (Byla) and Kinazyme (Carnrick) also.

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## MEASLES

BY

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Measles is an acute highly contagious fever. The causal microbes are unknown.

Infants and children unprotected by previous attack when in contact (direct, or indirect) with a case of measles are sure to be attacked. Adults are also liable to be infected, but the disease has a special choice of attacking children.

Whether one attack gives immunity is not yet settled. According to the opinion of Osler "Recurrence is rare. Many cases of supposed second and third attacks represent mistakes in diagnosis". Whereas Burney Yeo writes in his Manual of Medical Treatment, "of all specific eruptive fevers it is the one most prone to recurrence; and least protective against subsequent attacks."

A case of measles is a danger to the locality. The difficulty of taxing preventive measures, is the infectiveness of the disease, in its pre-eruptive stage when the person is not even suspected. A gentleman who had just returned from Calcutta was attacked with fever. He was under my treatment. As this is a malarious place and he was attacked with malarial fever several times previous to this, he was treated as a malarial patient. Within a few days of his being under my treatment eruptions came out on his forehead. As there was not a single case of measles in this locality for more than a year I could not come to a definite diagnosis as to the case being one of measles. However I gave some juice of Karla together with some juice of fresh turmeric, and one glassful of hot water to

* Specially contributed to "The Antiseptic."



drink. I prescribed diaphoretic mixture, too, for the fever. Next morning numerous eruptions came out in the fore-head, face, chest, abdomen and other parts—the eruptions were not so numerous in the legs as in the other parts of the body. Concomitant signs and symptoms together with the eruptions helped me in diagnosing the case to be measles.

I told the guardians of the house not to allow children to come in contact with the case. However, in spite of all these, children began to be attacked one by one. Most probably the gentleman returning from Calcutta got infected at Calcutta or in the train on his way.

*Symptoms*:—Sneezing, running in the nose, watering of the eyes, injected conjunctiva, swelling of the lids, face and other parts of the body—turgescence of the face being more marked. Fever - at first mild, the temperature gradually rises to 102°—103°. Sudden rise of temperature may occur in some cases. Hyperpyrexia is rare in measles. Eruptions come out usually on the fourth day of the disease, just like flea bites. Protuberant character of the eruptions can be felt by passing fingers over the eruptions and not by simple observation. Bowel constipated—in two of my cases there were a few liquid motions. In one of my cases there was epistaxis in the pre-eruptive stage. Bronchitis is common. As the upper part of the respiratory tract is first attacked, there is dry distressing cough preventing sleep, but usually no expectoration. Some cases complain of difficulty in swallowing. Koplik spot was noticed in some cases. In the series of cases under my treatment redness of conjunctiva was marked; lids became glued together at night in some cases.

*Complications*:—Coryza, Epistaxis, Bronchitis, Broncho-pneumonia, Stomatitis, Dysentery, ottis media in my cases.

*Diagnosis*:—Easy during an epidemic. The practitioners experience difficulty in diagnosing isolated cases. However, sneezing, running of the nose, redness of the conjunctiva, fever and eruptions coming on the fourth day of the disease at first on the forehead and face, then gradually spreading to the chest, abdomen and finally in other parts of the body - all these constitute the diagnostic feature in great many cases

*Prognosis*:—Favourable in vast majority of cases if care is taken from the beginning; otherwise complications like Bronchitis and Broncho-pneumonia cause some mortality. Neglected cases only are seriously complicated. Numbers of

eruptions do not affect the prognosis. Numerous eruptions in clusters all over the body do not necessarily indicate the severity of the case; rather it indicates that the case is almost on the safe side. When "the measles sink in suddenly after they have begun to come out and when the patient is seized with anxiety and a swooning comes on, it is a sign of speedy death" (Rhazer).

*Treatment*: -

(*a*) *Prophylactic*—Infectivity of the case in its pre-eruptic stage renders prophylaxis difficult. However, a measles case should be isolated in a well-ventilated room. The patient should not be allowed to mix with others. When an epidemic starts all institutions should be closed, otherwise already infected persons in the pre-eruptive stage may spread infection in institutions by direct contact. Proper disposal of sputum, secretion of nose and mouth and other excreta are needed.

(*b*) *Curative*:—(i) For the prevalence of quack Vaids in this locality and the prevailing idea that cold drink, cold diet and cold local applications are the only treatment of measles and doctors are not capable of treating measles cases, prevent the rustics from consulting doctors in treating measles cases. Great majority of the illiterate rustics are treated by quacks who give ootar (water over which some confidential Mantras are uttered) to drink, bathe the patient in cold water and give all diet cold. When measles becomes complicated with Broncho-pneumonia then only quack Vaids leave the case and the medical men are called in to treat the case. Only the literate Bhadraloks consult doctors from the beginning.

(ii) The mode of treatment, followed in a series of cases, was found to be efficacious in every one of them.

Complete rest in bed in a well-ventilated room. Boiled water to drink. Hot water given to drink at least twice a day —this favours the eruptions to come out, relieves the internal structures from the pangs of the disease and minimises complications to a great extent. Cold fresh water of village water supply should not be allowed for drinking purposes. Un-boiled cold water seems to favour complications as Bronchitis, Broncho-pneumonia etc.

*Diet*.—Food should be liquid and warm. Milk mixed with food prepared from some of the cereals is good. Simple milk may disturb digestion in some cases. Sago and barley may be allowed. Of course the quantity of milk must gradually be increased in order



to give proper nutrition to the system damaged by the disease. As the eruptions fade a gradual return to normal diet may be permitted. Abundance of boiled water should be administered to flush the system in order to get rid of toxic substances circulating in the blood.

Bowel should be freely opened by castor oil emulsion. Mag. sulp. should be avoided as it tends to cause diarrhoea and dysentery which are very troublesome complicatious. In simple and un-complicated cases diaphoretic mixture should be administered. It reduces temperature and at the same time helps the eruptions to come out.

| | | |
|---|---|---|
| *Liq.* | Ammon citratis B. P. | oz. ii |
| | Sodi citras | gr. x |
| | Benzoas | gr x |
| | Vin. Ipecac | m v. |
| | Spt Ether nitric | m xv. |
| | Aqua | add—ozi. |

Every 4 hrs. (Adult doses).

When the eruptions disappear and the temperature is normal, or a little above normal quinine mixture should be administered in effervescing form.

| | |
|---|---|
| Quinine sulp | gr. v |
| Acid citric | gr. xv |
| Tr. Strophanthus | m. iv |
| Liq. Strychnine | m. v |
| Aqua. | add oz. ss (Adult dose). |

mft. mix, one dose. send 6 such doses: to be taken with the following three times a day. In cases of children Liq. Strychnine should be omitted.

| | | |
|---|---|---|
| Ammon Carb | gr. v | |
| ,, Chloride | gr. v | |
| Soda Bicarb | gr. x | |
| Syr. Aurente | oz. ss | |
| Aqua | add oz. ss | (Adult dose) |

mft mix. one dose: send 6 such doses: to be taken with the above while effervescing. In malarious place, quinine serves two fold purposes. On the one hand it protects the patients debilitated by measles from the attack of Malaria. It should be remembered that there is more or less malarial poison in the

system of persons residing in malarious places. On the other hand, it is a good tonic.

When cough is dry and distressing the following mixture is helpful.

| | |
|---|---|
| Sodi Bicarb | gr. x |
| ,, Benzyas | gr. x |
| Ammon chloride | gr. v |
| Vin. Ipecac | m. x |
| Spt. chloroform | m. x |
| Syr. Tolu | oz. i |
| Aqua add | oz. i |

Every 4 hrs. (Adult doses).

When cough is loose and expectoration begins the following mixture is good :

| | |
|---|---|
| Pot. Iodide | gr. iii |
| Ammon Carb | gr. v |
| Tr. Scilla | m. v |
| ,, Senega | m. x |
| Spt. Chloroform | m. x |
| Aqua to | oz. i |

T. D. (Adult doses.)

In cases complicated with diarrhœa or flatulence, Ammon carb, scilla and senega are contra-indicated.

In cases complicated with conjunctivitis, eyes should be carefully washed with Boric lotion—preferably warm lotion. Severe grade of conjunctivitis may require instillation of Argenti Nitras lotion (gr. v to oz. 1). Eyes, mouth and nostrils should be kept scrupulously clean.

In one of my cases there was severe ear-ache in which I used the following ear-drop with excellent and immediate result.

| | |
|---|---|
| Tr. opii | dr. ii |
| Acid Carbolic | dr. ss. |
| Glycerine | oz. i. |

Mft. Ear-drop to instil into the affected ears.

Inflammation of cervical glands, which is not uncommon, requires hot fomentation and painting the parts with Tr. Iodine.

In short, complications should be treated as independent diseases. During convalescence patients should be protected

from chill, for chronic bronchitis, in extreme cases, may turn into tuberculosis of lungs.

In conclusion I beg to state that I shall remain grateful to my brethren of the medical profession if they give better suggestions regarding the diagnosis and treatment of the disease through this journal.

## CASES AND COMMENTS.

### A FEW NOTES ON THE INTRAVENOUS USE OF TR. IODINE

BY

A. K. GHOSE, AMBARI.

The value of Tr. Iodine is daily gaining its importance and popularity in medical practice. It has been used in various diseases and often with encouraging results. It has been a practice with me for the last 2 years to use this cheap medicine in all septic conditions and various other diseases noted below and I have never been disappointed with the results.

I submit the following few cases for the information of the readers of this Journal.

*Case No. 1*—Spreading cellulitis, leg. Dhanman, a cooly, aged 65. He developed this condition owing to some injury received in the garden. He refused to undergo any operation. He was given 8 injections of Tr. Iodine and boric fomentation was applied. He was fully cured without undergoing any operation.

*Case No. 2.*—Asthma. Jiban, sweeper aged 46. He was suffering from this disease for a very long time. He took various medicines without any effect. He received 8 injections and was much improved. He has not had any attack for the last one year.

*Case No. 3.*—Suspected Phthisis. Budhiman, cooly, aged 35. He had occasional hæmoptysis, low evening temperature, night sweats, cough and general emaciation practically all the clinical signs and symptoms of Pulmonary Tuberculosis. At first I gave up all hopes of the patient reviving as it was not possible to put him under any scientific line of treatment in a tea-garden. In one of the issues of the Indian Medical Gazette (1926) Dr V. J. Lopex advocated the use of Intravenous Iodine in Pulmonary Tuberculosis and he recorded that out of 33 cases 26 were cured.

This prompted me to try this medicine upon this patient. He was given 8 injections and there was marked improvement. He gained in weight and has had no hæmoptysis for the last one year. He is at present keeping on good health and is working in the garden.

*Case No. 4.*—Suspected Phthisis. Mohan Prasad, aged 31. This case exactly resembled case No. 3. He was much improved after 8 injections and is at present working in the garden.

*Case No. 5.*—Scabies. This patient had been suffering from this trouble for a very long time. I tried all sorts of ointments and lotions at my disposal but to no effect. He was fully cured after 7 injections.

*Case 6.*—Chronic ulcer—leg. This patient, a female, was suffering from this chronic ulcer for nearly 6 months. It proved resistant to all common remedies. She was cured after 7 injections.

In all the above cases the solution for injection was prepared according to the following formulæ:—

| | |
|---|---|
| Iodum | gr. x |
| Pot. Iodide | gr. x |
| Aqua dist | oz. i |

The dose being ½ to 2 c.c., given twice in a week.

The solution at the time of injection should be diluted 3 or 4 times of its volume with distilled water to facilitate injection and prevent reaction.

*Conclusion*:—Cases Nos. 3 and 4 were clinically diagnosed as phthisis as there was no microscope to confirm my clinical observations. At present I have got another phthisis patient under my treatment. The case is a very advanced one. His both sides are affected and there is also cavity formation. I have given him 6 injections but without any apparent improvement. My idea is that the drug is effective only in the early stage of the disease.

It would be very interesting to learn further clinical observations on this very cheap and sometimes very effective drug from the profession.

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## "A LIMB OR A LIFE?"

### A COMPARATIVE STUDY OF NINE CASES.

BY

B. NARAYANA RAO, B.SC., M.B., DIST. HOSPITAL, HASSAN.

An eminent Surgeon under whom I studied once exclaimed with the patient on the table for amputation: "These are our limitations. We cannot save a limb! It is a limb or a life!' After months of conservative treatment to save the offending member of the body, he, at last, successfully though reluctantly, severed the limb and saved the life.

There were nine interesting cases under treatment in this hospital in the last three months which constantly brought to my mind my teacher's remarks. Apart from the operative technique and details—all the operations were conducted by my chief who is the Officer in charge of the hospital—these cases brought to my mind the various aspects common to some of them. I give the bare outline of the cases before entering into a discussion on them.

(1) Kabri, M., Boy 15. Gangrene of the whole right upper extremity to the middle of the arm, resulting from a snake bite—fifteen days before he was seen, at the elbow. The patient was in a low illfed condition. He had bronchitis and fever to add.

Warm eusol bath for four hours; an amputation was performed at the margin of the healthy area. The patient was too low to finish up at one sitting; and the operated area too unhealthy to be sutured up immediately. By daily irrigation, dressing and an occasional intravenous Iodine the wound became healthy. The stump was remodelled and stiched out at a second sitting and the patient was discharged cured.

(2) Krishna, H. B. 16. Pyo-arthritis of the right knee resulting from a deep incised injury on the knee-cap.

The injury was two months old. The knee has suppurated the extremity was swollen with sinuses all round the knee disorganised and discharging pus. The patient was anæmic and illfed.

Few incisions were made immediately on admission. The pocket of pus was extending up to the middle of the thigh and down to the belly of the calf. A midthigh amputation was done next morning, under ether chloroform anæsthesia; subcutaneous ether had to be given. The raw stump was left held

up with a partially tightened tourniquet. Once the source of toxæmia was gone the patient rallied round. He was fed on eggs and cod liver oil till the stump became clean. A suture operation was undertaken later and the boy was cured.

(3) Kudpa H M. 45. Pyo-arthritis of the left knee as a result of an old neglected injury. Multiple sinuses opened on the calf and lower part of the thigh.

Exploratory incisions were made above and below the knee, rubber tubes were inserted and dressed. The patient was too deaf to deal with, and there were no friends to take consent for an amputation. While shilly-shallying to shoulder the responsibility the patient got low and died on the fourth day. My chief, who came later, pointed out to me that an amputation might have saved his life.

(4) Hanumantha Gowda H. M. 50. Cellulitis of the right foot with necrosis of the 1st metatarsal and big toe, resulting from the fall of a timber eight days back. The whole foot and ankle were swollen, œdematous and discharging foul pus from the wound. While cleaning in an eusol bath the big toe and the metatarsal bone were removed ; all the slough cleared and the wound was dressed with a Sat. Sol. of Mag. Sulph. Aseptic dressing and conservative treatment brought down all the œdema, the discharging sinuses closed and the patient was sent home cured.

(5) Nanja H.B. 12. Crushing injury of the wrist and palm (right) by a sugarcane mill three days back. The wrist and palm were swollen and the fingers were in shreds and tags.

Amputation in two stages just above the wrist. Patient cured.

(6) Veeramma H. M. 53. Diabetic Gangrene right foot. When it appeared as a sloughing perforating ulcer on the sole of the big toe he came. When he was warned of the severity of the disease and Insulin ordered, he never turned up for two months. When next seen the whole toe and the sole of the foot was gangrenous and the ankle was swollen. He was kept on under conservative and Insulin treatment, as he did not consent for an amputation. The gangrene spread in spite of baths, bandages and Insulin. The toxæmia increased and the patient became too ill even to suggest an operation. Was removed home and died.

(7) Setty H. M. 25, Mauled by a cheetah. Brought to the hospital two hours after. There was a compound fracture of the



3rd metatarsal of the right hand and a deep tooth mark. Cellulitis and toxæmia developed. Violently refused amputation, went home and died. (An immediate amputation would have saved his life in all probability as there were no other injuries. He was a healthy farmer.)

(8) Patturangachary—Hindu Male 45.—Gangrene left leg—due to neglect. Amputation at a single sitting, cured.

(9) Gundamma.—Hindu Female 45. Ulcers and sinuses wrist (right). Neglect for nine months. A low forearm amputation. Cured.

Points raised by these cases are.

(1) To recognise our limitations and to decide at the right and opportune time on sacrificing a limb for a life.

(2) To push on the conservative line of treatment, as long as there is no danger to life, or until there are no complications threatening life or rendering an operation risky.

To save as much of the limb as possible with a future view to utility and artificial limb.

(3) Operation in stages. Immediate removal of the septic focus even in desperate and advanced cases—by a swift operation. To get the stump healthy and suture up later. The long time taken by the patient in the hospital and his nervousness for a second operation are its drawbacks.

(4) Consent of the patient or his relatives.

(5) It is really a regret that some of our ignorant people protest and run away in spite of all persuasion and kindness. The Surgeon is almost sure that the life could be saved by sacrificing a limb. The patient says that he would rather die than live as a cripple. Is there no way of forcing for the right and make common sense prevail?

(6) Surgeon's dilemma in certain cases as in a diabetic gangrene. When the condition of the patient is not very hopeful or the result of the operation uncertain what is he to do? When the patient is yet in the first stages, the patient and his friends do not realise the seriousness of the case and refuse interference. When advance is made and havoc done, and when the Surgeon himself feels doubtful about the case, a consent for amputation is given.

(7) The regrettable cause for such a drastic operative measure in most of our cases seems to be the *neglect* by the patient and his friends till the very extreme and coming to the

surgeon in a precarious condition. When shall our people realise all this, when shall they get enough culture and common-sense to get the best of medical help necessary in cases of injuries and accidents, at least, and when, alas, will the ignorant farmer learn to properly utilise the hospitals, maintained by him and maintained for him? When shall we all so well conduct ourselves as to remove his dread for us and invitingly receive him to render all possible aid!

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## A CASE OF NERVOUS TREMORS OF THE TONGUE

BY

RASIK BEHARI LAL, L.M.P., M.O. GHATAMPORE,

DT. CAWNPORE.

*Patient*:—A well developed, muscular, strong man about 35 years of age, working as a village patwari.

*Previous history*: —Patient had had chorea 6 years back which he states was not cured for one year by any treatment which he adopted, but was completely cured sometime after he left all treatment.

No history of rheumatism, gonorrhœa or syphilis.

He gave no history of any similar disease in any of his family members. He was married and had several children quite healthy.

*Present condition*:—Patient continued quite well for about four years after the cure of chorea when people began to notice that the man was getting a habit of frequently protruding his tongue. This act continued progressively. At present the patient is continually putting out his tongue at least fifty or sixty times in a minute. He says he cannot control the act. Saliva dribbles out of the mouth; tongue appears swollen, thick and enlarged and one is liable to mistake it for hyper glossitis on the first glance. The lips were also thick and somewhat blackened, eyes appear prominent. The whole look of the patient is very anxious.

The movements are lessened during the act of talking and eating. They stop during sleep, which is irregular and of short duration. Narcotics-opium and cannabis also effect the movements.

*Heart* is normal.

*Lungs*:—Well developed, respirations regular.



*Liver and spleen*:—Normal

*Nervous system*:—No apparent defect.

*Mental condition*: —Memory and mentality for work good, but there is a little timidity and patient cannot concentrate his brain on the work.

*Digestion*:—Digestion is good, but he can eat only very slowly.

*Treatment*:—Every kind of treatment was tried without any good result except the narcotics, which showed their full benefit, administered either orally or hypodermically.

Anti-syphilitic and anti-rheumatic treatments were of no use. With a suggestion that the condition was merely functional alternate injections of morphine and distilled water were made, but distilled water had had no consolation to the patient. On the other hand, morphia caused almost total cessation of symptoms for some time. The bromides and Choral Hydras had very little effect. The patient was under my treatment for a period of about two months. He was finally discharged as incurable. I had occasion to see him five months later in the same miserable and hopeless condition.

May I request the readers to let me know through your journal the correct diagnosis and any treatment which they think would cure the disease.?

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## SOME INTERESTING CASES

BY

U. VENKATA RAO, L.M P., "SUDARSANA", MADRAS.

(1) Mr. N. aged 14 years. Has been suffering from scrofula for the last three years. He has a number of enlarged and suppurated glands round the neck and right axilla. Four months ago developed a tumour round the umbilicus. Under X-ray it was found to be superficial. Two months later it burst and some caseous matter came out. Ulcer did not heal. A month back the boy found the ulcer hard and very painful. After pressing the abdomen round the ulcer, he found something, tendon-like, projecting from the centre of the ulcer, just below the naval. After five minutes a big round worm nearly 8 inches long came out alive. And he brought it to me in a bottle where it lived for about six hours. He had immediate relief after the round worm came out and has nothing to complain of. The ulcer is being dressed with boric ointment and continues to heal.

(2) Miss R. aged 15 years. A strong and healthy girl. A month ago a black small scorpion stung her in the right arm

at 6 a. m. She began to feel pains tingling and burning all over the body, especially the right arm; profusely perspired, developed hurried asthmatic breathing, excessive vomiting and was completely prostrated in a couple of hours. The skin was cold and benumbed. Injected camphor in ether. The patient continued in the same state with oppression in the chest and violent vomiting with a tinge of blood. After two hours injected 10 minims Adrenalin—chloride solution, no relief,no sleep in the night, no urine and no stools. Prescribed Sodii Bromide and Pot Citras and inhalation of Ammonia. The next morning she passed one motion and a large amount of urine after a glycerine enema. She felt better.

(3) Mr. K. aged 52 years. Complained of stomach-ache and colic. The abdomen was hard, distended and rigid. The previous day he had an enema of soap and warm water but the water remained for about two hours. He took a native pill. An hour after he had a violent vomiting and passed the water in stools in which there was a round worm. Suspecting worms I gave him santonin and six doses of magnesia mixture, one dose to be taken every hour till bowels move. After the fifth dose the patient began to purge and with it a large number of round worms passed. The patient had relief.

(4) Miss L. aged 18 years, healthy and well previously. She was alone in the house and at 7 p.m. took fright. She developed hysterical convulsions. The other members of the house returned in about 15 minutes and found her lying down with eyes fixed, hands and legs convulsive and a gurgling sound in the throat. She was in this state for two hours. The fits stopped after the use of smelling salts, she became conscious but could not speak. The whole night she did not sleep, nor talk, nor eat. The next morning she took coffee, ate food, but could not talk. She could express herself in signs and writing. She was able to laugh, understand and swallow but could not talk. This continued for about two weeks. One evening after taking coffee, she suddenly felt unable to swallow. She persisted in this and did not take anything for about 18 hours. Meanwhile I suggested electric treatment. On examination I found nothing in the throat, no dribbling of saliva, no cough and she was able to laugh. I suspected hysterical aphonia and asked her to be taken to the General Hospital. Just before ascending the car to the hospital she suggested thirst and took a tumbler of coffee quietly. In the hospital after massage and tickling the larynx by electric appliances and repeated suggesting she began to talk very slowly at first and then as usual.



(5) Miss, N—Baby, aged 2 years. Had an attack of measles in a very mild form two months back. Three weeks after the subsidence of measles the child began to get fever and developed a slight swelling in the right forearm. A week after this the child's neck became stiff and unable to turn or look up. The fever continued and the swelling in the arm increased. The child was advised to be taken to the General Hospital for X-ray. Under the X-ray the head of the right radius was double the normal size and the periostenum of the fourth cervical vertebra is thickened. The child is in the hospital under splint and injection treatment.

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## A CASE OF FRACTURED RIBS

BY

K. N. GHOSE M. B, GHATAL

Patit Jana, Hindu male, aged 35, cultivator by occupation, was brought to my in-door dispensary on 8-8-27 in the morning with a bandage of some dirty rags on the left side of the chest.

The man was apparently in some distress and on opening the bandage I saw the chest wall on the left side being bulged out in the region of the heart with each act of inspiration. I at once ordered him to be taken into the operation room for further examination.

The history was that the man had a fall from a tree the day before. The people who brought him also gave me to understand that he was a bit off his head.

His temperature on admission to the hospital was 100°2. Pulse 120, Respiration 35 per minute. There was a big patch of abrasion over the left side of the chest in front and the area which was bulging out with each act of inspiration measured about 3" square in the pericordial region. On examination it was found that the 4th, 5th and 6th ribs were fractured. The man was in great shock as evidenced by dry tongue, weak pulse, anxious look etc. He had pain all over the left chest and difficulty in deglutition. He could not sleep since the accident. Bowels not moved but passed urine twice since morning. There was surgical,empysema all over the chest spreading up to the neck on both sides more on the left.

*Subsequent treatment and progress*:—The abraded area was cleaned, covered with Acri-flavine gauze, strapped and bandaged. He was given an injection of morphine gr. $\frac{1}{4}$ and atrophine gr. 1/100 and an injection of camphor in oil.

Next day in the morning his temperature fell down to normal. Pulse was 100 per minute and respiration 20 per minute. An injection of camphor in oil was repeated on that date. As usual he was put on spoon diet on the first day, next day he was put on milk diet. In order to put him to sleep

mist Pot Bromide one ounce was given thrice daily. In the evening his temperature rose to 100. On the 3rd day morning his temperature again came down to normal but went up to 101° in the evening. On the 4th day morning his temperature came down to 97 and since then the course of the disease was afebrile, evening temperature never going beyond 98.

On 12th August, 1927 *i.e.* the 5th day his pulse was 72 per minute but irregular. This irregularity was not noticed before, neither on any other subsequent occasion. He slept well the night previous but as his bowels did not move he was given a dose of oil Recini 1 ounce. The camphor oil was repeated for the 3rd time. His milk quantity was increased.

On 14th August, 1927 *i.e.*, 7th day he was put on Mist. Ferriet Strychnine and milk and rice diet as he had no difficulty in deglutition.

15th August, 8th day. He was feeling better. There was pain present still but much less. Surgical emphysema disappeared from the right side but present on the left side. Last night he could not sleep and his bowels did not move. He was given a dose of Mist Alba ½ an ounce stat and mist Pot. Brom. oz. i at night.

17th August, 10th day. He had no pain anywhere else except in the seat of the fracture. Surgical emphysema much less on the left side. His bowels were regular. Having good sleep at night. He was feeling much better. He can sit up now without any difficulty. He was allowed half diet of rice, dal, curry etc.

18th August. 11th day. Emphysema almost disappeared. As he complained that he had not sufficient sleep the night previous he was given a dose of Mist. Pot. Bromide. 1 ounce.

20th August, 13th day—He had no complaint except pain at the seat of injury. He was allowed full diet.

14th September. His wounds completely healed up by this time. There was no pain at the seat of injury. There was no extra dullness in the area on percussion. No irregularity owing to callus formation on the ribs could be detected. The heart sounds were perfectly audible. The chest wall seemed to be quite strong.

As no one came to take him away from the hospital he was detained for a few days more and discharged on 18-9-27.

The only proof of his unsoundness of mind was that on the 3rd day of his admission, when he could sit up with difficulty, he once walked out of the hospital. Secondly he was of a brooding nature and used to talk somewhat incoherently to himself.

The points which seemed to me to be of interest is the cause of the difficulty in deglutition which subsequently disappeared; the escape of the heart muscle from any injury. The seat of injury in the chest wall seemed to be perfectly all right on percussion and auscultation revealing no irregularity in the line of the ribs. Absence of any lung complications.

# The Antiseptic

JULY, 1928.

## THE L. M. P. STUDENTS AND A REACTIONARY MINISTRY.

Mysterious are the ways of the Ministry of Public Health in Madras. The Ministry is responsible for the promulgation of a G. O., No. 1919 P. H. dated 4th October 1927, which is as preposterous in principle as it is retrograde in policy. The G. O. runs thus:—

"The following amendments will be made in the rules for the admission and training of pupils for the Diploma of L. M. P., issued with G. O. No. 555 P. H. dated 21st April 1922.

(1) The first sentence of Rule 33 (b) shall be revised as follows:

"Students shall be examined at the end of each year by the Board".

(2) The following sentence shall be added to the end of Rule 33 (c). The Board shall have full discretion to remand any candidate, even though he has obtained the required number of marks in the Board Examination, if after a scrutiny of the results of the class examination they consider such a course is necessary".

The motive behind the G. O. is obvious. It is evidently intended to smother the growing political consciousness among the younger generation and stifle their intelligence and make them subservient to the powers-that-be. We are told that, in pursuance of the G. O., four teachers in the Royapuram Medical School who are members of the Board of Examiners have been asked to scrutinize the class marks of all the L. M. P. students in the several Medical Schools in the Presidency and to recommend whom to

pass and whom to fail. If the school authorities should be the final arbiters of the destinies of the L. M. P. students which the G. O. unequivocally contemplates, the farce of a Public Examination may altogether be dispensed with and the school authorities themselves may be asked to declare such students as have earned their grace and love, irrespective of any consideration of merit or intelligence exhibited at a competitive public examination, as having passed and being eligible for a diploma. We are, however, gratified to note that the teacher-members of the Board in the Royapuram Medical School have condemned the G. O. in strong terms and have requested the Superintendent of the School to approach the Government with a view to the withdrawal of the G. O. on the ground of its being unfair both to the students and the Examiners. The result of this protest is unknown, but we can safely conjecture what it is by subsequent happenings. Far from this obnoxious G. O. being withdrawn, we learn it had actually been put into operation with relentless rigour, and a few deserving candidates who got through in the recent Public Examination had been plucked and remanded, in the words of the G. O., once more to the school prison or driven home in despair. The question naturally arises: Do the Government want the L. M. P's or do they not? If they want them then why all these harassing and annoying restrictions? If they do not want them better to do away with them as a class than to keep them in abject subjection both at school and in service outside. We have times without number appealed to the Government in these columns for the abolition of the L. M. P. on the score of their inferior attainments and inability to obtain a living in these days of unfair and unequal competition among medical men, but the Government have remained obdurate. We are credibly informed that a recent proposal by the Surgeon-General to abolish the L.M.P., which is highly commendable, has been turned down by the Ministry and if so, his action is indeed deplorable. We hope that better counsels will prevail and the Hon. Minister in charge of P.H. will reconsider his decision and see that the L.M.P. course is abolished altogether. Meanwhile, we would urge on him to rescind G. O. No. 1919 P.H. dated 4th October 1927, which is degrading to the public, the profession and the student population concerned.

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## ACUTE PRIMARY GLAUCOMA.

Glaucoma as we all know is not a disease in itself. It is a symptom complex whose characteristic feature is increase in the tension of the eyeball. We also know that when considered clinically glaucoma may be primary or secondary; primary when it is unassociated with any other disease in the affected eye, and secondary when this glaucoma arises as a complication of a pre-existing pathological condition. The attack is acute or chronic according to the presence or absence of congestion of the ocular blood vessels. It is also unnecessary to consider at any length the symptomatology of glaucoma. The hard and tender eye, the ædematous and congested bulbar conjunctiva, the steamy and perhaps insensitive cornea, the shallow autin or chamber, the dilated irregularly oval and irresponsive pupil, all go to form a picture which no one can mistake. To discuss the differential diagnosis and methods of treatment is perhaps beyond the scope of this article. What we are primarily concerned with is the etiology of primary glaucoma.

Before the causes of pathological rise of intra-ocular pressure are adequately understood, it is obviously essential that the factors which govern the maintenance and variations of this pressure under normal conditions should first be made clear. The tension of the eyeball depends upon the fluid content of the globe, and the theory generally accepted is that the intra-ocular fluids are derived from the capillaries of the ciliary processes, and that in a state of health a close relationship exists between intra-ocular pressure and general blood-pressure. Starting from their source the intra-ocular fluids pass forward through the circumlental space, the posterior chamber and the pupil to reach the angle of the anterior chamber from which they escape from the eye into canal of Schlemm, through the filtration spaces in the pectinate ligament. When this mechanism is in proper working order tension of the eyeball is practically at a constant level. Maitland Ramsay in an admirable address delivered at the James Mackenzie Institute for Clinic Research and published in the B. M. J. gives an excellent review of our present position with regard to the pathogenesis of glaucoma. According to him the most important factor in the regulation of intra-ocular pressure is the pressure in the capillaries, though he admits that arterial pressure might have an appreciable influence. He thinks therefore that the clue is likely to be found by a study of the capillary circulation.

Many of the old theories were based upon the hypersecretion of the aqueous humour. This, however, is open to serious objection, because when the excretory channels in the cornea-iradic angle are in good working order any increase in the inflow of fluid is at once compensated by a corresponding increase in the outflow. The results of clinical experience support this objection. Pathological studies among which must be mentioned those of Priestly Smith, Knies and Weber have clearly demonstrated that the hardening of the eyeball is due not to over secretion, but to retention. In almost every instance the filtration spaces at the corneo-iradic angle are closed and obstruct the outflow of fluid. As has been said previously all evidence points to the capillaries being the essential cause of the change in tension. It is a generally agreed law that tissue fluids come from the blood pressure by dialysis through the walls of capillaries and according to Duke-Elder and others the intra-ocular fluids obey the same physico-chemical laws.

Interference with the circulation of blood through eyeball and consequent alteration of intra-ocular fluids are the outstanding features in an attack of acute glaucoma. The first step is perhaps a disturbance in the capillary circulation leading to a general dilatation accompanied by increased permeability of their walls. Perhaps the wear and tear of life with its cumulative auto-intoxication and vascular degeneration act as a predisposing cause. Or, probably,as Dr. Ramsay suggests, the cause is chemical in nature, perhaps hormonal or due to some substance of the histamine group. Whatever its nature, its action is a dilatation of the capillaries, an increased permeability of their walls, and an œdema of a plasma like fluid into the tissue spaces of the eye with a consequent rise in intra-ocular pressure.

When all is said, it must still be admitted that the problem is obscure. Its final solution has not yet been made. The great difficulty is the fact that glaucoma is not a disease in itself. It is only a symptom of a general condition, whose etiology is at all times very difficult to determine. It is very aptly said to be a "sick eye in a sick body".

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# CURRENT TOPICS.

## OBSTETRICS AND GYNÆCOLOY.

**Chronic Endocervicitis.**—C. J. Miller (Surg., Gynecol. and Obstet., March, 1928 p. 337), discussing the management of chronic endocervicitis, considers that the unsatisfactory results of most methods of treatment arise from the fact that they are directed at the manifestation of the disease rather than at its underlying cause. Since the condition is infectious, has no tendency to spontaneous cure, and gives rise to sequels which may be very serious, prompt treatment is necessary; any surgical procedure should be preceded by a course of treatment with a view to reducing hypertrophy and inflammatory reaction and to restoring the normal relation of the parts.—Local treatment has been found very unsatisfactory, and diathermy, ionization, alcoholic injections, and vaccines are only moderately effective while radium is too dangerous for routine employment. In a large number of cases endocervicitis may be averted by prophylaxis, especially soon after parturition. Cauterization, trachelorrhaphy, or removal of the gland-bearing area of the cervix by the Sturmdorf operation may be needed, but amputation of the cervix should be avoided whenever possible. If there should be the slightest evidence of stenosis after the use of the cautery graduated dilatation must be promptly instituted. Miller agrees with the suggestion of Matthews that the indications for cauterization may be widened if it is performed unilaterally so that one lip is allowed to heal before the other is treated.

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**Caesarean Section.**—G. DeCourcy (Amer. Journ. Surg., January, 1928 p. 30) reviews some recent modifications in the technique of Caesarean section, and describes his own operation devised to avoid that contamination of the peritoneal cavity and uterine incision which occurs when the amnion is ruptured within the uterus. To this end the entire gestation sac is delivered intact and is opened away from the field of operation. After delivery of the uterus through a rectus incision slightly to the left of the median line, the intestines and abdominal cavity are walled off with saline gauze and the uterus is opened by a low incision commencing at the bladder and extending sufficiently high for easy delivery but not longer than is necessary, the resulting scar from such low incision being more

secure. The entire gestation sac is then carefully stripped from the uterine wall and delivered *en masse*, an assistant removing it from the vicinity of the wound and rupturing the membranes, extracting the child, and tying and severing the cord. So long as the placental circulation is maintained there is no danger to the child; the separation from the uterine wall occupies about a minute. In eight consecutive deliveries without mortality to mother or child no difficulty has arisen in its performance. The author states that finding the placenta beneath the uterine incision need not occasion concern, and there is less danger of rupturing the sac if the separation starts with the placenta. By this method the risk of infection is reduced to a minimum, and the author contends that on account of its greater safety to the mother and child it should, in the majority of instances, be given preference to the use of high forceps, since by its use lacerations of the birth canal and the dangers of compression of the infant's skull are avoided.

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**The Heart in Pregnancy.**—S.A. Gammeltoft (Surg., Gynecol. and Obstet., March, 1928, p. 382) records the results of studies undertaken to ascertain the condition of the heart in pregnancy. Regular examinations throughout the pregnancy, puerperium, and for a time afterwards were made in 337 women, though the examinations could not be completed in more than 239. Only those of normal physique between 20 and 35 years of age, and either primiparæ or 2-paræ, were selected, and during the whole period from the second or third month onwards they were examined every two or three weeks by the usual methods of auscultation, pulse, and blood pressure readings before and after exercise, record of weight, and *x*-ray and electro-cardiographic examination. In a smaller series the amount of blood circulating through the heart in one minute (the minute volume of the heart) was determined by the method of Krogh and Lindhard. While the majority of patients went through pregnancy and confinement without any unusual circulatory symptoms, 39 of the 239 perfectly healthy women presented during the latter half of gestation symptoms which during the last two months were so pronounced as to suggest an organic heart lesion, their chief complaint being cardiac pain, headache, and dyspnoea accompanied by rapid pulse, extra-systole, venous pulsation, and systolic and diastolic murmurs over the pulmonary and tricuspid valves. During labour there was no aggravation of the symptoms, and the

murmurs disappeared as early as the next day; all symptoms had subsided before discharge. From these investigations and those of earlier observers the author concludes that apparently healthy women may develop functional symptoms during pregnancy which have often been considered as indicative of organic heart disease. Though his investigations do not conclusively prove cardiac hypertrophy, the heart's action is increased as a result of the larger total amount of blood and the increased amount circulating through the heart in one minute, thus explaining the development of hypertrophy and possibly dilatation.

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**Sequels of Meningeal Haemorrhage at Birth.**—M Riviere (Bull. Soc. d'Obstet. et de Gynecol. de Paris, November, 1927, p. 649) reports the subsequent history of six infants, aged from 1 to 2 years, who at birth had had meningeal haemorrhage, which was proved by lumbar puncture. Four appeared to be normal, mentally and physically and these included (1) a child delivered by forceps in a condition of asphyxia, whose apparently moribund condition, attended by incipient convulsions, improved *pari passu* with lumbar puncture repeated two or three times daily; (2) a child delivered by breech, in whom lumbar puncture was performed repeatedly, sanguineous fluid being replaced eventually by one which to the naked eye appeared purulent, but which was actually sterile. A fifth child had not walked at the age of 13 months and appeared to be lacking in facial expression; a sixth walked at 22 months. In a seventh case meningeal hæmorrhage was diagnosed clinically, but not proved by puncture; this child was deficient mentally and paretic at 4 years of age, but there was a history of recent paternal syphilis.

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**Delivery of the Adherent Placenta.**—J. Jarcho (Surg., Gynecol and Obstet, February, 1928, p. 265) reports three cases in which the Mojon-Gabaston method of removing the placenta was employed, with resulting delivery in from ten to forty minutes and uneventful recovery. By the injection of warm sterilie saline solution into the umbilical cord vein the placental vessels become distended and ruptured, with the formation of a retroplacental hydroma, which mechanically causes separation of the placenta, thus avoiding intrauterine exploration with its attendant dangers. From 100 to 300 c. cm. of warm sterile salt solution are injected slowly with a Record or

Luer syringe into the vein of the umbilical cord, the needle being held in position by an artery clamp, which can be tightened to prevent any return flow of saline should a second puncture be found necessary. If required a rectal examination will determine whether the placenta after detachment is remaining in the cervix and vagina. Jarcho advocates the more general use of rectal examinations in obstetric practice as being easily and rapidly performed with a one-finger glove, and affording all the necessary information as to the progress of the labour. The bladder should always be emptied before injection, the site of which on the cord may be painted with iodine or mercurochrome. The method is useful also in febrile or infected patients; its performance is simple, requires no anæsthetic, and the injection being made into the unsoiled portion of the protruding cord close to the external genitals, there is no danger of carrying infection.

## SURGERY.

**The Gall Bladder and Its Infections.**—Moynihan. Sir Berkeley, Brit. M. J., Jan. 7, 1928. Following a discussion on the physiology of the gall bladder the author goes on to state that infections of the organ may be primary or secondary. Primary infection is rare and is connected with a solitary cholesterin stone, which in itself is formed aseptically and has an origin different from all other stones. Secondary infections are far more frequent and may reach the gall bladder by different paths, arriving there in the blood stream, in the bile, in the lymph, or by invading the walls of the viscus by direct extension from neighbouring viscera.

By the blood stream the route of infection may be either arterial as in septicæmia, or venous. Rosenow's contribution to our knowledge of hæmatogenous cholecystitis, in which certain bacteria have an "elective affinity" for tissues like those from which they were originally derived, very often can be demonstrated clinically. Such organisms reach the gall bladder by the blood stream.

In considering the lymphatic route there is abundant evidence to show that a very definite hepatitis is frequently an antecedent of cholecystitis. The condition of the gall bladder wall further supports the view that the lymph stream is the avenue of infection because the outer coats are, as a rule, more seriously affected than the inner, while the whole thickness



of the gall bladder wall contains organisms more frequently than the bile. As pointed out first by C. H. Mayo there is further evidence in the early involvement of the lymphatic system as evidenced by enlargement of the cystic lymphatic gland.

Infection may reach the interior of the gall bladder through bile descending from the liver and the author believes that the infective agent which reaches the gall bladder by this route is derived from the portal system. The most common site of infection drained by the portal system is the appendix. This, coupled with the fact that it is rare to find solitary inflammatory affections of the stomach, duodenum, pancreas, liver, gall bladder, or appendix, and that, when one of these shows disease, one or more of the others is likely to be implicated, is further evidence that portal drainage is a factor in disseminating the infection.

It is also important to remember the possibility of organisms within the portal current being derived from the spleen. The association of diseases of the liver, and of gall stones, with diseases which originate or have their chief development in the spleen, has recently become clearer. The association of hæmolytic jaundice with cholelithiasis is well established.

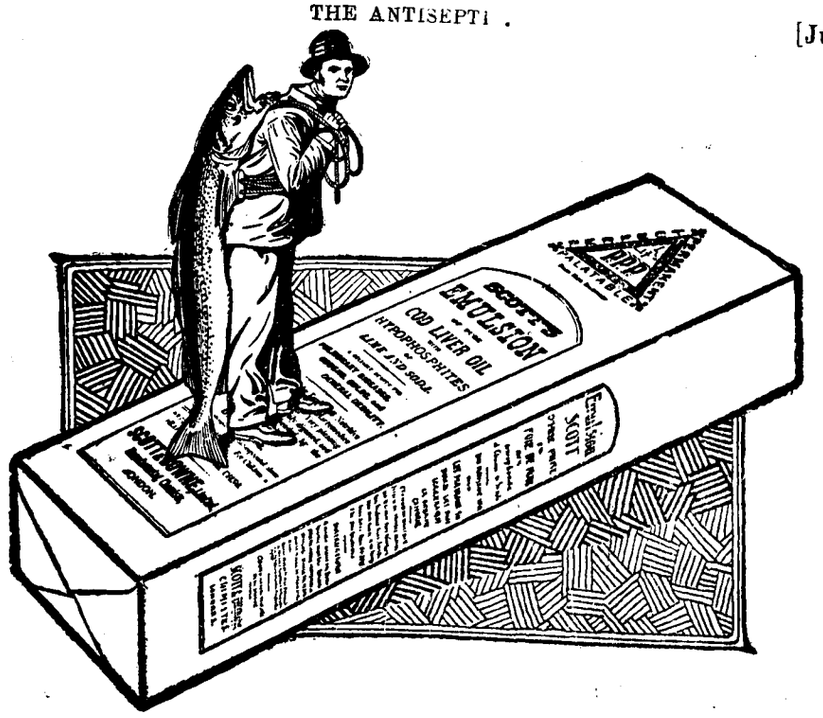
To sum up the conclusions as to infection, cholecystitis seems as a rule to be a part only of an infection which has its origin elsewhere and is commonly associated with a hepatitis which is of earlier origin.

The conclusion as to the pathogeny of stones in the gall bladder appears to be as follows: infection reaches the gall bladder, particularly the outer coats, the result being that the activities of the viscus are enhanced, the lymphatics engorged and the activity of the excretory or osmotic functions of the mucosa augmented. There is a "cholesterol flood" with increased absorption of cholesterol resulting in a hypercholesterolæmia. If the lymphatics in a further stage become blocked and the mucosal activity continuous, deposits of lipoid or crystals of cholesterol occur in the mucosa (strawberry gall bladder). This condition after a time leads to the casting off into the gall bladder lumen of villi filled with lipoid material and results in the formation of stones. The author believes that the prevention of cholelithiasis must be sought in a study of changes earlier than any with which we are yet familiar.

The author discusses the early symptoms of cholecystitis, stressing flatulence and fullness after meals, great epigastric discomfort which may involve the right side also or pierce through to the back, early satiety during a meal, a feeling that when a small meal is taken the stomach is overfull. There is sometimes an unaccountable nausea, described very often as a sensation of "sea sickness." None of these early symptoms is severe and none striking. It is in association and persistence rather than in individual character that their importance lies. He goes on to discuss the indications for operation.

**Epidemic Facial Paralysis during an Epidemic of Poliomyelitis.**—A. Radovici (Presse Med. p. 516).—The period following the world war has been characterised by the appearance over the whole globe of a series of epidemics with special affections of the nervous system. There was first epidemic encephalitis Lately acute poliomyelitis, which formerly was sporadic has become epidemic in several countries of Europe. In the spring of 1927 an epidemic occurred in Rumania. Among the forms observed was a fulminating one which could prove fatal with bulbar symptoms even on the first day, the meningeal form which was mistaken for tuberculous meningitis, the paraplegic, tetraplegic, hemiplegic and algid forms. The disease, as is the rule, usually affected young children, but cases were observed at the ages of 30 to 40, especially in the paraplegic form.

The writer draws attention to isolated facial paralysis, which he first observed in a child of 7 and in an adult, a printer, who worked in the same room as a man whose child had poliomyelitis in the tetraplegic form. Then, parallel with the invasion of the poliomyelitis, he noticed an increase in the number of cases of facial paralysis of the ordinary form. In a single month he counted more than 15 cases in the practice either of himself or his colleagues. For some years he has held that many cases of facial paralysis of the peripheral type attributed to cold are really due to affection of the facial nucleus by an infectious virus. Two years ago he was struck by the febrile onset of two cases of facial paralysis in children, whose general condition denoted an infection. The analogy with acute poliomyelitis led him to follow the serum treatment of that disease—with good result. The increase in the cases of facial paralysis during the epidemic of poliomyelitis confirms

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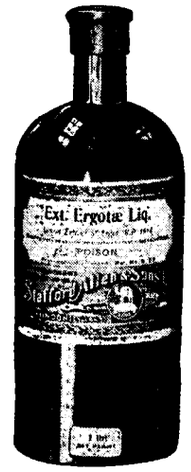


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his theory. The coexistence in some children of typical facial paralysis and paralyses of poliomyelitic type, shows that the virus does not confine its activities to the anterior cornua of the cord. The cerebro-spinal fluid of 3 children with isolated facial paralysis showed medium lymphocytosis (9–14 lymphocytes per c.mm.).

Other viruses with an affinity for the neuraxis can affect alone the facial nucleus. In the last epidemic of encephalitis in Rumania the writer saw a woman with peripheral facial paralysis as the only manifestation of affection of the neuraxis. The later course and the appearance of characteristic mental troubles showed the encephalitic nature of the paralysis.

Isolated facial paralysis may occur in herpes zoster, a disease due to a virus of the same class as that of poliomyelitis. Facial paralysis with zoster of the ear has been described by several writers. Lesions of the cord in cases of zoster have recently been described. Similar mono-symptomatic epidemics have been observed in different countries. Thus epidemic hiccough has appeared during an epidemic of poliomyelitis. There are also forms of influenza with hiccough and the isolated cases, with fatal end, have shown localisation of the virus in the upper cervical cord. The analogy with the cases of epidemic facial paralysis is striking. Probably these cases will be a contribution to the obscure etiology of facial paralysis attributed to cold.

Epidemic facial paralysis and epidemic hiccough may be manifestations of circumscribed attack in certain persons of the virus of poliomyelitis and of epidemic encephalitis. It is possible that all the cases, even the sporadic ones, are due to affection of the facial nucleus by a virus existing as a saprophyte in the rhinopharynx, and exalted occasionally by cold or other causes. Sometimes it may be the virus of herpes zoster; at other times that of encephalitis or poliomyelitis, which all have an affinity for the grey matter of the neuraxis. The question has also epidemological interest. We do not know how poliomyelitis is propagated. Direct contagion has not been proved. It is thought that persons naturally immune may be carriers. The cases of facial paralysis during an epidemic poliomyelitis may be considered as having relative immunity and may be included in the class of carriers. —*Med. Review.*

**Hepatitis of Early Syphilis.**—J. A. Elliott and L. C Todd (Arch. Derm. and Syph., March, 1928, p. 299) report a case of early syphilitic hepatitis in which the blood bilirubin determinations afforded an aid to diagnosis and a guide to treatment. They adopted the icterus index as a quantitative estimate of the bilirubin in the blood, using the van den Bergh test qualitatively to determine the type of jaundice; in the earlier stages of the case this latter test indicated that the jaundice was due to injury of the hepatic cells. The patient a man, aged 25, suffering from severe jaundice, gave a strongly positive Wassermann reaction two months after the development of a sore on the penis. Because of the severity of the liver disturbance 0.1 gram of bismuth was injected at weekly intervals, and after the third injection improvement, both subjectively and objectively, was rapid, the index having become normal and the patient feeling well after having received twenty injections. In twenty-five control cases both tests were used to determine the effects of early syphilis and of treatment on the liver function, as shown by the bilirubin content of the blood. With three exceptions the blood was normal for bilirubin throughout treatment, with, in some cases, as many as twenty neoarsphenamine and from fifty to sixty bismuth injections. All the reactions in these three indicated only a slight increase of blood bilirubin content at one time during treatment. In the case of early syphilitic hepatitis recorded treatment with bismuth proved to be of great value.

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### DR. EICHELER, "EXPERIENCES WITH COMPRAL"

(Therapied. Gegenw. 1927, H. 10).

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The author states in his conclusions, that "COMPRAL" is a perfectly innocent remedy which has proved its value in different pains and is, therefore, the best analgesic at present.

## BOOKS RECEIVED.

*The following books have been received and the courtesy of the Publishers in sending them is acknowledged. Reviews will be published from time to time.* [ED. ANTISEPTIC.]

**Aphrodisiac Remedies.**—By the Editor, Practical Medicine. Published by the Practical Medicine, P. B. 49, Delhi. Price Rs. 4 net.

**That Body of Yours.**—By Dr. J. W. Barton, M.D. Published by Messrs. Hodder and Strougton Ltd., Warwick Sq., London E. C. 4. Price 2 s. 6 d. net.

**Injuries and Diseases of Bone.**—By Sir William Ireland and De C. Wheeler, Published by Messrs. Baillere Tindall & Cox, 7 and 8, Henrietta Street, Covent Garden, London W. C. 2.

**Baillere's Synthetic Anatomy.**—By J. C. Cheesaman. Published by Messrs. Baillere Tindall & Cox, 7 & 8, Henrietta St., Covent Garden, London W. C. 2.

**Epidemic Encephalitis.**—By Lee M. Crafts. Published by Richard G. Rodger, Boston.

**Aids to Embryology.**—By R. H. Hunter. Published by Messrs. Baillere Tindall & Cox, 7 & 8, Henrietta St., Covent Garden, London W. C. 2. Price 3-6-d.

**Recent Advances in Tropical Medicine.**—By Sir Leonard Rogers. Published by Messrs. J. A. Churchill, 7, Great Marlborough St., London W. 1. Price 2 s. 6 d.

**Aids to Ophthalmology.**—By N. Bishop Horman. Published by Messrs. Baillere Tindall & Cox, 7 & 8 Henrietta St., Covent Garden London W.C. 2. Price 3-s. 6-d.

**Mental Disorders.**—By Hubert J. Norman. Published by Messrs. E.S. Livingstone, 16, & 17 Teviot Place, Edinburgh, Price 14 s. net.

**Grandular Therapy.**—Published by the American Medical Association, Chicago.

**The Examination of the Central Nervous System.**—By Donald Core, M. D. & Mane F.R.C.P. (London). Published by Messrs. E. S. Livingstone, 16 & 17, Teviot Place, Edinburgh. Price 8-s. 6-d. net.

**Tuberculous Intoxication.**—By Joseph Hollos, M.D. Published by Messrs. E. S. Livingstone, Edinburgh. Agents in India. Messrs. Butterworth & Co., Ltd., 6, Hastings St., Calcutta. Price Rs. 7-14-0 net.

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AUGUST, 1928.

# The Antiseptic

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EDITED BY
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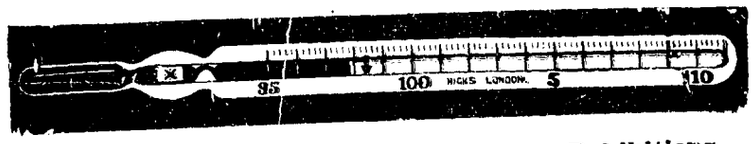


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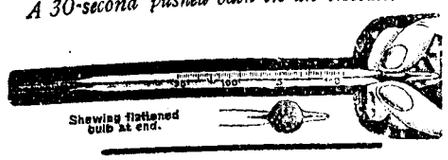


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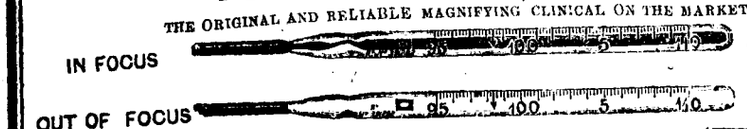


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'BRIT. MED JNL.' JAN. 14 1922 - AUG 12 1922 - DEC. 29 1923
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## ORIGINAL ARTICLES.

### * REMOVAL OF UNRIPE CATARACTS


BY

DR. V. D. NIMBKAR, F.R.C.S. (ED.), HON. SURGEON,
GOVT. OPHTHALMIC HOSPITAL, MADRAS.


LADIES AND GENTLEMEN,

My excuse in inflicting this paper on you to day is not that I have any new or original operation to tell you of; but only this, that in applying an old and recognised—though not widely practised-operation to a new purpose, I have met with such a promising success, as would, if appreciated and corroborated by others, almost revolutionise the treatment of cataracts and that this has given me joy too great to retain within my small self.

This new application of the operation, if adopted widely enough by Eye surgeons in general, would in a few years time make a ripe senile cataract as great a rarity as say the phagedenic ulcer is in these days, and would eliminate all the worries and anxieties of thousands of old men afflicted with cataracts who have at present to wait in patient misery for months and sometimes for years to allow the cataracts to mature enough for removal in the ordinary way.

I shall begin at the beginning. We all have heard of Smith's and Barraquer's extraction in capsule. The main benefit these two claimed for their operations has, as far as I know, been that the removal of ripe cataract entire in its

* A Paper read before the South Indian Medical Union on the 14th of May, 1928. Specially sent to the "Antiseptic" for publication.

capsule does away with complications like iritis and post-cataracts capsule. The disputes that have raged, have all been about the occurrence or avoidance of those complications as against loss of vitreous &c. supposed to be frequent in intracapsular extractions.

I was one of those who did not see any virtue or necessity in flying from the safe old capsulotomy extraction to the rather difficult procedure of intracapsular one in cases of ripe cataracts and it was only the idea of testing its utility in extracting unripe cataracts that made me try the intracapsular method.

The first chance of seeing this operation came to me in 1919, when I was sent to escort a troop train from Karachi to Lahore. At the latter place I took one day's leave and went to Amritsar and called on Col. Smith. He very kindly picked up a case from the outpatients—it was not the cataract season—and showed me his operation. Unfortunately the operation did not go on well and I returned prejudiced. I feel sure if I had had a chance of seeing more of Col. Smith's work I would have taken to the operation ; but that chance never came.

On my settling down in practice in this beautiful city I came across a few patients with very immature cataracts, to whom it was a great inconvenience to have to wait a long time for their maturing. One was an Assistant Station Master; he could not see well enough to carry on his duties and he could not wait long for the operation as a long leave might have meant dismissal. Another was a Zamindar with very slowly developing cataracts. He was feeling very unhappy because he could not see the horses properly on the race course, and such others. These cases made me worry my poor brains as to why the intracapsular method may not be made to benefit them. Smith's operation though it has become almost the routine one for ripe cataracts in the Punjab was not employed, I was told, for unripe cataracts. They believed then that the Zonule in unripe cataracts was too strong to be broken without making the manipulations violent, and violence would mean much loss of vitreous.

Luck favoured me last year when one Tuesday morning while going on my round in the Hospital I was much annoyed that my House Surgeon was not in the wards. He was sent for and found. He apologised that he was watching Dr. Green of U. S. A. doing intracapsular extractions in the theatre on the Superintendent's cases. This was good news and I took the



liberty of walking into the theatre and there seeing Dr. Green then and on the following Thursday doing several intracapsular extractions with the help of his modification of Barraquer's pump. The operation looked to me so simple and easy that I wanted to try it on my cases under the doctor's personal guidance. But this did not come off.

However what I saw left a strong impression on my mind of the possibility of removing unripe cataracts with this vacuum pump and I ordered one from America. The pump arrived in February last and I began using it on the 9th February. At first I only tried ripe cataracts which had not gone to the hyperamature stage and was on the whole so pleased with the success I got that I decided to try some unripe cataracts, as to my mind any operation was good enough for ripe cataracts and that the utility and popularity of the intracapsular operation would be established only if it succeeded in unripe cataracts.

Up till now I had not heard of or read about anybody thinking of applying this method to unripe cataracts. Even the report of the Superintendent of Government Ophthalmic Hospital, Madras, published in 1927, after his experience of Green's modifications, gives no hint of either having already tried it on unripe cases or of his intention of doing so in future.

The difficulty I had to face was that I was only an Honorary in the Hospital and the half-hearted manner in which the Honorary system was introduced in Madras gives no out-patients to the Honorary Surgeon in the Eye Hospital. In all the Eye Hospitals I have seen in England and in India except Madras the Eye Surgeons see their own out-patients. But here, in my case, my work is limited to treatment of such patients as are admitted by somebody else to my beds. If I had my own out-patients I would have admitted unripe cataracts of different degrees of unripeness according to the success I met with. Having no such facility I had to adopt different tactics.

As you know in most cases of cataract while one eye has a mature cataract, the cataract in the other eye is immature. I began to persuade my patients admitted for mature cataracts in one eye to have their immature cataract operated upon first. Most patients yielded and that is how I am before you to-day with this paper.

I have here the notes of 43* intracapsular operations: 14 on mature cataracts and 29 on more or less immature ones.

* The original paper was on 36 cases. 7 cases operated upon in June have been added as they are completed at present.

Of these 29 cases the vision before operation in one case was $\frac{6}{36}$, in 20 cases $\frac{1}{60}$ and more and in 8 cases less than $\frac{1}{60}$ but more than hand movements.

The operation is well-known. I shall just give a few details as modified by Green with my variations.

Before coming on the table Novocaine Adrenaline is injected into the lids and deep near the ciliary ganglion. The comeoscleral section is almost half the circumference and I usually make a conjunctival flap. After Iridectomy complete or button hole the erisophake is introduced over the centre of the lens by raising the cornea with the conjunctival flap and its cup placed flat on the anterior capsule, taking care that it is free from the Iris. The pump is worked and so soon as the lens come firmly against the cup the erisophake is rotated lightly side to side till the Zonule gives way. When the lens is dislocated the erisophake is drawn out and the lens with it. The eye is closed after reposing the Iris.

If a good strong speculum is used and the assistant instructed how to hold the speculum without its pressing on the eyeball no necessity is felt for a permanent highly trained assistant. I had no vitreous loss even in one case for want of such an assistant.

Great care has to be taken to see that the cup does not catch the Iris. If it is discovered to be caught the vacuum pressure must be released, Iris freed and then the operation proceeded with.

The slipping of the cup matters very little if the cup is placed centrally enough and the cornea is well turned up. Otherwise vitreous is sucked up more or less. Amongst my cases vitreous was sucked in three cases; two of these were discharged with a vision = $\frac{6}{9}$ and one case is still under treatment.

The breaking of capsule is more liable to take place in fully mature cataracts and I think it ought to be the reverse in more immature ones. It gave way in 4 cases in my series and in only one of these was the cataract rather unripe. It made no difference as to the result of the operation except in that the operation became extracapsular.

The result of the series can be tabulated as under.

| | |
|---|---|
| V = 6/6 | 1 Case. |
| V = 6/9 | 1 |

| No. | Date of Operation. | NAME. | Findings with corneal Microscope. | REMARKS. |
|---|---|---|---|---|
| 1 | 9-2 | Ramasamy | | |
| 2 | ,, | Mannu M | rical bulging of vitreous body in A. C. | |
| 3 | 16-2 | Narayana | Normal. | |
| 4 | ,, | Thayaram | Fluid within; clear. | |
| 5 | ,, | Rangam | Normal. Capsule nasal side. | |
| 6 | 23-2 | Thayee | | |
| 7 | ,, | Ratnamm | aloid intact: adherent to section. | Bad result. |
| 8 | ,, | Sundaran | gers at 3½ Meters | |
| 9 | ,, | Kanni A | Clear; body displaced laterally. | |
| 10 | 15-3 | Muni Am | Normal; remains of Hæmorrhage. | |
| 11 | 22-3 | Karpagar | Normal. Left pillar of Coloboma adherent behind. | |
| 12 | ,, | Rukmini | Normal. | |
| 13 | ,, | Guruapp | Normal. | |
| 14 | 29-3 | Naramba | nguage difficulty in taking V. Vit. Normal. | |
| 15 | 5-4 | Thayara | Normal. | |
| 16 | 12-4 | Perumal | Normal Cornea Hazy. | |
| 17 | 19-4 | Chabu M | N. | |
| 18 | ,, | Narayan | Very motile, slightly projecting. | |
| 19 | ,, | Guruppa | N. One strand going to corneal section. | Pt. dull. |
| 20 | ,, | Mangath | Normal. | Pt. dull. |
| 21 | ,, | Pachi Ar | Normal. | |
| 22 | ,, | Ratnamm | Norm. Corneal opacity above pupil displaced above. | |
| 23 | ,, | Alamelu | | Worst result. |
| 24 | 26-4 | Ramalin | | |
| 25 | ,, | Daivanai | both these cases post capsules were left behind. | Extrapsular |
| 26 | 3-5 | Mariamm | Normal | |
| 27 | ,, | Gnanam | | Case pending still. |
| 28 | ,, | Thayami | | |
| 29 | ,, | Amiamn | Normal | |
| 30 | 10-5 | Mani Am | N. | |
| 31 | ,, | Mangath | Fluid. Herniates forward adherent to section. | |
| 32 | ,, | Raghava | | |
| 33 | ,, | Veerasan | yaloid like fine viel pupil drawn up | |
| 34 | ,, | Muthan | blood, in ante chamber. | |
| 35 | ,, | Govinda | hallow chamber | |
| 36 | ,, | Muruges | N. | |
| 37 | 21-6 | Lingam | N. | |
| 38 | ,, | Kuppam | clear. | |
| 39 | 21-6 | Parthas | Normal below | |
| 40 | 28-6 | Bhadray | Normal. Small white speck near outer limb | |
| 41 | ,, | Pichiah | of coloboma | |
| 42 | ,, | Kanni | Fluid Hyaloid intact | |
| 43 | ,, | Ammani | N. Slight exudation. behind outer limb of coloboma. | |

| No. | Date of Operation | NAMES. | Age | Vision. Hand movements or Distance at which fingers were counted | If grip of Erisophake lost. | Vitreous Sucked. | Capsule gave way | If other method employed | Vitreous lost | Any other complications and sequaelæ. | Vision. Date. | Lens. | V. A. | Findings with corneal Microscope. | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9-2 | Ramasamy Pillay ... | 65 | H. M. | Yes. | ... | Yes. | Vectis | ... | Converted into ordinary extracapsular extraction. Without damage. | ,, | ... | ... | | |
| 2 | ,, | Mannu Mian ... | 52 | ,, | ... | ... | | | | | | | | | |
| 3 | 16-2 | Narayanan ... | 68 | ,, | Yes. | ... | ... | ... | ... | | 27·2 | +8 | 6/12 | | |
| 4 | ,, | Thayarammal ... | 50 | ,, | ... | ... | ... | Vectis | ... | Lens came out in capsule. | ,, | ... | 6/18 | Corical bulging of vitreous body in A. C. | |
| 5 | ,, | Rangam ... | 65 | F at ¾ Meters | ... | ... | ... | ... | ... | | 10·3 | +8 | 6/18 | | |
| 6 | 23-2 | Thayee ... | 55 | ,, 2½ ,, | ... | ... | ... | ... | ... | | ,, | +8 | 6/18 | Vit. Normal. | |
| 7 | ,, | Ratnammal ... | 55 | ,, 1½ ,, | Yes. | | | | | At first dressing a small white flake? Capsule was seen on nasal side of pupil | ,, | +8 | 6/18 | Vit. Fluid within; clear. | |
| 8 | ,, | Sundaram Mudali ... | 70 | H. M. | once. | ... | ... | Vectis | ... | Removed in capsule. | 12·3 | +8 | 6/18 | Vit. Normal. Capsule nasal side. | |
| 9 | ,, | Kanni Ammal ... | 50 | ,, 6 ,, | once. | Yes. | ... | ... | ... | | 10·3 | +9 | ... | Hyaloid intact: adherent to section. | Bad result. |
| 10 | 15-3 | Muni Ammal ... | 50 | ,, 6 ,, | ... | ... | ... | ... | ... | Indentation of sclerotic which relieved by irrigation. | 10 3 | +9 | 6/18 | Fingers at 3½ Meters | |
| 11 | 22-3 | Karpagam Ammal ... | 60 | ,, 6 ,, | ... | ... | ... | ... | ... | 20·3, eye hurt, Hyphæmia. | 2·4 | +9 | 6/18 | Vit. Clear; body displaced laterally. | |
| 12 | ,, | Rukmini Ammal ... | 65 | ,, 1 foot. | ... | ... | ... | ... | ... | Iris was caught by erisophake and was released by manipulation. | 10·4 | +10 | 6/6 | Vit. Normal; remains of Hæmorrhage. | |
| 13 | ,, | Guruappa ... | 50 | ,, 1 foot. | ... | ... | ... | ... | ... | | | | | Vit. Normal. Left pillar of Coloboma adherent behind. | |
| 14 | 29-3 | Narambal ... | 50 | ,, 1 foot. | ... | ... | ... | ... | ... | | 4·4 | +10 | 6/12 | Vit. Normal. | |
| 15 | 5-4 | Thayarammal ... | 60 | H. M. | ... | ... | ... | ... | ... | 27·3 Hyphæmia. | 4 4 | +10 | 6/36 | Vit. Normal. | |
| 16 | 12-4 | Perumal ... | 70 | H. M. | ... | ... | ... | ... | ... | | 10·4 | Fat | 4½ mt. | Language difficulty in taking V. Vit. Normal. | |
| 17 | 19-4 | Chabu Mian ... | 60 | ,, 2 mt. | once. | ... | ... | ... | ... | | 16 4 | +10 | 6/24 | Vit. Normal. | |
| 18 | ,, | Narayansami Naidu. | 60 | ,, 1 mt. | ... | ... | ... | ... | ... | | ,, | ... | ... | Vit. Normal Cornea Hazy. | |
| 19 | ,, | Guruppa ... | 50 | H. M. | ... | ... | ... | ... | ... | (Button hole Iridcetomy.) | 30·4 | +11 | 6/18 | Vit N. | |
| 20 | ,, | Mangathay Ammal. | 60 | ,, 2½ mt. | ... | ... | ... | ... | ... | (Iridectomy corneoscleral incision.) | ,, | +10 | 6/18 | Vit. Very mottle, slightly projecting. | |
| 21 | ,, | Pachi Ammal ... | 50 | ,, 2½ mt. | ... | ... | ... | ... | ... | | ,, | +11 | 6/18 | Vit. N. One strand going to corneal section. | |
| 22 | ,, | Ratnammal ... | 55 | H. M. | ... | ... | ... | ... | ... | (Button hole Iridectomy) | 4·5 | +10 | 1/60 | Vit. Normal. | Pt. dull. |
| 23 | ,, | Alamelu ... | 45 | ,, 2½ met. | ... | ... | ... | ... | ... | | 30·4 | +11 | 1/60 | Vit. Normal. | Pt. dull. |
| 24 | 26-4 | Ramalinga Reddi ... | 60 | P. L. | ... | ... | ... | ... | ... | One pillar of coloboma pushed into corneal section cauterised. | 4·5 | +10 | 6/18 | Vit. Norm. Corneal opacity above pupil displaced above. | |
| 25 | ,, | Daivananai Ammal... | 65 | P. L. | once. | ... | Yes. | ... | ... | Bled profused and went septic. | ,, | ... | ... | | Worst result. |
| 26 | 3-5 | Mariammal ... | 55 | H. M. | ... | ... | Yes. | ... | ... | 30·4 Large Hyphæmia. | ,, | ... | ... | | |
| 27 | ,, | Gnanammal ... | 60 | ,, 2 ft. | ... | ... | ... | ... | ... | Cortical matter in pupil irrigated. | ,, | ... | ... | | |
| 28 | ,, | Thayammal ... | 40 | H. M. | ... | ... | ... | ... | ... | Do. Do. | ,, | ... | ... | In both these cases post capsules were left behind. | Extrapsular |
| 29 | ,, | Amiammal ... | 55 | ,, 2 mt. | once. | Yes. | ... | Vectis | ... | (Button hole Iridectomy) | 15·5 | +11 | 6/9 | Vit Normal. | |
| 30 | 10-5 | Mani Ammal ... | 60 | ,, 2 mt. | ... | ... | ... | ... | ... | Dilivered in capsule. T +. Watering of eye-section filtering. | ,, | ... | ... | | Case pending still. |
| 31 | ,, | Mangathayi ... | 55 | ,, 2 mt. | ... | ... | Yes. | currette | ... | (Button hole Iridectomy) | 15·5 | +11 | 6/18 | Vit. Normal | |
| 32 | ,, | Raghava Reddi ... | 65 | ,, 2 mt. | ... | ... | ... | ... | ... | Converted to extracapsular. | ,, | ... | ... | | |
| 33 | ,, | Veerasami Reddi ... | 60 | ,, 1 ft. | ... | ... | ... | ... | ... | (Button hole Iridectomy) | 6·6 | +11 | 6/18 | Vit. N. | |
| 34 | ,, | Muthan ... | 65 | ,, 1 mt. | ... | ... | ... | ... | ... | Air in anterior Chamber: Irrigated. | 27·5 | +10 | 6/18 | Vit. Fluid. Herniates forward adherent to section. | |
| 35 | ,, | Govinda Gownder ... | 56 | ,, ½ mt. | ... | ... | ... | ... | ... | | | | | | |
| 36 | ,, | Murugesa Gownder... | 60 | ,, 1 ft. | ... | ... | ... | ... | ... | (Button hole Iridectomy) | 25·5 | +11 | 6/12 | | |
| 37 | 21-6 | Lingammal ... | 50 | ,, 3 mt. | ... | ... | ... | ... | ... | | 25·5 | +11 | 6/24 | Hyaloid like fine viel pupil drawn up | |
| 38 | ,, | Kuppammal ... | 65 | ,, 1 mt. | ... | ... | ... | ... | ... | (Button hole Iridectomy) | 21·5 | +10 | 6/36 | Blood. in ante chamber. | |
| 39 | 21-6 | Parthasarathy Achari | 46 | ,, 6/36. | Yes. | Yes. | ... | ... | ... | (Do Do) | 25·5 | +10 | 6 24 | Shallow chamber | |
| 40 | 28-6 | Bhadrayya ... | 80 | ,, 2 mt. | ... | ... | ... | ... | ... | | 5·7 | +9 | 6/18 | Vit. N. | |
| 41 | ,, | Pichiah ... | 55 | H. M. | ... | ... | ... | ... | ... | (Button hole Iridectomy converted into complete.) | 3·7 | ×12 | 6/36 | Vit. N. | |
| 42 | ,, | Kanni Ammal ... | 38 | ,, H. M. | ... | ... | ... | ... | ... | | 12·7 | +9 | 6/60 | Vit. clear. | |
| 43 | ,, | Ammani Ammal ... | 55 | ,, F. at 2 mt. | ... | ... | ... | ... | ... | Slight vit escape. | 12 7 | +10 | 6/24 | Vit. Normal below | |
| | | | | | | | | | | | 10·7 | +9 | 6/18 | Vit. Normal. Small white speck near outer limb of coloboma | |
| | | | | | | | | | | | 10·7 | +10 | 6/24 | Vit. Fluid Hyaloid intact | |
| | | | | | | | | | | | 10·7 | +12 | 6/18 | Vit. N. Slight exudation. behind outer limb of coloboma. | |

| | | |
|---|---|---|
| V = 6/12 | 3 | |
| V = 6/18 | 17 | |
| V = 6/24 | 5 | (Two of these cases are |
| V = 6/36 | 3 | marked by the House |
| V = less than 6/60 | 4 | Surgeon as difficult to |
| Result missed | 1 | take V of owing to |
| Result pending | 1 | language difficulty). |
| Turned into extracapsular | 5 | |
| Went septic | 1 | |
| Hæmorrhage 4 days after op. | 1 | |
| | 43 | |

## *"MIXED INFECTION" IN TROPICAL COUNTRIES

By

KALI GATI BANERJEE, M. B., SURI P.O., BIRBHUM.

"Mixed infection in Tropics" is the topic of today and the shibboleth of the medical profession. Col Barnardo, in F.E. Tropical Congress, could speak of it so boldly, because the whole pathological laboratory was at his beck and call. Even a common practitioner—not only of today—but of past experience—who counts more on his clinical eyes—can claim that mixed infection is by no means rare.

Let us classify our subject as follows:

(1) Concurrent infection of malarial fever associated with some other diseases.

(2) Concurrent infection of Leishmaniasis

(3) ,, of Septicæmias (Streptococcal, Staphyloccocal, B. Coli)

(4) ,, of Syphilis

(5) ,, of Helminthiasis

(6) Concurrent association of various bowel diseases as mixed infection.

*Association of Malarial Parasite as mixed infection*:—

(*a*) Malaria and Enteric fever:—"Entero-malaria"—Olser denies the existence of "Typho-malaria". We, as students, had firm faith in it. But in malarial districts, it is of every day occurrence. Though pathological results are not within our reach

* Specially contributed to "The Antiseptic."

in every place— yet the clinical syndrome aided by therapeutic result—has often clinched the diagnosis. The following clinical points are suggestive of Entero-malarial infection.

(1) Persistence of temperature even when all symptoms and complications of enteric have vanished—with or without rigors. In these cases Malarial infection supervenes later.

(2) Control of temperature only by adequate doses of quinine.

(3) Most cases begin as those of malarial infection. Typical enteric course is absent from the outset. Rise of temperature up to 105° in the first and second week with no remission—and the fever having enteric syndrome later—is suggestive. These cases—when first controlled by quinine therapy—run on to the usual course of "enteric" fever.

The most important point is that spleen, instead of shrivelling up in the 2nd week, which is the usual rule in general cases of enteric, enlarges day by day and gets harder.

(5) Maris' atropine test often negative.

(6) Diarrhœa at the outset with delirium in the first week of a remittent fever or superimposition of such fresh symptoms during the stage of "enteric" convalescence, is suggestive of concurrent M. T. infection.

The following case is illustrative.

*Case I.*—A Hindu female—aged 16—was seen *on the 26th day* of the fever. Her temperature varied between 103° to 102°—mind clear—spleen 2" below costal cartilage. She was treated as a case of enteric. But *on the 28th day*, she had marked delirium with extreme restlessness and irritative meningeal symptoms. Her pulse got irregular in spite of "tonic doses of Digitalis—and she had retention of urine for 24 hours. Hexamine (40%)—5 cc.—I. V. Tinc. Iodine-5 Ms. IV. with Antistreptoserum—10 cc. was given. But nothing stopped the symptoms till Quinine (10 grs.) by mouth every 4 hours was tried from next day and the girl made a recovery with the subsidence of all symptoms. Was it not a M. J. infection super-imposed on Enteric?

But the question is—can both the M. P. and Bacillus belonging to the Enteric group thrive in one's blood simultaneously, or is it a fact that M. P. lowers the resistance of the patient, thereby exposing him to the bacillary infection, or Bacillary infection does the same thing? The classical



idea that two simultaneous infections of blood can't occur should be dropped for the present.

*(b) Malaria and Pneumonia:*—In my practice, in a malarial district, every case of Pneumonia, lobar or lobular, followed or occurred simultaneously with malarial fever. Resistance was lessened and exposure to cold made the patient a victim to pneumonia. The following case first taught me the clue of treating such cases and I have treated about 50 cases accordingly afterwards having never to repent. I made it a point of giving 6 to 10 grs. of Quinine by mouth along wilh strychnine mixture—B. D. from the very first day I got such a case.

*Case II.*—A Hindu male—aged 32—had typical Lobar Pneumonia of the right side with slight enlargement of spleen. He had crisis on the 9th day, and remission of all pulmonary signs and symptoms. But he had rigor with high temperature the same day and from the next day heroic doses of Quinine only could stop the fever.

The peculiarities of pneumo-malarial fever are as follow:-

(1) Even after the crisis and subsidence of pulmonary symptoms, temperature persists with or without rigors.

(2) Splenic enlargement.

(3) Response to fall of temperature by Quinine therapy.

(4) In Broncho-pneumonic cases, lysis is hastened by small doses of Quinine.

*(c) Malaria and K. A.:*—Dr. Brahmachary was of opinion that L. D. bodies devour up malarial parasite in the spleen—hence M. P. can't thrive in the presence of Leishmaniasis. But he himself has shown how from splenic smear both L. D. bodies and M. T. are found out. And cases are not few where both the parasites thrive and proper doses of antimony could not cure the patient. Even with full course of antimony—that brought forth the normal leucocyte-count—in some cases the fever could not be stopped except by big doses of Quinine.

The clinical features of these kinds of fever vary and may resemble with symptoms of often one or other infection.

*(d) Malaria and Tubercular injection:*—Many tubercular cases in my district have started as typical malarial cases and deluded the practitioners. Malarial injection breaks the immunity—thus victimising one to tubercular infection often. Malaria goes side by side with tuberculosis. The peculiarities of these mixed infections are as follows:—

(1) *(a)* Fever comes rather in the forepart of the noon with rigors and persists till late at night, or *(b)* the fever comes

only in evening *with rigors*, or (*c*) there may be double rise, or (*d*) there may be low *remittent type of temperature.*

(2) Hard fibrosed spleen.

(*e*) *Malaria and Filariasis:*—We should never lose sight of malarial infection in a man with filarial history. In Bengal, especially in the district of Birbhum, both the parasites have the abode in the same patient. The peculiarities of these infections are summarised.

(1) Simultaneous rise of fever with rigors both in the morning and at midnight. (2) Fever in patients with history of elephantiasis can't be checked except by Quinine.

(3) Occasionally 'chyluria' is preceded with typical malarial rigor and fever.

(*f*) *Malaria and Amœbiasis:*—It is the commonest incidence in India. We are not sure if malarial Hepatitis occurs as such, but instances are not infrequent where cases of hepatitis treated with full course of Emetine are not cured except with Quinine-therapy. Congestion of spleen and enlargement is concurrent feature with hepatic congestion and enlargement, but we should never lose sight of the fact that malarial parasite may go on side by side with amœbiasis. The clinical syndrome may be summarised as such (a) cases with history of Dysentery and with fever—diagnosed as Bacillary dysentery or M. T. infection—are not cured except with combined Quinine and emetine therapy.

(*b*) Temperature chart may have many manifestations.

(i) There may be double rise, one in morning, other in the evening with pain in the Liver.

(ii) Low grade remittent temperature with hepatic and splenic enlargement—hepatic facies and sometimes with jaundice.

(iii) Or, there may be occasional rise of fever in the evening with symptoms of Hepatitis.

The following case is illustrative:—Case (iii) A Hindu lady—belonging to the higher class—aged 22—was a chronic sufferer from Malaria and Dyspepsia. She had remittent type of temperature for 25 days during which time she developed jaundice and occasional pain in the liver. She was treated as a case of Typhoid—till she developed jaundice which made her medical attendant give her a course of emetine injection. She



was seen by me on the 26th day when she had spleen enlarged up to 4" below costal margin and hard liver 2" below costal margin, painful and tender, with occasional colicky attacks with rise of temperature just after evening (she supported the liver, stooping as in attacks of biliary colic). I diagnosed the case to be one of Amœbiasis with malarial infection (liver abscess ?). She was advised to have two courses of emetine injection with quinine therapy. Though her symptoms abated, though her temperature had remissions, liver abscess developed and as the attendant Surgeon could not properly drain out the pus, she succumbed as a result of inanition and auto-intoxication.

(*g*) Malarial infection is heard to occur concurrent with (i) Influenza (ii) Bacillary Dysentery (iii) Relapsing Fever (iv) Acute Poliomyelitis (v) Encephalitis (vi) Typhus fever (vii) Fever of Disseminatad Sclerosis.

(2) Association of L. D. bodies as mixed infection.

(*a*) *K. A. + Enteric fever.*—'Typho-Kala-azar' is the hobby of many practitioners. Cases with typical enteric course mislead the medical men when fever does not subside even after the 3rd or 4th week. Though many cases of K. A. have a typhoid-like onset, cases can be cited where enteric injection—proved pathologically—gave way to Leishmaniasis. Though the clue and the diagnosis lie in Flagellete culture of the blood, the following clinical points will be helpful. :—

(1) (*a*) Temperature not having complete remission after the end of 3rd or 4th week.

(*b*) Temperature having great undulations from the beginning (difference of 3° to 5°—rather of 1° to 2°—as in continuous fever of Enteric type).

(2) Gradual enlargement of spleen.

(3) *Progressive Leucopenia.*

(4) Absence of Typhoid stupor.

(5) Slow $\frac{P}{T}$ Ratio not constant.

(*c*) *K.A. and Amœbiasis:*—Dr. Brachmachary in his book on KalaAzar writes "Cases have been described in which dysenteric symptoms closely allied to those of true dysentery may appear during the course of the disease. Such Leishmania dysentery must be very rare and generally the dysentery is of bacillary or amœbic type"

(*c*) *K.A. + B. coli infection:*—In the same book Dr. Bramachary writes "Not infrequently have I found cases, being

diagnosed as due to colon Bacillus infection simply because the urine showed the presence of colon bacillus on culture, and these cases subsequently turned out to be Kala Azar". But we can't swear that B coli injections were absent in those cases.

In those cases (*a*) irregularity of temperature, (*b*) double rise with rigor, (*c*) pain in loins with dysuria or pyuria are characteristic points though blood-culture and urine-culture clinch the diagnosis. B. coli-infection is terminal in many cases of K. A. and often goes concurrent with it. Antimony injections can't bring out the desired leucocytosis and hence the prolongation of fever for indefinite periods till vaccine injections and specific alkaline therapy are resorted to for the cure of the patients.

(*c*) T. B. + K. A.—Many K. A patients are attacked later with tuberculosis.

(3) Association of various other uncommon septicæmias as mixed infection.

ii. (A) B. coli infections occur in course of (i) Nephritis (ii) Enteric fever (iii K. A. (iv) Strepto and Staphylococcal Septicæmias (v) Small-pox (vi) Measles, (vii) Diphtheria. The characteristics of this fever are

(*a*) Evening rise with rigors.

(*b*) Clean tongue and clear mind.

(*c*) Pain in brains.

(*d*) Occasionally dysuria, pyuria and bacilluria.

(B) *Streptococcal infection*: —This occurs along with (1) Enteric fever. Here the streptococcus is said to be responsible for (*a*) Haemorrhage (*b*) Perforation and (*c*) unusual gravity of symptom—extreme meningeal affections (d) occasionally persistance of temperature (hectic in type) after 3 or 4 weeks —controlled by specific serum or vaccine.

(2) B-coli and staphylococcal infection. These are usual in the puerperal state.

(*c*) *Filariasis.*—Col. Sir F. P. Connor is of opinion that streptococcus is responsible for elephantoid fever and he has demonstrated short chained streptococcus from blood-culture of a patient suffering from elephantoid scrotum during his febrile attack and the same coccus also from the attacked tissue. Though his idea can't be dogmatised, still the following case may suggest that filarial septicæmias occur and end fatally.



But classical literature has never cited a single case and we may hold that streptococcus of virulent class causes the mischief.

*Case No. 4:*—A man—aged 42—with history of elephantoid scrotum was attacked with fever one night with pain and typical elephantoid swelling of left arm. Next day he had extreme delirium with subsultus tendinum. He was diagnosed as a case of Filarial septicæmia and was given 2 injections of Sulfarsenol (12 cgms and 18 cgms.) but he succumbed. Was it a fact that microfilaria caused the septicæmia? But the fact can be better explained as streptococcal infection—streptococcus being relieved from the sheath of microfilaria in some mysterious way attacked the blood. May it be suggested that Antistreptococcal serum in heavy doses might have been helpful here?

(*d*) Streptococcal infection also occurs in course of diphtheria, small-pox and measles. In Diphtheric cases with swelling of glands, culture has often shown Strepococcus along with Klebs-lœffer Bacillus and it is the routine treatment of some authorities to administer a few cc. of antistreptococcal serum along with massive doses of Anti-Diphtheric serum. The result is that these cases have normal temperature in shorter course with ready disappearance of glands.

(*e*) Small-pox in pustular stage often proves fatal followed by high temperature, delirium etc. Here the fatality is due to streptococal sepsis.

(*f*) A case of measles too has a fatal end followed by nephritis and dysenteric symptoms. Hemolytic type of streptococcus is said to be the organism concerned.

(4) *Association of Spironema pallida as mixed infection.*—(i) Syphilis and Leprosy are kith and kin. Dr. Muir has got good results in some intractable cases of Leprosy with 'As' therapy and found W.R. positive in some 60% of lepers. (ii) Syphilis and tubercular affection are by no means too rare.

(iii) *Syphilis and malarial fever*:—Syphilitic fever concurrent with malarial pyrexia often throw difficulties in our way of diagnosis. The following case is interesting.—

*Case No 5.*:—" A Mohamedan boy—11 years—spleen enlarged —jaundiced—with ch malarial history—could not be relieved of his febrile symptoms till his blood examination showed W.R. positive. A course of sulfarsenol put a stop to the pyrexia. He, though a sufferer from congenital syphilis had nothing of the classical feature.

(5) *Helminthic association as mixed infection*:—Intestinal helminthiasis often goes side by side with

(i) Malarial infection
(ii) K. A.
(iii) Enteric fever
(iv) Amœbiasis
(v) Cholera

Round worm, hookworm, thread worm, tapeworm and uncommonly strongyloides, and whipworm, often mask the clinical feature of a case and lead us astray.

(1) Marked irritation signs in case of children having febrile attack or the intractable nausea and vomiting should in course of fever arouse the suspicion of Ascaris infection.

(2) Marked anæmia and œdema in spite of specific treatment of malaria and K. A. should arouse the suspicion of ankylostomiasis. Lots of cases are on record where ascaris or ankylostoma was responsible for a low grade temperature in course of malaria or K. A. fever.

(6) Concurrent association of various bowel diseases as mixed infection.

(i) Amœbiasis and Bacillary Dysentery often go hand in hand. The Shiga-Flexner group make an attack on the intestinal ulcer primarily of the amœbic type.

(ii) T. B. infection of the bowel and amœbiasis or Shiga-Flexner infection are also not uncommon.

(iii) Flaggelete dysentery, streptococcal Diarrhœa or Dysentery due to Bacillus pyocyaneus often occur concurrent with common Amœbiasis or Bacillary Dysentery.

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## * SOME GENERAL CONSIDERATIONS ON RATIONAL DIETARY

BY

DR. AHIBHUSAN MUKHERJEE, NATANGANJ, BURDWAN.

The wide gulf of the nervous system differentiates the Genus Homo from all other species of animals. From his birth till about the age of 40 years the human being lives an animal life, that is his somatic tissues are developed, his senses are enjoying, he begets his progeny and all that. From the age of 40 till the age of 50 years there is a quiescent period when his animalities are diminished and his process of physical

* Specially contributed to "The Antiseptic"



development stops. The nervous system, which takes much more longer time for full development than the other somatic tissues, begins to develop from this period of his life. If the object of life of the human being be something higher than other animals then it might truly be said that the real man comes in from his 40th year of life, that is, when his nervous system really begins to work and his cultural faculties begin to manifest and when the muscles are no longer capable of feats of strength, "when the mind untrammelled by the excessive demads of the flesh settles down to its own appointed task". Nevertheless it is by having due attention to his animal period that he is enabled to fulfil his larger destiny and so the proper attitude towards the animal period is to regard it as a period held in trust for the mental hereafter. "The preservation of health", said Herbert Spencer "is a duty. Few seem conscious that there is such a thing as physical morality."

The most important factor in a man's continued existence in a state of physical efficiency is the smooth working of his alimentary system. The material with which he seeks to repair his waste is obviously a subject which deserves his most anxious and intimate consideration, and yet it is one which has been left largely to the haphazard behests of pleasure and the palate. "The leading principle in the use of food is that we should eat to live and not live to eat," says Lorand. It is obvious that the material with which we repair our physiological waste is of the most serious import to the efficiency of the machine. To use the machine wrongly, by working it in a manner for which it was not originally intended or designed, is the surest method of bringing about its early decline. It must be borne in mind that the elaboration and assimilation of a large quantity of food requires the activity or even hyperactivity of several of our most important organs, upon the condition of which our healthiness depends. Overactivity of an organ is followed by its hyperactivity and so by laying too great a burden upon an organ and continually over working it without giving it any rest for recuperation, we are burning the candle at both ends, and rapidly exhausting the vitality of such important organs as the Liver, Kidneys, Pancreas, Stomach, and Intestines and last though not the least those ductless glands, Thyroid and Parathyroid—which take a prominent share in the destruction of poisonous products formed in our

bodies from the end-products of food. Thus in our ignorance of dietetics we are engaged in wearing down the machine which was intended for 120 years but which shows serious signs of wear at 50 years of age and may confidently be expected to peter out in 70. As matters stand at present the ordinary man begins to rot at 30 and when he reaches 59 the sinister process is in full swing as could be seen on the abdominal contour of the all-too-numourous victims. It is regarded as natural and physiological for a man to have achieved a considerable gain in weight by the time he reaches 40. Apart from the question of hyperactivity the mechanical obstruction which it causes to the noble organs by the deposit of extra material in and around them, impending their activity is just what it would mean putting an extra pound or two on the back of a race-horse to its winning capacity. In our country a massive weight is looked upon with great praise and the bulky individual considers himself very fortunate for his rotundity.

It is wonderful to consider how on little food, animals or human beings can exist upon for a long time and remain in good health; and it is certain that the foundations of many diseases are laid by excessive eating, and that more people die from eating too much than too little.

The opinion that "we all eat too much" is often smilingly emitted by people who never make any attempt to eat less. Not to speak of the lay people; it has been heard from people educated medically that they thought it their duty to eat as much as possible in order to keep up their strength and to advise the public accordingly. For this ignorance of the medical profession the medical man is not to be blamed because, as a student, he was taught nothing about dietetics although the subject is sometimes taught with reference to infants and young children and some vague empirical reference is given to the dietetics of invalids and sick people. This ignorance which prevails on the subject of dietetics is responsible for many preventible diseases and for most premature deaths. The medical profession though it babbles the truth that prevention is better than cure has got yet to learn that prevention is all and cure, nothing. When he has sown the seeds in ignorance, and reaped his harvest in suffering, he calls upon a fetish to perform the miracle of deliverance. It was not an idle but a well merited reproach which declared that the science of medicine consisted in pouring drugs about which we know little into stomachs about which we know less.



Although it is certain that more people die from over feeding than from eating too little, yet prolonged under-feeding may be quite as dangerous. In starvation, the resistance against infectious diseases is diminished and the most common of all maladies is Tuberculosis. In dealing with starvation we have got to look after two factors—the quantity as well as the quality. Much depends on the quality of the food we take, for some foods are of little nutritive value and even of the most nutritive foods some parts may pass out as waste products because those organs which elaborate and assimilate them may partially or wholly be changed by disease and so unable to fulfil the work for which they are destined.

Given a certain amount of food, the condition of the body and the maintenance of strength will depend mainly upon the nutritive value of that food. Having no other means at our disposal at the present time, we have got to regard our foodstuffs according to their proximate principles. Although the discovery of vitamines has thrown light upon many dark places and has emphasised the fact that it is impossible any further to regard our food stuffs solely from their proximal point of view, even with regard to the relationship between their proximate principles themselves, it is probable that there might be some condition which becomes more agreeble to our digestive organs and that condition exists in the combinations in nature.

All articles of diet are chiefly classified under the three principal groups—Proteids, Carbohydrates and Fats. In order to maintain life replenishing the waste and without exposing ourselves to disease it is necessary to use all the three kinds of foods. The best method of calculating the nutritive value of any food is to estimate its caloric value, that is, how many calories it can produce in the body during combustion. It is known that one caloric is the amount of heat necessary to raise the temperature of one gramme of water to one degree centigrade. According to Frankland, Stohmann, Danilewsky and Rubner one gramme of proteid produces 4·1 calories; one gramme of carbohydrate 4·1 calories but one gramme of fat produces more than twice as much *i. e.* 9·3 calories. According to Rubner the following number of calories are indicated daily :—

| Doing light work | Albumen | Fat | Carbo-hyd. | Calory |
|---|---|---|---|---|
| For an adult of 90 Kilos | 90 | 37 | 262 | 2102 |
| Do. Do. Do. Do. 70 | 123 | 46 | 317 | 2631 |

| | | | | |
|---|---|---|---|---|
| Doing heavy work | 96 | 44 | 404 | 2472 |
| For an adult of 50 Kilos | 118 | 56 | 500 | 3094. |
| Do. Do. Do. 70 Do. | 91 | 45 | 322 | 2111 |

Proteid food serves to build up our body tissues, carbohydrates to produce the energy for muscular work and the fats to produce heat.

Accordingly persons who are growing will require more proteid food to build body tissues. It is also indicated for those who have had much loss of tissues as in convalescence after wasting diseases, and also after different kinds of excesses where much tissue is wasted *e. g.* after sexual excesses. Proteid food is also necessary for women during pregnancy and lactation. What bricks and mortars are to a building, so proteids are to the body, when once the building is finished very little of bricks and mortar are required for its upkeep, so when once the body is built up very little of proteid is required to keep it fit and agoing. Speaking generally by the little "carbohydrates" is principally meant vegetable foods in the same way that by "albuminous foods' animal food is mainly designated although most albumen is found in leguminous vegetables, such as peas, beans, chanas and lentils. They are also rich in carbohydrates as will be seen from the following table of percentages of Rubner:

| Food | Calories | Albumen | Fat | Carbo Hydrate | Cellulos, |
|---|---|---|---|---|---|
| Flour of Peas | 362 | 25·7 | 1·8 | 57·2 | 1·3 |
| Do of Lentils | 364 | 25·7 | 1·9 | 56·8 | 2·1 |
| Do of rice | 351 | 6·9 | 0·5 | 77·6 | 0·1 |
| Do of Indian Corn | 382 | 14·0 | 3·8 | 67·6 | 3·1 |
| Do of wheat | 252 | 10·2 | 0·9 | 74·7 | 0·7 |
| Potatoes | 98 | 2·1 | 0·1 | 21·0 | 0·7 |

From the above table we will not be surprised to find that we can thrive well for a good length of time by using the above exclusively as our food. The drawback to this kind of food is that it requires the stomach and intestines to perform much more work and in consequence less of it is utilised for reasons which we refer hereafter. The other drawback is that they contain purin bodies and form uric acid in considerable quantities, specially peas and beans. Rice forms the least uric acid and contains the least salt for both of which it forms an ideal food in kidney affections. It is at the same time a nutritive food as it contains a very large amount of carbohydrate and



almost the least cellulose of all foodstuffs. It is very poor in fat and proteid, for which reason people with vegetable proclivities simultaneously take legumens, fat and salt with it. That by means of rice diet great muscular energy can be produced, is a well-known physiological fact and is also borne out practically by the great tenacity and resistance against bodily fatigue offered by the Santhals and coolies whose diet consists mainly of rice and a lump of salt. The carbohydrates form an important source of energy for the maintenance of the organism. They are stored up as reserve food supplies in the living organism in the form of complex colloidal substances such as Glycogen or animal starch and ordinary starch, which are broken down or hydrolysed by enzymes as required to sugars, then being utilised and oxidised to carbonic acid and water. Green plants alone can manufacture carbohydrate supply. The simpler carbohydrates or sugar constitute an article of diet of no mean importance. It will not be out of place here if a reference is made as regards the difference between the various forms of sugar because it would be quite unreasonable to speak of sugar alone, as it would be to speak of Chloride of Mercury without differentiating between calomel and corrosive sublimate. The difference between the Modosaccharides on the one hand and the Disaccharides on the other is no less important in its way than the difference between Mercurous and Mercuric Chlorides.

The disaccharides, otherwise known as the sucroses are represented in common use by cane sugar, palm sugar, and beet sugar which means that they form a very large proportion of ordinary household sugar.

The monosaccharides, otherwise known as the glucoses include grape sugar (Dextrose), fruit sugar (Fructose or lævulose), and invert sugar, which is a combination of the two foregoing. The best example of invert sugar is honey. The disaccharide has to be converted into a monosaccharide before it can be assimilated. There is provision in the alimentary tract for this necessary conversion but it must be remembered that the provision is limited and any undue strain on the provision may lead to evil consequences. The provision takes the form of ferments which are secreted and poured into the intestinal canal. Disaccharides—such as cane sugar— are therefore indigestible to a degree and the more concentrated it is the more indigestible does it become. In strong solutions sugar

is an irritant and the evidence of it may be found in the hands and arms of grocers and others who constantly handle sugar. Cane sugar if taken in large quantity is liable to act as an irritant to the stomach itself and also as a retarder of the digestive process. The concentration of cane sugar can be well understood when it is known that every large lump of sugar represents about two feet of sugarcane.

The above is in no way true of the monosocharides. All three of the dextrose, fructose and invert sugar are immediately assimilated, no energy is wasted in converting them from one to another and they exercise no irritating effect on the gastric mucosa. This is more specially true of fructose and honey, neither of which is in any degree crystallisable. It is less true of the artificially pepared dextrose because of the liability of impurties creeping in the process of its manufacture, but of the natural dextrose or true grape sugar, it is.

When sugar enters the blood, its ultimate fate as we have already seen is to be converted into glycogen and stored up into liver and muscles. Now, it has been found that only those sugars which are directly fermantable by yeast are capable of this conversion, The di-saccharides are not directly convertible, without being changed into mono-saccharides.

Sometimes the capacity of the ferments may from exhaustion or other causes be very feeble ; and if at the same time the absorptive power in the intestine is considerable, some of the alien cane sugar must be passed into the blood unchanged. Being incapable of conversion into Glycogen it appears in the urine, that is what is known as Alimentary Glycosuria, which almost always passes unnoticed but sometimes becomes the forerunner of diabetes.

From the above it will be seen that sugar is not an easily assimilable food. It is certainly true of the mono-saccharides but not so of the di-saccharides which constitute about nine—tenths of our total sugar consumption.

Starch is carbohydrate food and belongs to the poly-saccharides group. Through the ferment in the saliva, pancreatic and ntestinal juices it is converted into mono-saccharides and then ıbsorbed and stored as Glycogen. Through work this glycogen s exhausted. Thus the carbohydrates are the prime generators ıf muscular energy although a part of the muscular energy of he body can be provided by the proteids and fats,



Carbohydrate food and especially those that are poor in fatty contents such as rice and potatoes, necessitate the simultaneous use of fat; for, this kind of exclusively carboydrate diet would invariably lead to starvation unless there was a plentiful supply of fat within it ; and the best and most agreeable form to introduce fat is by means of ghee and butter.

An excess carbohydrate food interferes with the normal proteid metabolism and is a fruitful source of obesity in persons who are given to vegetable proclivities. Our vegetarian up-country and Marwari brethren and the sweet-meat makers of Bengal are glaring examples of this form of obesity.

Besides the three principal items of nourishment, proteids, carbohydrates and fats, there are other factors, less well recognised, but no less important, concerning which we at present know far less than we ought to know. Perhaps the most outstanding of these neglected factors are the mineral salts. Having regard to the fact that through our amphibious ancestors we are derivatives of the ocean, it would not surprise us to know that mineral salts are the very essence of our being. Our very blood is but sea water with certain corpuscles and other organic principles superadded. Salts of calcium, Iodine magnesium, Sodium, Potassium and Iron are all, in various degrees, essential not only to our well-being but to our continued existence. Experiments made by Lurine and Forster have shown that animals cannot live on food that are devoid of mineral matters; and the latter has further shown that animals can live longer without any food at all than with food that has no salt whatsoever.

Sodium chloride is an article of diet especially for those who are vegetarians. According to Bunge the Potassium element of the Potassium salt of the vegetables combine with the chloride of the sodium chloride in the blood and the sodium combines with acid of the salt of the potassium. Both of these are excreted by the kidneys rendering the blood poor of sodium chloride. So it is indispensable that to replenish this loss of sodium chloride we have to take adequate quantity of common salt with our vegetable food. For meat-eating people this salt may not be taken as it is contained in the meat food itself, in proper amount.

Lime is indispensable for the body growth. It is required for the growth in children, for the skeletal formation and maintenance of good dental condition. Lime has influence on the

involuntary muscles, on the secretion of the stomach and the quantity of the urine. The coagulability of the blood is affected if its lime content is poor.

Iron, the essential element of hæmoglobin, is best given in its organic form. Blood, especially pig's blood, contains the largest percentage of iron as shown by Bunge. According to Bunge one hundred grammes of dried substance contain milligrammes of iron :—

Pig's Blood—226
Spinach—33 to 39
Yolk of egg—10 to 24
Beef—17
Cabbage green leaves—17
Almonds—9·5
Beans—6·2 to 6.6
Peas—6·2 to 6·6
Potatoes—6·4
Grapes—5·6
Human milk—2·3 to 3·1
Cow's ,, —2·3
Rice—1·0 to 2·0

Bunge's table:—100 grammes of dried substance yields milligrammes of lime :—

Cow's milk—1510. Human milk—243. Yolk of egg—380. Beef—24. Peas—137. White of egg—130. Potatoes—100.

Thus there are certain articles of food which can be suitably combined both for lime and iron contents. Almost all green vegetables contain an excess of iron.

Iodine reaches us from the sea itself, carried by the spray; from salt-water fish, especially Cod, and mixed with Chloride of Sodium. It has been found on investigation in European countries that Goitrous districts, as in Switzerland, are far removed from the sea board, so that spray and fish furnish them with no iodine, the only available source of which is therefore common salts. Here again by refining the NaCl, intended for table salt, the iodine content of the natural product has been abolished and inland dwellers are deprived some relatively, others absolutely of an essential constituent of food.

The presence of these mineral salts in our food is not only important, but the element of their quantitative relationship to one another, their balance has been shown to be a question of the deepest moment. Dr. John Boyd Orr says " the amount of any mineral which must be present in the diet depends upon a number of factors which influence either its absorption or its excretion In estimating the mineral requirements these factors must be taken into account. The mineral may be present in a combination from which it cannot be easily dissociated in the alimentary canal. The diet, therefore, might contain a sufficient amount, as determined by chemical analysis but owing to the difficulty of assimilation only a very small proportion might pass through the wall of the intestine into the metabolic field from where it could be utilised. In the case of most minerals both absorption from the intestine and excretion by the kidneys are influenced by the amount of other minerals present. Bunge showed that the addition of Potassium salts to the diet caused an increased output of Sodium salts in the urine.....The Potassium-Sodium ratio in the diet is a factor in determining the percentage of ingested Calcium and Phosphorus which can be assimilated and retained by the growing animal.



" Hart and Steenback have shown that excess of Magnesium interfered with the utilisation of Calcium. Phosphorus and Calcium are mutually dependent upon each other for utilization. So also to some extent are Calcium and Iron. The balance of the base and acid radicles affects both absorption and excretion. These examples of the interdependence of the different mineral constituents of the diet to each other are of as much importance as the absolute amounts."

The author then proceeds as follows :—

" Fortunately mineral deficiencies can be easily corrected by including in the diet, foodstuffs, the virtues of which are universally recognised. Milk, green vegetables and certain fruits are rich in calcium; milk, Egg yolk, and Cereals containing sufficient of the embryo and outer part of the grain are rich in phosphorus. Green vegetables and Egg yolk are rich in iron. The only certain sources of Iodine are green vegetables and Cod-liver oil. Fruits and vegetables have an excess of alkali, and thus can correct a diet which is too acid. The foodstuffs which are rich in inorganic constituents liable to be deficient in the modern diet, are also rich in vitamins".

Baron Berzelius recognised the phenomenon called "Catalysis" in which certain substances, by their presence alone set into activity chemical processes, otherwise dormant, without themselves undergoing any chemical change. Though Catalysis are at present very difficult of detection, it may be said that like vitamins they are present in natural foods, and absent in cooked artificial foods.

*Vitamins*:--The discovery of vitamins or accessory food factors has not only shown that it is useless to express our foodstuffs in terms of their calorific value and proximate principles but has also shaken our faith in the harmlessness of cookery. These substances are of unknown nature, their chemical constitution and function in metabolism are not as yet understood but investigations so far carried out go to show that these factors must be present in diets, so that the requirements of the animal organism may be completely covered. These vitamins are termed accessory food factors and it is characteristic that they are only required in minute amount by the organism, thus appearing almost catalytic in nature. Their absence from our foodstuffs, even when this is relative only, causes certain easily recognisable conditions which go by the name of deficiency diseases *e. g.* Rickets, Beri-Beri & Scurvy. Leonard Williams says, "There are, however, less well recognised morbid states which are due, not to the conspicuous absence of one vitamine but to a slight relative absence of them, all extending over a long period of time. It is more specially such conditions which tend to show themselves when man reaches his plateau, and the deficiency displays itself more readily in an exhaustion of the endocrine system."

Hence the saying, "the Vitamines are to the endocrines what the endocrines are to the economy."

The feature of these accessory substances, or Vitamines, is in general their synthetical formation in the plant organism, animals thus being dependent on the vegetable kingdom for their supply as in the case of protein and carbo-hydrate. The vitamines differ from each other in certain well-marked characters.

(1) *Thermo-stability*:—The anti-scorbutic factor being more readily destroyed than the anti-rachitic or anti-neuritic substances.

(2) *Distribution in nature*:—The anti-neuritic substance is present in the embryo and aleurone layer of seeds, in various plants and animal tissues and specially in yeast.

The antiscorbutic factor is only present in fresh plant and animal tissues, being absent in dry material such as seeds and yeast.

The anti-rachitic substance is especially associated with fat and is not present in such material as fruit juices and yeast. The following are antirachitic—milk fat, Cod liver oil, butter, suet, lard, whilst linseed oil, hydrogenated fat, and mustard oil are destitute of protective effect.



Before concluding this paper it will not be out of place to make a brief reference as regards vegetable and meat diets. Owing to certain peculiarities in our anatomical construction we are not intended by nature to be vegeterians. This is amply demonstrated when we consider the formation of our teeth, which resemble both carnivorous and herbivorous animals. "We have, in fact, teeth similar to those found among omnivorous animals, such as the dog and the pig, while our whole metabolism, the transformation and assimilation of food in our bodies, present great similiarity to that of the dog," says Lorand. The construction of our intestines is further evidence that nature did not intend us to be numbered among the herbivorous animals, which are required to have a much more enormously large intestine to store up and assimilate the very large quantity of herbs or vegetables, which are necessary to satisfy their wants. Those who point out by historical facts that man was destined to vegetarian diet may not be right, for it is certain that many thousands of years ago man was a fruit eater, when he also lived on trees. When he began to live on this earth—terra forma—compelled to do by the law of evolution, he turned hunter and meat eater. From ethnographical museums we find that, from 10 to 5000 years B. C. man fashioned spear heads and knives from flint with which he killed animals upon the meat of which he subsisted, only later becoming agriculturist and omnivorous in diet.

Many who believe in a sole vegeterian diet like to point to animals as an example, for these, they maintain, prosper on, and are contented with herbs. Let us follow up this statement and see what we find to be the case in the animal world. There are few animals of the nobler kind to be found among those existing on herbs, we find the monarchs of the animals among the carnivorous class, and if we take them as example the courage and valour of the lion will appeal to us more forcibly than the cowardice and helplessness of the sheep, and all the herbivorous animals however strong and mighty they may be can be more easily domesticated and brought under control than the carnivorous animals. Even among the people of this world it is found that the more carnivorous races are really dominating over their helpless herbivorous brethren. I am fully conscious

that this statement of mine has the risk of raising many protests from various quarters, and so it will not be out of place if it is pointed out that the highest culture of the brain flourished in India when there was no ban on any sort of meat eating prevailing here. It was at this period that the manhood and the intellectual faculties of India's sons were at its best and which even now stands unrivalled. Professor Max Muller has said, "Indians are a race of philosophers," religion crept in among them afterwards, and I am speaking of this philosophical age and the period of the Upanishads, and not the religious period which followed.

To sum up, it may be said that the proteids and fats may best be taken through our animal foods as these become, "iso" with the system.

Carbohydrates and vitamins are best secured through the vegetable kingdom and the mineral salts from both vegetable and animal kingdom. A purely vegetarian diet is dangerous for those persons whose parents suffered from chronic cachectic diseases, and in whose cases the perils of infection are much more menacing. Even if we do not admit the theory that the albumen of the vegetables is less nourishing than the albumen of the animals, still it is impossible for us to introduce into our bodies the quantity of vegetables which would contain the number of calories necessary in order that we should not suffer from a deficiency of them, and at the same time would allow for waste. To satisfy the requirements of our bodies we would have to eat enormous quantities, and thus overload the stomach and intestines, with the result that even the strongest stomach would undoubtedly give way after a certain time, and dyspepsia, sour stomach, and eventually atony and in many cases even dilatation of the stomach would follow; and abnormal fermentations would readily take place in the intestines after a certain time. Hyperchlorhydria is a fruitful sequel of a too rigorous vegetable diet and we have to order our patients meat diet for its cure.

As regards the advantage of vegetable diet it may be said that it is of great service to the intestines, their torpidity being thereby overcome and if milk be taken at the same time intestinal putrefaction is checked. Arterio Sclerosis is seldom found in persons who have been addicted to vegeterianism for many years. A vegetarian diet can with great probability avoid those diseases which arise from an excessive formation of uric acid. The thyroid, liver, and the kidneys, the activities of



which are strained in animal foods, are greatly benefited by vegetable diet and specially when these organs are in a diseased condition, and the greatest advantage of a vegetable diet is seen in the prevention of the ravages of old age by this means. The degeneration of thyroid, kidneys and liver produces autointoxication and vegetable diet coupled with milk diet can successfully combat it. A vegetable diet supplemented by cereals, rice, wheat, milk, butter, ghee, and eggs, is sufficient to keep an individual comfortably for a good length of time, and also to thrive on it. It is also possible to exist on a strictly vegetarian diet for a long time, and also with advantage, for those persons who have overtaxed their digestive organs by large quantities of meat food, as it will afford the said organs a well merited rest. In order to live for a long period without risk of a vegetarian diet it is necessary to add certain products of animal sources such as milk and eggs.

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## TREATMENT OF LEUCODERMA

### PSORALIA CORYLIFOLIA

BY

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*Psoralia Corylifolia* (N. O. Leguminosæ) is an erect, annual, herbaceous under-shrub, 1-3 ft. high, with pods small, black, sub-globose and glabrous. The plant grows throughout India. There are several species of *psoralia*, a good number being found in America and used medicinally there. In India the seeds have long been in use as a remedy for skin diseases. The skin diseases of India are being systematically studied for the first time at the Calcutta School of Tropical Medicine and (*Psoralia corylifolia vern Bauchi* or *Babchi*) has come into prominence in connection with the treatment of leucoderma.

Leucoderma is known as "White Leprosy" in Hindu medicine, there being several varieties of leprosy under that system of treatment, and although this ancient system, as it stands at present, generally lacks in what we call scientific procedure, it doubtless provides, in many instances, materials of considerable value, as well as facts of close observation. Several of them have been scientifically tested and found to be of real value, for instance, modern medical science has so far failed to find better remedies than those of Indian origin

* Specially contributed to "The Antiseptic."

for the treatment of either nodular leprosy or leucoderma, the medicine used in either case being entirely Indian in origin and in conception, and the knowledge handed down from at least 1,500 B. C. forms the basis of modern investigation not only in regard to leprosy, but also in several other directions.

In its recent annual report the British Empire Leprosy Relief Association predicts that leprosy will be completely stamped out within the next ten years by means of treatment with oil extracted from the dried fruit of Hydnocarpus tree which grows on the Malabar coast. It is announced that arrangements have been made for a deputation of doctors from all parts of India to undergo a course of training in the diagnosis and treatment of leprosy in Calcutta, thereby widely diffusing knowledge of the subject. A similar propaganda seems necessary for stamping out leucoderma by treatment with oil obtained from the seeds of *Psoralia corylifolia*, the sufferers from this disease being presumably no less numerous and no less widely distributed than leprous patients.

The remedy for leprosy is popularly known as *Chaulmoogra*. In his pamphlet on the subject the writer first identified *Chaulmoogra* with *Hydnocarpus* from a chemical consideration of the oil extracted therefrom (*The Pioneer*, March, 1, 1928), all previous leprosy work having proceeded on *Gynocardia* and *Taraktogenos Kurzii* as mentioned in the British Pharmacopæia (1898 & 1914) under *Chaulmoogra*. There is a similar misunderstanding in regard to *Bauchi* (*Psoralia corylifolia*) which may definitely prove to be as efficacious for leucoderma treatment as *Chaulmoogra* (*Hydnocarpus Wightiana*) for leprosy. Both of these drugs are ancient Indian remedies and the misunderstanding arises from inaccurate identification

Unlike *Chaulmoogra*, apparently an Arabic or a Persian name, *Bauchi* is derived from Sanskrit *Vakuchi*. In Hindu books of medicine *Vakuchi* loosely occurs in more than one place denoting two different plants altogether, namely (1) *Psoralia corylifolia* and (2) *Vernonia anthelmintica*, thereby giving rise to the misunderstanding referred to. The exact Sanskrit names for 1 & 2 are *Sugandha* (*lit.* "scented") and *Somaraji*, respectively, *Vakuchi* being a name of secondary importance. Writers on indigenous Indian drugs have however invariably confounded *Somaraji* (*Vernonia anthelmintica*) with *Sugandha* (P. Corylifolia). It is common practice in Sanskrit writings to use more than one name, generally a series of names, to specify a drug and *Vakuchi*



which has given rise to the confusion, is spoken of as *Kushtanashini* (*lit.* "killer of leprosy"). This confusing name apart both *Psoralia corylifolia* and *Vernonia anthelmintica* seeds are mentioned in Sanskrit books as remedies for skin diseases, particularly for leucoderma. Both the drugs are anthelmintic, stomachic, tonic and diuretic, and the oils extracted look almost alike, both being darkish-brown, thick, and of specific gravity from 0·910 to 0·916. In spite of these similarities the seeds and their oils are dissimilar in several respects and if the unfortunate Sanskrit name *Vakuchi* and a host of allied vernacular names, such as *Bauchi*, *Babchi*, *Bawachi*, *Bukchi*, *Bukchidana*, etc., applying to two distinct drugs, are not allowed to cause confusion, each of the two drugs may be tested independently and their action noted in respect of leucoderma.

The physical characters, in which *Psoralia corylifolia* and *V. anthelmintica* are distinguished from each other, are :—

| PSORALIA CORYLIFOLIA | VERNONIA ANTHELMINTICA |
|---|---|
| No. Leguminosae. | N. O. Compositae. |
| *Leaves* cordate, both sides conspicuously dotted with black dots | *Leaves* acuminate. |
| *Seeds* dark-brown or brownish black, kidney-shaped, flat, oblong, about 2 m. m. long and aromatic | *Seeds* black or dark brown, covered with whitish scattered hairs, cylindrical, tapering towards the base and marked with about ten paler longitudinal ribs. |
| *Oil* thick, reddish-brown, with an agreeable aromatic odour. S.G. at 100° F. of 0 910 | *Oil* dark brown and strong smelling. S.G. at 100° F. of 0·916. |

The seeds of both the plants have long been in use in Hindu medicine and, although both of them have long been known as remedies for leucoderma, *P. corylifolia* seeds in preference to *Venonia anthelmintica*, seem to have been tried by practitioners of modern medicine. It is, however, likely that their experiments have been vitiated owing to the confusion caused by identical vernacular names in either case and this perhaps explains why the results obtained have not been uniformly encouraging. About 50 years ago Dr. Kannai Lal-

Dey used an oleo-resinous extract of *Psoralia Corylifolia* and observed as follows:—

"After application for some days the white patches appear "to become red or vascular; sometimes a slightly painful sen- "sation is felt. Occasionally some small vesicles or pimples "appear, and if these be allowed to remain undisturbed, they "dry up, leaving a dark spot of pigmentary matter, which "forms as it were a nucleus. From this point, as well as from "the margin of the patch, pigmentary matters gradually deve- "lop, which ultimately coalesce with each other, and then the "whole patch disappears. It is also remarkable that the appearance of fresh patches is arrested by its application." (Phar. Journ. Sep. 24th, 1881). In the hands of other observers, however, either negative or temporary results were obtained.

The variation in the results reported so far and utter failure in several instances may be due to various causes, namely, (1) adulteration of *Psoralia corylifolia* seeds available in the market, use of substitutes or inferior varieties, there being several varieties of *Psoralia corylifolia*; (2) deviation from technique of extracting oil, the extraction being not an easy process, and chemical treatment of seeds being also necessary; (3) deficiency, owing to causes (1) and (2), of active principle, an essential oil, in the oleo-resinous extract; (4) diagnosis and ætiology of the case under treatment, secondary leucoderma, particularly of syphilitic origin, generally not yielding to *P. corylifolia* treatment; and (5) need for subsidiary treatment with emetine injection, purgative, alterative, antiseptic, attention to dieting, etc. Further, there is another principle which is often ignored. Efficient treatment depends not only on the experience and capability of the attending physician, but also to a large extent on the purity and the potency of the drug employed—a factor over which a modern physician has no control in India and which really pertains to the province of a pharmacist trained in Pharmacognosy and Pharmaceutical Chemistry.

In the event of the drug prescribed being of the required strength and purity as is the case with the oil issued by the School of Chemical Technology, Calcutta, the results observed are satisfactory, particularly when patients strictly follow instructions with patience and intelligence. The oil has an irritant action, its effect on leucoderma being specific. The skin becomes red, which varies in intensity according to in-

dividual tolerance and idiosyncrasy, the malnoblasts are stimulated, leading to pigment formation and finally pigment is diffused into the depigmented leucodermic patches. Some patients get frightened at the first indication of irritation and discontinue applying the oil and some develop no irritation at all. In any case the patient should exercise intelligence and try to keep up the effect by either reducing or increasing the frequency of application, which normally consists of gently rubbing the oil over the affected part two or three times a day. It is sometimes necessary to dilute the oil with olive oil to suit individual tolerance and to apply an emollient as a soothing agent. With attention to these details and to others mentioned in preceding paragraph, progress is generally assured, although it is not claimed that a specific cure for leucoderma has been arrived at in the sense in which salvarsan is understood and used for syphilis.

Samples of oil extracted from *Psoralia corylifolia*, along with pictures representing various stages of leucoderma, were first exhibited at the stall of the School of Chemical Technology during the Calcutta Exhibition of 1923, and from the feeling expressed by several visitors to the stall, it appeared that leucoderma is no less a detestable disease than leprosy and that the lot of sufferers would be largely improved by adoption of an effective method of treatment on the lines outlined in this paper. There have been very important developments in the treatment of leprosy with Hydnocarpus since its seeds and oil were first exhibited by the writer as leprosy cure at Madras Exhibition of 1917 and similar developments in the treatment of leucoderma are, confidently anticipated from the work undertaken at the Calcutta School of Tropical Medicine, also by Captain A Gupta, Skin Physician to the Howrah General Hospital and Dermatologist, Carmichael Medical College, Calcutta.

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# CASES AND COMMENTS.

## A PSEUDO—TUMOUR

BY

K. S. KAMALAPUR, M.B.B.S., DHARWAR.

One fine morning I was called to examine a girl of seven summers. When asked for history I was told she was simply rolling in bed with agonising pain in the abdomen, throughout the greater part of the previous night. And that was not the first time either.

When examined on table I was really surprised to palpate a regular, smooth, round tumour running directly upwards from the right iliac region to nearly hepatic flecture. I had an occasion to examine the child sometime previously and nothing in the nature of a tumour was felt at the time. No wonder if I was taken aback to find a tumour of the size within so short a period. At the time of examination the girl did not appear to be in distress. There was no pain; neither was the part tender. Pulse was normal. There was no vomiting. Anorexia, she had for some time past. Bowels were free.

I was well-nigh advising the guardian to take the girl to a surgeon when the idea of giving a trial to santonine flashed in my mind.

Accordingly 2 grains of santonine with soda bicarb and calomel were given the same night with instructions to give 6 drachms of castor oil next morning.

Lo, what do I hear the next day! Not less than 200 worms were passed in the course of a few hours. And that was not all. For 4 or 5 days thereafter worms were passed.

The tumour of course had completely vanished the next evening; and I saved my face and what more, added a bit to my reputation.

## A CASE OF MODIFIED SMALL-POX

BY

A. S. JAFFRI, L.M.P., L.C.P. & S. (Bom.),
VICTORIA HOSPITAL, BHARATPORE.

A Mohamedan male, aged 35 years, complained of severe pain in the back and limbs which had rendered the slightest movement of any joint most painful. His temperature was



104°F. and pulse full, but only 94 per minute. His face was flushed and eyes bright. Spleen was not palpable and lungs were clear. Tongue was clean and bowels regular. Although he had high fever, he said, he felt all right except for the pain which he attributed to the severe physical exertion he had undergone two days back in travelling on foot some ten miles The fever, he stated, came on during the night following the day when he was exposed to that undue strain, and that the temperature remained steady since then. He was given a simple diaphoretic mixture with salicylate of sodium.

On the morning of the fourth day after the onset of fever the patient's father came to me with an anxious look, saying that his son's condition was serious as eruptions like those of small-pox were visible on his body. I visited him and found that there were papular eruptions on his wrists and ankles and on the palmer and solar surfaces of his hands and feet. They were profuse and slightly shotty to the feel. There were no eruptions on the face, chest or abdomen. His temperature had come down to 100·4°F, and there was great relief in pain. On pressing the nodules he felt a pricking sensation.

The presence of vaccination marks, the appearance of eruptions first on the distal ends of the extremities instead of the face and trunk and the temperature still persisting, I hesitated in calling him a case of small-pox. I would have diagnosed him as a case of Dengue had there been other similar cases in the locality. I left the patient telling him and his father that there was nothing to worry about and prescribed a stimulant mixture. On the sixth day, instead of finding them in the vesicular stage, I found the eruptions fading and turning dark in colour. There were a few papules on the forehead and two or three on the abdomen too. On the extremities they had extended up to the middle of arms and thighs.

Twelve days elapsed without any serious incident and on the 13th day temperature came down to normal. There was nothing left on the skin except black pigmentation marks on the site of the papules. During the whole course temperature never went below 100° F. and the pulse was slow not corresponding to the height of temperature. Intense pain in the back and joints, persistence of temperature all through the course of the disease, appearance of the eruptions first on the extremities and absence of the usual stages of vesicle and pustule formation were the peculiar points of the case.

## A SUICIDAL CASE OF ABDOMINAL INJURY

BY

RASIK BEHARI LAL, L.M.P., MED. OFFICER, GHATAMPORE, DT. CAWNPORE.

M. A., Mohamadan male, aged about 35 years, was brought to the hospital by the police, with the following history :—

While the police patrol were passing in front of a certain house they heard the shreik from the house. They reached the house from which the voice was heard, but found it closed from inside, no one replying to their calls. The police were therefore obliged to break open the door of the house wherein they found the dead body of the mistress of the house, an elderly prostitute, as well as a living but unconscious body of the above man with a stab wound in his abdomen.

According to police version the patient was removed to the hospital within half an hour after the injury. He was received in the hospital at 2 a m.

*Condition on admission :*—The patient was quite unconscious ; pupils normal, reflexes sluggish ; Pulse very feeble, running, uncountable ; respirations regular, but slow ; skin perspiring, cold.

Locally there was a big mass of gut and omentum protruding through a small wound. The viscera were inflamed and there was a continuous oozing of blood. The wounded area was covered by a dirty cloth, the turban of the same man probably.

*Treatment :*—Patient was immediately given an injection of Morphine Hydrochlor hypodermically. The wound was washed with warm saline and covered with a towel soaked in the same.

The Medical Officer in charge of the hospital was informed and preparations ordered for laporotomy which took about half an hour.

*Operation :*—The patient was put on the table and chloroform administered. The operation was begun at about 3 a.m.

The outlying viscera were again cleaned thoroughly and a steady search was made for any wound in the gut, which was much inflamed by this time.

A large opening was found in the transverse colon of the large intestines, the part which was lying totally out of the abdomen.

It was decided to excise the whole of the protruding part and to join the two ends by end-to-end anastomosis. The two



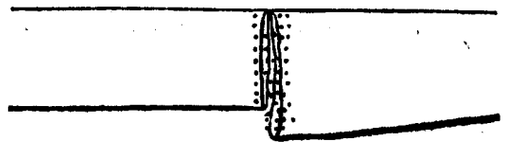
clamps were applied on the site proposed for excision (as there were no more clamps available, the gut to be excised had to be secured by long Kocker's artery forceps). The gut was cut as near to the clamps as possible to avoid soiling of the peritoneal cavity. To bring the healthy parts of intestines on either side the wound was enlarged downwards for about 3" from the original wound, which was found to be situated exactly through the umbilicus.

The omentum lying outside the abdominal wall was well secured in different places and excised.

The ends of the intestines having been well cleaned were united by three rows of fine sutures, one passing through the mucous coats alone, the other though the muscular and the peritoneal coats, while the third row was applied above all to cover the wound in a purse-string manner.

As soon as the grip was released the gut fell back into the cavity owing to tension. The wound was cleaned, preparations were being made to unite the rent in the parietal peritoneum when bleeding was observed to take place in the abdominal cavity. A search had to be made for the bleeding point which was found at length in the omentum owing to a cut made with the dagger causing the original injury. This was secured and the bleeding stopped.

At the time of searching for the bleeding point a horrible mistake was discovered, that the part of the opening of one side of gut was left open at least ¾" long, but fortunately very little of the faeces had escaped from this exit, by the time it was discovered. It was found impossible at this time to excise and reunite the gut and therefore the hole was closed by uniting the two margins of the slit together. Having washed the



peritoneal cavity of blood etc, the peritoneum was sutured, the peritoneumn in the upper part of the wound could only be roughly sutured owing to the irregularity of the original wound. The muscles were sutured up and finally the wound in the skin was made up and dressed.

The patient was removed from the table with little hope for his survival owing to the accidents during operation and the severeness of the original injury.

The patient was put on continuous rectal saline for the next 24 hours to combat shock. He made an uneventful recovery with the exception that he showed irritability owing to some dragging pain in the abdomen. The temperature which was 102°F on the day of operation came down to normal on the third day with slight rise in the evening, a few days longer.

The wound healed up by first intention except the original wound which was healing up by granulation. Being in good condition the patient was transferred to Jail hospital on the 13th day after operation.

Several days after he was seen by me in the jail; the wound was healing slowly and the patient was getting on evening temperature, otherwise he was quite well.

*Points of interest:—*

(1) Patient received in a collapsed condition.

(2) Severe injury to the viscera and peritoneum which were also soiled.

(3) Hæmorrhage.

(4) Accident in anistomosis.

(5) Uneventful recovery in spite of all the above troubles, the patient neither developed peritonitis, nor has had any other trouble.

(6) The man is destined to the gallows on recovery.

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## A CASE OF TETANUS

BY

M. ASLAM OMAR, L.M.P., (AGRA).

A child aged about three years was attacked with slight lockjaw developing in three days into full symptoms of Tetanus (Idiopathic, as he had nothing to catch an infection through). He was refused treatment at the hospital as he could not afford to pay for the serum. I then started his treatment with subcutaneaus injection of solutions of carbolic acid (2%) and mag. sulph (25%)1cc. each.

Since he could not attend except in the morning I gave him the two injections at the same time only once every day. A bromide and chloral mixture was also administered.



The symptoms had a check and did not develop any further. But there was no very marked improvement even after the nine injections which he had in all. The parents could not bear any more pricks of the needle in their child and took to some domestic treatment. The child was alright in a week after he left my treatment. I believe the nine injections had done something substantial.

I had three cases of fever with quite similar symptoms. The fever came on with a rigour, was accompanied with headache. It behaved remittently throughout the period, being lowest in the morning, about a degree higher in the noon with restlessness and another degree or two in the evening with mild delirium. It continued to increase every day until it was 105 on the 8th or 9th evening and had to be brought down with a hot foot bath. It rose to the same degree every subsequent evening until the eleventh day when it came down by rapid lysis to almost normal. The only other symptoms were abdominal viz, tympanitis with slightly painful discomfort and great tendency towards costiveness which persisted throughout the period. There was a fourth case also remittent in character, 99 or even normal in the morning and 100 to 103 in the evening with abdominal symptoms and bronchial asthma (which the patient had also once before). In this case the crisis occured on the 21st day. All the four cases who were young ladies of 14 to 24 years of age made a clean recovery.

The fourth case was probably one of a mild type of Enteric. What name should be given to the first three cases (without a blood examination) who apparently belonged to the typhoid group?

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## 'A CASE FOR DIAGNOSIS.'

BY

DR. HARDOP SINGH VERMA, L.M.P., MEDICAL OFFICER, GARHMUKTESAR.

Pandit Balmukand, 65, Hindu, male, President, Town Area Committee, Garhmuktesar, came to see me at 8 p m. on the 27th June, 1928. He had 104 temperature and pain in the whole body, specially marked in the shoulder and elbow of the left side.

He told me that he had gone to Hapur 22 miles off Garhmuktesar to see the Tashildar and when he came out of his court he got himself seated in a motor lorry intending for Garhmuktesar and there he got high fever and pain in the whole body from head to foot.

He was prescribed ordinary diaphoretic with soda salicylate and camphor oil for massage at that time.

Next morning I was informed that he got no relief from the treatment. I prescribed him the same medicine and also gave him cinchona mixture every four hour following the diaphoretics. His condition got deteriorated and I was called upon to see him at his house on the 29th June, 1928, at 4 p m. He had the following signs and symptoms:—

*Circulatory:*—Weak and feeble heart beat, pulse rate 110, pulse quick, feeble and weak.

*Respiratory system:*—Nothing particular.

*Nervous system:*—Temperature 105 in the evening and 104 in the morning, Eyes red, Delirium Tremens, tremors of left hand, picking of bed clothes, voice hoarse.

*Alimentary canal:*—Sordes on teeth and lip, motion on every third day, dry furred tongue, sore throat.

*Muscular system:*—Pain all over the muscles of the body and myosites of the Deltoid region, shoulder muscles on either side and most marked on the left, intense pain on touch in the Hamstings and thighs muscles and also the calf muscles.

There was pain in the joints too but was specially marked in the shoulder one.

On the 30th June his condition got still worse and delirium became acute and fever was as high as before and pain severe in the muscles and joints.

He was given Quinine carbolic mixture following the dose of Diaphoretics with Tincture Digitalis and Pot. Bromide. At 1 A. M. on the 1st July he got collapsed and was then given stimulants and the temperature rose to 100 and remained in the same condition and on the eve of the 1st July 1928, my treatment was changed and Vaids and Hakims of the town were given the trial and the man expired on the 2nd July 1928 at 4 P.M.

All along I was treating the man thinking to be a case of Dengue but for that I was not certain. Nor there was any epidemic of the disease in question in the locality. Any professional brethren interested will please communicate his diagnosis through the "Antiseptic."

# The Antiseptic

**AUGUST, 1928.**


## THE FUTURE OF THE MEDICAL LICENTIATES IN INDIA.

The resolution which the Hon'ble Dr. U. Rama Rau intends moving at the ensuing session of the Council of State at Simla, raises a very important issue and on its success depends the future fate of the Medical Licentiates in India. The resolution runs thus: "This Council recommends to the Governor-General in Council to forthwith appoint a Committee of official and non-official medical experts to enquire into the existing defects in the curricula of education for Medical Licentiates in the various provinces of India, and suggest ways and means to improve their course of study with a view to secure uniformity in the standard of education imparted to them and at the same time make it conform to the minimum ragisterable qualification prescribed by the General Medical Council of Great Britain."

The defects in the curricula of studies prescribed for the Medical Licentiates, which vary in various provinces and the disabilities the Licentiates are labouring under have been pointed out times without number in these columns and it is needless for us therefore to reiterate them here. What we are now principally concerned with, is the inadequate training given to the Medical Licentiates and the non-recognition of their qualifications by the General Medical Council of Great Britain. This latter body is dissatisfied even with the training and instruction imparted to the Medical graduates in India and has only accorded, after necessary inspection and investigation through their own agency, temporary recognition of their qualifications which would entitle them to pursue post-graduate study in England. The

prevalent discontent among the Licentiates and their present miserable plight have caused a gradual decline in the number of those gaining admission in the several Medical Schools in this country. The necessity for a uniform standard of medical education in India has been keenly felt and the abolition of the so-called caste-system among medical men has been insistently urged on by more than one Government Medical expert, among whom may be mentioned the late Sir Gerald Giffard, a former Surgeon-General with the Government of Madras. Quite recently Major General F. H. G. Hutchinson, the retiring Surgeon-General with the Government of Madras, had given expression to a similar view and hoped that it would not be long before such a standard would be created in India. It is the several Provincial Governments then that now stand as impregnable barriers in the way of this most necessary and desirable medical reform being carried out. They consider that a cheap medical agency is required for service in rural parts and have consequently ear-marked the Licentiates for the purpose. They have totally ignored the fact that medical science is ever progressive and new theories are daily springing up, revolutionizing the entire course and character of treatment. It is quite essential, therefore, in the interest of the profession and the public that the medical practitioner should be posted with up-to-date knowledge of the healing art, and any imperfections and limitations in his course of study and training will react on his patients and imperil their lives. The Provincial Governments evidently seem to think that the lives of the inhabitants in rural parts are so cheap that they can be entrusted in the hands of imperfectly trained medical men. Cheapness is no synonym for efficiency and the scheme of cheap rural medical relief inaugurated in this Presidency during the Panagal Ministry has been a failure so far. The poor patients in rural parts outstrip the rich and demand free treatment. The rich and well-to-do classes have their own family physicians practising in Ayurveda, Siddha or Unani systems, to attend on them in the first instance and when they find the cases getting out of control, they generally resort to the nearest well-equipped District or Taluq Head-Quarter Hospital, where they can command more efficient medical aid. The rural practitioner has thus to rest content with his small subsidy, bereft of all scope for improvement either pecuniarily or in practice. The Surgeon-General with the Government of Madras has, we understand, discovered that in most of the rural dispensaries there has not been enough



work to do for the medical practitioners, for, their sphere of activities does not extend beyond their Head-Quarter villages and has circularized them to undertake itinerary work. This is no doubt in contravention of the terms of their contract and the rural practitioners naturally resent it, as it would put them out of pocket in the shape of carriage hire etc. and take away a big slice from their scanty subsidy every month. The L. M. P.'s. who are mostly affected by this scheme and circular find their lot miserable indeed. They have undergone a costly training for four years, in a Medical School and for the mere want of one or two more years' training and instruction in a few more subjects, they are branded as possessing inferior qualifications and are thrown out into the rural parts, there to strruggle for existence. This state of affairs should be put an end to at once and the L.M.P.'s must cease to exist henceforth. There ought to be in our opinion one uniform standard of medical education throughout India and one single qualification which must be recognizable by the General Medical Council of Great Britain, so far as the Allopathic system is concerned. The Provincial Medical Service must be equipped by drawing the best men from among them by means of a competitive examination. The rest will constitute the independent medical profession with equal status and qualifications. For rural aid, any number of Ayurvedic Physicians trained in Allopathic system as well and turned out by the Indigenous Schools of Medicine, which most of the Provincial Governments have already established in their respective provinces, will be available. These can be supplemented by 'First Aiders', provided for each village or groups of villages at a very small cost. The Bombay Government, at the instance of their Surgeon-General, have launched on this scheme of what we may call 'First Aiders' and this scheme commends itself to us most favourably. Under this scheme the headmaster of every Elementary school in a village who is ordinarily an S. S. L. C. trained man, is made to undergo two to three months training, in the nearest Taluq Headquarter Hospital in the elements of Medicine and Surgery and in the treatment of simple ailments and in opening and dressing abscesses and wounds and such like. He is given a set of standard medicines in tabloid forms in proper doses for adults and children, thus dispensing with the necessity for his having to dispense medicines. He is given also a small monthly allowance for this extra work. He is thus enabled to treat free, cases of headache, stomach-ache, malaria, diarrhoea,

dysentery, eye and ear troubles and such like which commonly occur among villagers and open and dress-wounds and abscesses, in short to act as a miniature Dresser of olden days. In complicated cases, his duty is to send the patient at once to the nearest Taluq Hospital. According to this scheme, there will be five or six men provided in place of one rural practitioner and the influence of the Headmaster of a school among the villagers is enough to popularize the scheme and make it a success. This scheme may, with advantage, be tried in the Madras Presidency and in the other provinces as well. So, the bogey of cheap medical aid for rural areas set up by the Provinncial Governments for the retention of the Licentiate course is unfounded.

In view of the impending establishment of an All India Medical Council and the deliberate intention on the part of the Government to exclude the Medical Licentiates altogether from that Council, it is imperative that a survey of Educational Curricula for Licentiates in different parts of India should forthwith be undertaken with a view to raise their standard and make it conformable to the registerable qualification prescribed by the General Medical Council of Great Britain. The time has thus arrived, when a momentous step is being taken to place the medical men in India on a par with the rest of their brethren in the British Commonwealth, to level up the standards of education and qualifications of Medical Licentiates and provide a single Allopathic qualification for the whole of India. To this end, an enquiry by an impartial Committee of official and non-official experts should be set on foot, as suggested in the resolution and we trust that the Government of India will lend their hearty support to it.

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## CURRENT TOPICS.

### MEDICINE AND THERAPEUTICS.

**Treatment of Sea-Sickness.**—R. A. Bennett (British Medical Journal, p. 753).—Much can be done in the way of prophylaxis. The traveller who starts with the intention of being sick is seldom disappointed, and he who spends his last days in feasting and farewells will reap what he has sown. One should moderate his appetite, and the other practise auto-suggestion for a week before sailing, and there would be fewer



tragedies during the first days of a voyage. Before a long sea journey it is wise to take two meals a day—breakfast and dinner—for a period of 7 days, eating meat at one only, and avoiding all soups and made-up dishes. At midday take only bread and cheese and an apple. Take half the usual quantity of alcohol, drink water freely, and smoke but a little. The third day before sailing fast—eating nothing, but drinking water freely. That night and the following take a 5 grain blue pill, and the following mornings a Seidlitz powder or a dose of salts. No drugs are needed, but if the patient is exigent he may have a mixture 3 times a day containing 10 grs. of bromide. The trouble is that most people will make no effort to avoid trouble.

During an attack of sea-sickness one remedy is as good as another if taken with confidence. Each traveller has his own specific: one takes bromide or chloretone, another clings to a peculiar form of belt; a third hangs an amulet about his neck; and a fourth plugs his ears with cottonwell. In mild cases passengers should be encouraged to persevere with their own "cures," exception being taken to nitro-glycerin and amyl nitrite, which may lower dangerously the already diminished blood pressure. Failing such a private supply the writer prescribes tincture of iodine, 1 minim in a teaspoonful of milk every half-hour, and a mustard leaf to the pit of the stomach; biscuits and apples to eat; dry ginger ale to drink. However cruel it may seem, patients should be driven out of their cabins into the fresh air; only in the rarest cases is it necessary for them to stay in bed.

Such measures, with the help of time, will cure the majority of sufferers from sea-sickness, though the remainder may call for the most careful watching and tax every resource. These others must be kept in bed in an airy cabin, protected as far as possible from the smells and noises. Swinging cots are unsatisfactory; they must share to some extent the movements of the ship, and the "give" of the elastic fittings to the rods adds to the discomfort. Hot bottles to the feet and a shade over the eyes are comfortable to most people, and there is virtue in mustard leaves over the stomach and on the back of the neck.

Injections of adrenaline—10 minims, repeated if need be—are helpful when the blood-pressure falls below 105, and the same is true of strychnine and camphor. Where vomiting is incessant the ordinary gastric sedatives are useless: the patient

should be encouraged to drink freely of hot water, with or without sodium bicarbonate, which will relieve the bitter taste and serve to wash away the mucus abundantly secreted. It may be necessary to give rectal feeds, and nutrient suppositories are satisfying and convenient. The writer withholds morphine as a hypnotic except as a last resource, for it is apt to cause increased nausea as the sedative effect passes away.

In cases where the exhaustion is becoming dangerous the writer has devised the following method. The patient is kept in a warm salt-water bath—temperature 90° to 95° F.—for half an hour, an hour, or longer. The relief is great and prompt; it cannot be ascribed to the general sedative effect, but to the mechanical changing of the patient's environment. The Sp. G. of the water is 1020, and the body is supportedvery lightly on the buttocks, the shoulders, and the back of the head, with the toes just touching the end of the bath to prevent the legs from floating free. The bath shares the rolling and pitching of the ship, but the water has not time to respond, and keeps its level, with the patient partaking of its relative immobility. In a bath in a rolling ship the surface appears to slant this way and that with the movement of the vessel, but a spirit level floated on a cork raft will show that the water is unaffected. If the ship is pitching the long axis of the bath should be fore and aft; if rolling, athwart ship. The patient must not be able to see the apparent oscillation of the water, and the eyes should be bandaged—voluntary shutting is not enough; since in many cases vertigo is increased by the effort. This procedure always lessens the dizziness and gives relief, often permanent.—*Medical Review.*

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**Treatment of Ascites by Novo-seerol and Ammonium Chloride.**—Sir John F.H. Broodbent (The Lancet, 30th June '28) describes a series of cases of ascites, which got better with Novaseerol injections and Ammonium Chloride by mouth. He advises in these cases up to 2 c.c. of Novaseerol given intra-muscularly or intravenously at intervals of 3 to 7 days, combined with ammonium chloride by mouth given in divided doses up to grs. 150 in 24 hours. He says Novaseerol alone or ammonium chloride alone do not answer so well. In one case of œdema of legs and ascites with normal heart, ammonium chloride 15 gr. was given every 6 hours on the 1st and 2nd day; but no result. On the 3rd day 1 c.c. of Novaseerol, followed by 120 grs. of ammonium chloride in 24 hours, was given. The ammonium chloride was continued, and by the 6th day œdema of legs had gone, but there was still some ascites, so another 1 c.c. of Novaseerol was given intra-muscularly. There was no recurrence of ascites and he was discharged a week later.



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**Pyrexia Due to Infected Teeth.**—Leonard G. J. Mackey (British Med. Journ. June 16, 1928), describes three cases of interesting examples of a prolonged fever arising from apical abscess. In each case the fever was considerable and of long duration, and terminated at once on extraction of the infected tooth or teeth. The patients complained only of vague ill-health, they had no pain and there were no symptoms pointing to any known disease. In all the three cases the discovery of the lesion was made by a radiologist. One lady had pyrexia for seventeen weeks, without any physical signs or symptoms that afforded the slightest clue to the cause of her high temperature which at times reached 103°. But the radiologist, at last, revealed an abscess at the root of a solitary tooth. With the extraction on the following day the pyrexia ceased.

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## PEDIATRICS.

**Work (Crying) Hyperthermia in Infants.**—H. Rietschel, G. Prinke and F. Strieck, Ztschr. f, Kinderh. 43. 221 (March) 1927.

The authors found it extremely easy to demonstrate the influence of body activity on the temperature of the infant, not so much in breast-fed children fed on milk poor in albumin and whey as in children who are disposed to have dyspepsia and infections. In artificially fed infants in which small rises of temperature are concerned, it is always worth while to think of the possibility that fever may be caused by crying, and that a genuine fever may likewise be intensified. It may occur with especial ease if the infant is in a stage of relative loss of water. Moreover, work fever must be considered in the calculation of food mixtures. With a twenty-four hour basal metabolism of 360 calories, work of one hour's duration means the production of 15 large calories; that is an increase in the basal metabolism of 100 per cent. Infants who cry for long periods have an extraordinarily increased need for food; sick children who are restless have the same need. Would it not be wise to consider this factor and to make more use of sedatives

in such conditions, in order to lessen the load on the intestine? One should always remember to give the infant plenty of water to provide means for giving off increased heat.

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**"Gastric Attacks" in Childhood.**—Donald Patterson, Brit. M. J. 1: 869, 1927.

The usual age for so-called "gastric attacks" is between 2 and 7 years. The common causes of these attacks are (*a*) infections in the respiratory or alimentary attacks, (*b*) dietetic errors and (*c*) over-exertion and excitement. There appears to be no doubt in the author's opinion that the first of these causes is by far the most common.

The usual history is that a child, aged 3 or 4, who refuses its supper, seems fretful, out of sorts, feverish and alarms the household by vomiting during the evening some of the food taken at dinner. Examination usually reveals a slight elevation in temperature, dirty tongue, drowsiness, irritability and refusal of food. This picture may vary considerably depending on the underlying cause and on the particular child. Thus the child may show a slight disturbance and be nauseated only, and again the vomiting may be profuse and the bowels constipated with pale motions, or there may even be profuse diarrhœa.

Tonsillitis and catarrhal conditions of the respiratory tract according to Patterson are the most frequent causes of these upsets, especially is this most likely to be the cause in thin nervous and dyspeptic children. The gastric symptoms merely mask the true nature of disease. Recurring attacks of unrecognized pyelitis in girls are not unfrequently an incriminating factor.

Careful physical examinations should be made before the physician says definitely that the disturbance is purely of a digestive nature.

During the influenza season gastric attacks are common and receive the name of "Gastric Flu". In such cases the onset is extremely sudden, the vomiting is often accompanied by diarrhœa, and there is little doubt that the mucous membrane of the alimentary tract is the direct site of the infection.

At this age period slight variations in diet will not produce gross symptoms in the average child; therefore one should not begin an examination of such a patient with the thought that

he has probably overeaten. The typical patient of this type is usually a nervous boy, most often an only child, who has recurrent attacks at more or less regular intervals throughout the year, becoming less and less frequent as he approaches the school age. Consideration of his diet reveals the fact that he is overfed on milk, cream and eggs.

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**Asthma in Infants.**—V. Zerbino, Nourrisson 15 193 (July) 1927. Zerbino takes issue with those who argue that asthma is always secondary to various forms of pathologic change in the lung. In his studies on infants, he can often exclude such infections as tuberculosis, syphilis, repeated attacks of bronchitis, pneumonia, influenza, pertussis and measles. He believes rather that in the asthmatic patient there is a dysfunction of the liver which results in toxic substances being liberated into the blood and thus reaching the lungs. The lungs in turn attempt to neutralize these foreign substances by reactions of the reticular tissues around the blood vessels and bronchi. In assuming this vicarious function, the respiratory function of the lungs is interfered with, and this is manifested clinically by an attack of asthma. In support of this hypothesis, the author calls attention to the frequent association in adults of diseases of the liver, acute or chronic, and asthma.

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**Quartz Light and Diathermy:**—Their Practical Use. A.L. Gleason, Northwest Med. 26, 457 (Sept.) 1927.

Gleason believes that the quartz light has a limited field of usefulness. He quotes certain authorities as considering it far inferior to sunshine in tuberculous condition. In dermatologic practice, the quartz light may clear some conditions, but may irritate acute dermatitides and stimulate a malignant condition. In rickets, the lamp is specific. The use of the lamp is hindered by the impossibility of accurately controlling dosage, as burners vary in intensity and skins vary in susceptibility. Irradiation of food may add antirachitic value to it but destroys vitamin A. in milk. Glass permitting passage of the ultraviolet rays is being introduced and may supplant the quartz light to some extent. Diathermy produces heat that is non-destructive to tissue and is controlled by the size and position of the electrodes and by the strength of current. The results are good in neuritis, spastic torticollis and recurrent pleurisy. Its dangers are the absorption of toxic substances from the

treated tissue and the possibility of hæmorrhage from the severe hyperæmia.

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**The Action of Urinary Antiseptics.**—Ralph Stockman Edinburgh M. J. 34: 369 (July) 1927.

Professor Stockman, of the Department of Materia Medica and Therapeutics, University of Glasgow, discusses the action, and value of the usual drugs given for rendering the urine antiseptic in infections of the urinary tract. He agrees that as yet there is not a perfect or powerful urinary antiseptic, something that is especially needed for treating children. Among the drugs discussed is first, acid sodium phosphate and its effect on the total acidity and on the hydrogen ion concentration of the urine. He believes that if the urine has been of low acidity or slightly alkaline that the sodium salt with hexamine permits the splitting off of a larger amount of formaldehyde than otherwise. When the urine is already acid, the use of acid sodium phosphate is unnecessary. He has found it difficult in some cases of alkaline or low acidity to raise the total acidity by giving 40 grains (2.6 Gm.) four times daily.

Benzoic acid and the benzoates have little action against an infection with *Bacillus coli*. Salol has little value as an antiseptic. In the opinion of Stockman, infection is not cleared up by the use of acriflavine or hexylresorcinol.

Stockman believes that boric acid is of benefit whether the urine is acid or alkaline. In *B. coli* pyelitis of children, it may be administered with the alkaline treatment, adding a valuable antiseptic element thereto. He would use bicarbonate of soda simultaneously with potassium citrate, as less disturbing to the stomach than either alone, and the alkalinity of the urine is more steadily maintained. Ten grain (0. 65 Gm.) of boric acid with sodium or potassium citrate is soluble in one half ounce of water, but a larger dose should have a teaspoonful of glycerin added. With an acid urine Stockman believes that a combination of 10 grains of hexamine, 10 grains of boric acid, and 20 grains (1.3 Gm.) of ammonium benzoate in one-half ounce of water makes the most powerful urinary antiseptic that he knows.

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## SURGERY

**The Tannic Acid Treatment of Burns.**—Seymour Barling (Birmingham Med. Rev., p. 58).—Many burnt patients who survive the initial shock succumb to absorption of toxins from the damaged area. More die in this secondary stage than in the first 24 hours from shock. Such deaths are disappointing in patients who appear to be doing well, having survived the primary shock. They are to some extent preventable.



Within a few hours of the burning, absorption of toxic substances begins. Apart from charring, which renders the burnt tissues innocuous, there is in most burns a *partly* destroyed area. The tissues are in a state of disruption; the stable proteins have been broken down into less stable products. Experimentally such substances are known to be extremely toxic, particularly to the brain, liver, kidneys, and lymphatic tissues, and produce fatty degeneration of the heart.

The clinical picture in severe cases in this toxic period is similar to that resulting from experimental injection of these poisonous products. The temperature and pulse rise; the patient becomes restless and cyanosed; coma or convulsions may ensue, or more frequently restlessness, running pulse, rapid respirations, and cold extremities indicate an approaching end from heart failure. Such symptoms begin on the second and third day. As vascularisation of the layer beneath the burn takes place absorption increases; the toxic tide rises to a maximum during the succeeding days, and death often occurs during the latter part of the first week.

Under the usual methods a burn almost invariably becomes septic, increasing toxic absorption. Such sepsis seems inevitable whilst dead and damaged tissue, which contained many organisms before it was injured, provided a medium for their multiplication. The tide of septic absorption probably follows a little later after that arising from the damaged tissues themselves, and it continues as long as sloughs are present. This septic phase is responsible for some deaths; but short of death it causes ill-health, is responsible for much pain, and by delaying epithelialisation increases scarring and deformity.

Treatment is local and general. Absorption of tissue poisons must be prevented as far as possible, whilst steps are taken to limit septic infection. General treatment must provide for neutralization or removal of toxins, and replacement of salts and fluids of which the body has been deprived by the biochemical changes induced by the toxæmia.

*Local Treatment.*—Many attempts have been made to limit absorption. Short of excision of the damaged tissue, a method impracticable as a rule, the problem has been most successfully dealt with by applying coagulants which fix the half-destroyed tissues and render the broken-down elements insoluble. Absolute alcohol and solutions of picric or tannic acid amongst others have been tried. All have some objectionable features but perhaps the least objectionable is tannic acid. It is non-toxic and if repeatedly sprayed over the burnt area during the first few hours it rapidly turns the damaged tissues into a brown leathery coagulum which, whilst insensitive, is an admirable protection to the tissues beneath. Further, this dry coagulum appears to resist absorption and to be unsuitable for multiplication of septic organisms. In about a fortnight it begins to separate and can be gradually removed from the edges towards the centre. Beneath is healed epidermis if the burn has been superficial, or clean granulations when the whole thickness of the skin has been destroyed.

During the period in which the burn is covered by this protection the patient is spared the ordeal of the daily dressing. The dry insensitive area is best left exposed to the air, whilst the patient is covered by a body cradle heated by a few electric lamps. The burn should be protected from pressure by suitable posture or suspension. Cases thus exposed to the air appear to do best, but if desired the burnt area may be covered by a thin layer of dry sterile dressing after the spraying. In any case this is desirable after about the tenth day when exposure of the raw area may begin, owing to the coagulum lifting at the edges.

With the removal of the coagulum the exposed nerve endings in the raw area render it highly sensitive and painful at dressings, but even so the patient has been spared all pain during the first fortnight or so whilst the covering was in place. The exposed raw area presents the appearance of red healthy granulations and requires the ordinary protection for a wound of this type. In cases suitable for grafting this may be carried out soon after the coagulum separates.

During the first day or two whilst the spraying has to be done skilled attention is constantly necessary, but after this period cases require less attention than do cases treated by the ordinary routine; even severely burnt patients are remarkably well and happy once the period of initial shock is over. The patient has no longer to face the pain and distress of daily



dressing, and benefits in consequence. When at the end of a fortnight the more severely burnt areas become exposed, dressings are painful for a time. However, when this stage is reached, as a rule the area is much lessened by epithelialisation over the less severely damaged areas, and the patient is better able to face the ordeal.

*General treatment* must not be neglected. During the period of primary shock fluids must be administered freely by mouth and normal saline by proctoclysis, or, if necessary, subcutaneously; they must be pressed also during the first week or 10 days whilst the patient is threatened by toxic absorption. Glucose should also be given during this period by mouth, by rectum, or intravenously in 5 per cent. solution. It is an easily assimilable food, whilst it protects the body from the destructive effects of the toxins. In addition alkalis, as sodium bicarbonate, or better still dibasic sodium phosphate (gr. 20, 4 hourly), should be administered to increase the alkaline reserve threatened by the toxæmia.

In very severe cases in which life is threatened by local absorption, as shown by increasing restlessness, rising pulse, and convulsions exsanguination transfusion may be desirable. By this method it is sought to reduce the concentration of toxins in the blood by withdrawal of blood and replacement from a healthy donor. Blood is withdrawn from the patient until the limit of safety is reached; transfusion is then commenced into another vein, and withdrawal of the patient's blood and injection of fresh blood are carried on simultaneously until the amount withdrawn is slightly less than the amount available for transfusion.

*Technique.*—If shock is severe postpone local treatment for a few hours and use warmth, fluids and morphia. As the condition improves local treatment should be carried out. In some cases light ether anæsthesia may be given, enabling the first dressing to be performed with the thoroughness of an operation. After removal of the clothes, the skin around the burn should be cleansed with soap and water followed by a 10 per cent. sodium bicarbonate. The burn is swabbed with ether, blisters are opened and the loosened cuticle removed. The whole area is sprayed with a 2½ per cent. aqueous solution of tannic acid. It is well to follow this by drying with a stream of warm air from an electric drier. The part is then protected by

a cradle over which the bed clothes lie whilst the patient is kept warm by a few electric lamps.

The spraying is repeated hourly for 8 or 12 hours, by which time the burn is covered by a dry brown coagulum. In burns of the face avoid getting the solution into the eyes, nose and mouth ; these must be protected by swabs during the application. In these burns the spray may with advantage be replaced by application of 5 per cent. tannic acid ointment.

During the days following the first dressing any fresh blisters should be opened and sprayed, and occasional spraying of any moist areas should be carried out. When the coagulum begins to separate at the edges a light sterile dressing should be applied to protect the raw areas beneath from contamination. In the early stage, before applying this dressing, the burnt area should be protected from pressure by posture and suspension and the whole area freely exposed to the air, so that it remains dry, wrinkled and insensitive.

The tannic acid solution deteriorates with keeping and should be freshly made every 24 hours. It may be kept in powder form and made up as required.—*Medical Review.*

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**Some "Don'ts" for Ear, Nose and Throat Surgeons.**—1.—Do not use the carbolic-menthol mixture to relieve pain, except in otitis external.

2.—Cases of furunculosis of the external canal should not be irrigated.

3.—Don't be in too great a hurry to open inflamed drums, especially in children.

4.—Wax should be *washed* out of the canal not dug out.

5.—The turbinate ought not to be sacrificed too readily.

6.—Do not figure on relieving obstructed nasal breathing by a septum operation.

7.—Only *diseased* tonsils should be removed.

8.—The transillumination test is often misleading in sinus diagnosis.

9.—Radical sinus operations are rarely necessary.

10.—Avoid instrumentation in laryngeal affections.



These suggestions represent the results of many years of close observation.—Dr. L. H. Schwartz, New York, in Eye, Ear, Nose and Throat Monthly, March, 1921.

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**Air Injection in Tabes.**—In the specific treatments of tabes, the difficulty of medicaments introduced into the blood stream reaching the cerebrospinal fluid is well known. Even repeated lumbar punctures have not given results.

In *Mediz Klinik.*, Oct. 21, 1927, Drs. S. Kissoczy and A Woldrich report their results by the provocation of an aseptic meningitis through air injections into the cerebrospinal fluid, following Dandy's technic for ventriculography.

The patient being seated, punctures are made between the third and fourth lumbar vertebrae. About 10 cc. of fluid are withdrawn and 5 cc. of air injected. Evacuations of 5 cc. of fluid and injections of 5 cc. of air are repeated until 20 to 30 cc. of fluid are extracted and 15 to 25 cc. of air injected.

The patient then lies down and, an hour later, 0.30 to 0.45 Gm. of arsphenamine are injected and this procedure is repeated every fourth day for 5 to 7 times.

Of 15 patients thus treated 10 have shown diminution of the intense pains and gastric crises. Two ataxic patients have been so functionally improved that one has resumed his occupation.

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**Injection Treatment of Varicose Veins.**—Good progress is being made with the injection treatment of varicose veins and ulcers. In *Practitioner* (Lond.), Jan., 1928, Dr. R. Thornhill states that he has found that the Genovrier solution gives the best results. The constituents of this are:

Urethane.....3 Gm.
Quinine hydrochloride.....4 Gm.
Distilled water.....30 cc.

The solution is sterilized by boiling and it should be immersed in hot water before using. The patient sits while being treated.

An ordinary 2 cc. Record Syringe, with a No. 17 surgical point, is found the most suitable. At the first treatment, not

more than 1 cc. is injected. At subsequent treatments, 3 cc. are injected.

The skin over the vein to be treated is swabbed with ether; the point of the needle is inserted into the lumen of the vein; 0.5 cc. is injected; the needle removed; and a pledget of cotton is pressed firmly over the puncture for 30 seconds. This process is repeated along the vein, at intervals of 1 to 2 inches, and 4 or 5 injections are given. Each puncture is then cleaned with ether and sealed with collodion.

In over 15,000 cases reported, not a single case of embolism was observed. An average of 4 treatments, at intervals of from 4 to 8 days, is necessary. Pain is negligible. The author states that the very great majority of varicose ulcers are also curable by this method.

## X—RAYS AND ELECTRO-THERAPEUTICS.

**Actino therapy in Medicine.**—Elizabeth M. Anderson M.D. (The Prescriber, June 1928) writes that ultraviolet therapy is applicable to a wide range of diseases, owing to its properties of raising the general resistance of the body to microbial infection, and of stimulating the metabolism. He says that in treatment of skin diseases, the best results are obtained by a combination of local and general treatment. Exposure of the whole body enables a large amount of ultraviolet to be observed into the blood stream, while intense focal doses on the site of lesion produce a local hyperæmia and leucocytosis. In inflammatory conditions as furrenculosis, acne, psoriasis, and lupus, excellent results were obtained by this. In alopecial, he says, the local dosage is estimated so as to produce a brisk erythema and hyperæmia of the scalp, followed by desquamation. X-ray burns and telanjectosis produced by prolonged X-ray treatments will also respond to treatment by ultraviolet rays. Good results were also obtained in the treatment of pyorrhœa and dental abscesses. In minor states of hypothyroidism this can also be used as it stimulates the endocrine glands. Cases of hypothyroidism will also benefit, as the underlying factor common to most cases is a toxic one (McCarrison), and these rays raise the resistance of the organism to bacteria, and their elaborated toxins. In respiratory diseases, coryza and catarrhal conditions of the upper respiratory passages, bronchitis and emphysema, asthma and hilar tuberculosis, and also pulmonary



tuberculosis, he says, good results were obtained by actinotherapy. Healing of tuberculosis abscesses and sinuses, spontaneous resolution of tuberculous glands will occur rapidly. In tuberculosis of bones and joints extraordinarily good results can be gained, rheumatic disorders, tonsillitis, fibrositis, synovitis, and rheumatoid arthritis can all be successfully combated by this. Lastly, the author says that a variety of nervous disorders can be markedly benefitted by ultraviolet radiation, irradiation improving the tone of the affected muscles, and restoring function either partially or completely. —*K. L. N. R.*

**Treatment of Migraine with Pituitrin.**—J. Zeiner-Henriksen (Tidsskrift f. d. Norske Laegeforening, p. 312)—Of all the theories accounting for the cause of migraine, the most plausible is Quincke's, according to which this disease is due to an acute serous hydrocephalus. The volume and activity of the pituitary body is considerably increased during pregnancy, and it is notable that some patients are free from attacks of migraine during pregnancy, while others suffer more than ever from them. In the first case it may be that the enhanced requirements of the body for pituitrin during pregnancy are fully met, whereas, in the second case, the secretion of the pituitary body is insufficient, and migraine results. Apart from pregnancy, the period of rapid growth in youth is one which makes the greatest calls on the pituitary body, and it is during this period that migraine is most common.

In view of these and similar considerations, the writer has treated 42 cases of migraine with intramuscular injections of 0.5 c. c. of pituitrin once a week. Prolonged improvement was obtained in 20 cases. One of the patients was a young woman who had suffered from regular attacks of migraine since the age of 7. There were no eye or heart symptoms during the attacks, and no polyuria, but the violent headache was combined with attacks of vomiting. The treatment was begun at the age of 23, and after 3 injections there were no more attacks during an observation period of more than a year. She received altogether 12 injections. In one case an injection was given during the acute stage of an attack which passed off completely in half an hour. An intramuscular injection of 0.5 c. c. of pituitrin causes an alarming pallor in the course of about 5 minutes. This pallor is due to the action of the pituitrin on

the capillaries of the skin. The writer always gives the injections to patients while they sit, and he has never observed signs of collapse. But many of his patients complained of feeling very tired during the treatment, though still able to attend to their daily work.

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**Treatment of Alopecia Areata with the X-Rays.**—P. Alinet and J. Berges (Archives de la Soc. des Sciences Med. de Montpellier, p. 89). A man had a patch of alopecia on the nape of the neck. It was rubed with Tr. iodi. and oil of cade but the patch enlarged. The stimulating lotion of the St. Louis Hospital containing pilocarpine was then used. The disease progressed in spite of the treatment until the whole head, the beard and eyebrows were affected. The patient was then seen by Prof. Margarot, who confirmed the diagnosis of *decalvante grave* and recommended treatment with ultra-violet rays. The writer began with local exposures of 2 minutes and gave 3 weekly increasing them by 1 minute until the duration was 27 minutes. A fine down was then appearing on the chin and temples. Finding this insufficient for the head he increased the exposures for it. A fresh growth of hair quickly began at the vertex and extended to the frontal region. A patch persisted on the neck, where the disease began, showing fine down, the sign of approaching cure. Others have published as good results from ultra-violet rays. Some have made general exposures and the writer agrees as to their value.

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**Treatment of Chronic Urticaria with Alkalis and Diet Poor in Sodium Chloride.**—L. Dinkin (Deutsch. Med. Woch., p. 228). A woman, aged 36, had suffered for 4 months from intractable urticaria of the face and body. A teaspoonful of sodium bicarbonate, thrice daily, was prescribed, all other remedies having failed. After taking the first dose the rash disappeared and except for a few mild exacerbations the condition was almost completely cured. Any exacerbation was immediately removed by another dose of the salt together with a diet poor in common salt. The same result was obtained in the case of a man, aged 54.

The writer strongly recommends this treatment.

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**Treatment of Alopecia by Ultra-Violet Rays.**—L. Leiter (Wien. Med. Wock., p. 302.)—A youth of 17 was completely bald



and the eyebrows had also fallen out. The head was divided into four sections and each part treated separately with the rays, the rest being covered. Twenty-seven sittings, 7 in each quadrant, brought about a thick growth of hair all over the head.

A boy, aged 5 years, had an extensive patch of alopecia on the back of the head and a smaller one in the front. Seven sittings for each half produced a thick covering of hair.

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## GYNÆCOLOGY AND OBSTETRICS.

**Induction of Labour.**—G.F. Gibbard, M.B., M.S., F.R.C.S., (Lancet, 30th June 1928), describes a new method of induction of labour with animal bladders containing glycerine. In this method a sterile animal bladder is introduced into the uterus and subsequently partly filled with glycerine. This acts as a foreign body, and a portion of the glycerine passes out of the bladder into actual contact with the uterine wall, and there acts as a mildly irritating fluid. The apparatus consists of a small metal tube of about 1 in. in length to which is attached a rubber tubing of 6 in. in length. To the other end of the tube is attached a sterile bladder. This is introduced by means of a stilette, protected at the tip by a small knob. 50 to 200 c.c. of glycerine is injected according to the capacity of the bladder. The animal bladders, ready sterilised and packed in alcohol, are obtainable in two sizes—pig's bladder 600 c.c. and sheep's bladder 150 c.c. capacity. This bladder in the lower uterine segment gradually increases in size by the passage of fluid through the semipermeable membrane. The author concludes that the method seems to be free from any serious dangers; in addition the technique is simple and easily carried out; and that comparing the results of those obtained with bougies or the stomach-tube, the rapid onset of labour is a very striking feature of the animal bladder method.—*K.L.N.R.*

---

**The treatment of Heart Disease during Labour.**—Sachs (Deutsche Med. Woch., p. 45) lays stress on the impossibility of treating all cardiac defects during pregnancy and reserves the question of interruption of pregnancy for heart disease for future consideration. A great danger is abortion at the second or third month, and cardiac treatment is important. In the fifth or sixth month abortion is more risky for the heart is decompensated and does not tolerate a sudden change in the cardio-vascular system.

During the first stage of labour mental disturbance due to fear and the pains of labour constitute a danger, but can be counteracted by imparting confidence and by a timely but small dose of morphia, or by Stein's method of rectal twilight sleep, in which the enema is administered after pains have set in and the os is dilated to the diameter by one inch. In the second stage the danger consists in bearing down efforts to expel the head. This must be prevented by timely application of the forceps in cases of head presentation, and by extraction in breech and transverse presentations.

Narcosis is necessary, but chloroform is contra-indicated and spinal narcosis is considered better than ether. It removes all pain for 25 minutes. A prophylactic injection of pituitrin given intramuscularly effectively guards against atony of the uterus, and acts in 10 minutes.

The half-sitting posture is recommended for cardiac cases during delivery, and the intramuscular injection of 2 c. c. of seccacornin causes contraction both of the uterus and of the splanchnic vessels. This prevents bleeding into the abdominal vessels which is apt to follow sudden contraction of the uterus, the decompensated heart having difficulty in accommodating itself to the changed pressure. A heavy sandbag placed on the abdomen produces a similar effect.

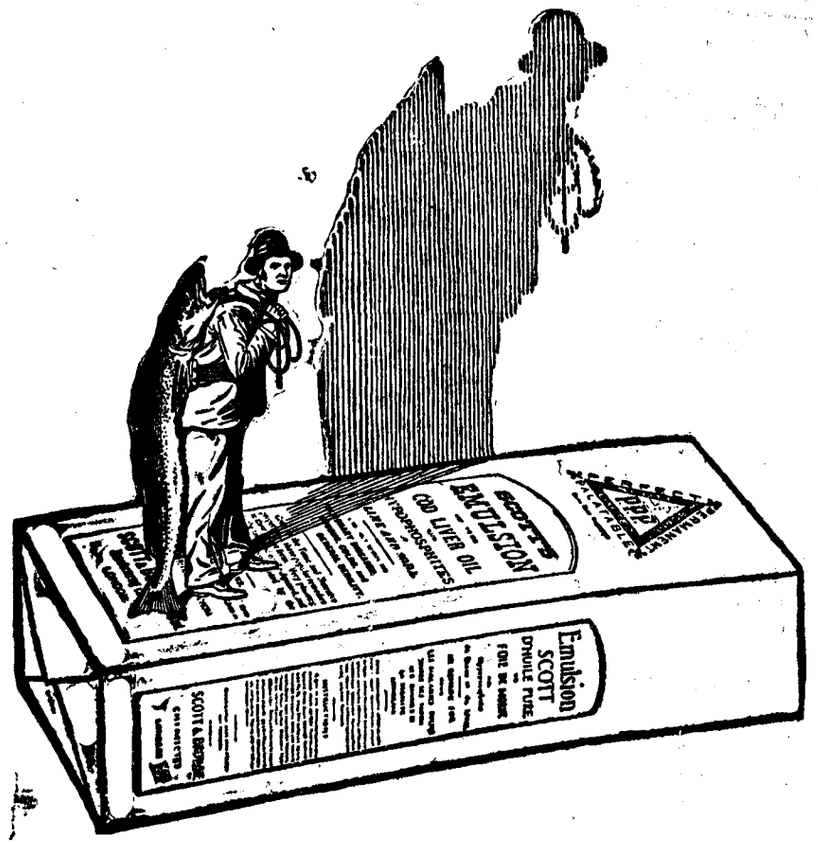
After birth of the child, quick action is necessary, since the moment of emptying the uterus is the critical one, caffeine, cardiozol or lobelin, often being of great help. The heart usually rapidly readjusts itself.

It is sometimes difficult to avoid injuring the child, for the soft parts are narrow and large incisions for the relief of tension may be necessary. These often convert a difficult extraction into an easy one, and protect the child's head from pressure. If made aseptically and sutured at once they usually heal by first intention. In a home delivery, however, such incisions are inadvisable, and should only be resorted to when there is a hindrance to delivery. In complicated cases Cæsarean section is often the only practicable method of delivery.

## SCIENTIFIC PHARMACY.

### DR. P. C. RAY'S LECTURE.

Under the auspices of the Pharmaceutical Society of India. Sir P. C. Ray delivered a lecture on "Scientific Pharmacy"




***The administration of cod liver oil***

**in diseases of infancy and childhood can best be effected by the use of SCOTT'S Emulsion.**

**SCOTT'S Emulsion is palatable, easily assimilated and nutritive.**

**In so-called "wasting diseases," in scrofula, anæmia, rickets, in conditions of atrophy and arrested growth, and during convalescence, the efficacy of SCOTT'S Emulsion is particularly noticeable.**

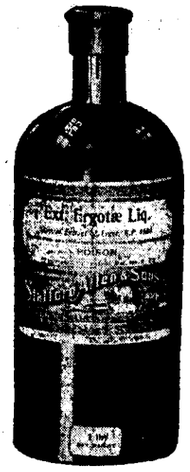
# Scott's Emulsion

***THE ORIGINAL EMULSION OF COD LIVER OIL WITH HYPOPHOSPHITES OF LIME AND SODA.***





**S. A. S.**

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*ESTABLISHED 1833*

*Manufacturing Chemists, Drug Millers, Essential Oil Distillers*

COWPER STREET, LONDON, ENGLAND

**S. A. S.**

in the Library Hall of the Madras Medical College. Lt. Col. C. A. F. Hingston, I. M. S., presided.

In the course of his introductory remarks the chairman observed that the Pharmaceutical Society was started in 1923 through the efforts of some professional men under the name of the Indian Pharmaceutical Association. In 1925 its name was changed into the Pharmaceutical Society of India. The Society consisted of qualified chemists and druggists scattered throughout the country. Their object was to promote and safeguard and to raise the standard of pharmacists to the level of other progressive countries. In every community the druggist occupied a unique position. The chemists here wished to follow the example of the chemists in Britain. They liked to have some uniform compulsory education, examination and registration for all who wished to learn pharmacy. Openings could be made quite easily with Government hospitals and dispensaries under the control of qualified pharmacists. If they wanted their activities to be known they must organise meetings such as the one they held that day and get the people and the Government to know about the work of the Pharmaceutical Society. He then requested Dr. Ray to address them.

Sir P. C. Ray addressing them said that during the last 35 years he had been slowly trying to give an importance to Pharmacy and trying to prepare medicines according to the strict directions of British pharmacopœia in India itself. There was really a very great need for Scientific Pharmacy in India. It certainly was a reproach to the big cities of Calcutta, Bombay and Madras that no legislation existed as yet to compel the local druggists to encourage the services of duly qualified men. On the other hand, no one was more alive than himself to the difficulties which beset their path. In Madras itself they had 2 lakhs of rupees a year voted for the upkeep and maintenance of the Ayurvedic system of medicine, the Siddha, the Unani and various other systems of medicine. In Bengal though the Ayurvedic physicians flourished side by side with the Allopathic physicians, yet the Ayurvedic system had not yet gained sufficient recognition to claim any kind of patronage from the public exchequer. If they made a legislation making it impossible for anyone but a qualified chemist to do the doctor's work then there would be a hue and cry raised in India. The Pharmaceutical Society in England was doing much good work. They had ample funds. When the speaker visited the

laboratory and the college maintained by that Pharmaceutical Society, he was struck with the very efficient staff of professors, demonstrators and the very efficient laboratory and so forth. But what was the case with India ? Even their rulers fought shy to approach the questions where difference of opinion was involved as between race and race and creed and creed. It would be a good thing for them if they could incorporate their societies into one All-India institution.

Continuing Sir P. C. Ray said that in Calcutta there were a number of big firms who were the biggest importers of drugs in the East. And yet no one in Bengal had even thought of approaching the Government with a view to have some sort of legislation. No doubt prosecutions of sellers could be ordered even now with success in case the drugs sold were of inferior quality. But whether or not they could persuade the Government to prohibit the sale of drugs of a poisonous nature by any one other than a qualified chemist was a very difficult question. Even in England the growth of scientific pharmacy was of a comparatively recent origin. The speaker had been carefully watching the state of affairs in India for the last 60 years. He feared that it would take a very long time for things to settle themselves in India. There was a tendency among them to look back to the past, and to glorify in the past. Of course they ought to remember thier past while asserting their position in the comity of nations. But to simply glorify in the past and sit handfolded was a sure way to ruin. The true chemist was he who day and night worked at his pharmacy and whose recreation was only in the laboratory.

Concluding, Dr. Ray said that the question before them was how their society would deal with the rival systems of medicine working side by side.

A discussion then followed. It was suggested that the object of their society should be to aim at reaching the level of pharmaceutical science reached by other progressive countries in the world.

Lt. Col. C. A. F. Hingston thanked Dr. Ray for his lecture and the meeting then terminated.

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## CORRESPONDENCE.

### INDIGENOUS SURGERY.

TO THE EDITOR, "*The Antiseptic*" MADRAS.

A CASE OF IMPERFORATE ANUS.

SIR,

M.K.S., a Burmese male child, aged 2 years, was admitted into the Civil Hospital, Tavoy, for the treatment of chronic constipation. The child was well built and appeared to be healthy, but on close examination it was detected that its Sphincter Ani Externus was abnormally small and looked unnatural. On enquiry the patient's mother said that the child was born with an imperforate anus and due to the timely intervention of a Burmese Se-Saya (Native Doctor) the child's life was saved. This aroused my curiousity and on further enquiry it was elicited that the Burmese Se-Saya performed an operation on the child without the aid of any surgical instruments or an anæsthetic.

*Operation* :—This is how the operation was said to have been conducted. The child was put in the lithotomy position and was held in this position by two assistants. The Burmese Se-Saya then sharpened a bamboo stick to a point and with it made a perforation at the site where the anus is normally situated. This was followed by immediate evacuation of faeces. The child withstood the operation well and the wound healed in a natural way.

As the child suffered frequently from constipation, the parents of the child sought medical advice at the Hospital, where on examination the child was found to be suffering from stricture of the anus.

On admission to the Hospital, the child was given a dose of Castor Oil after which the stricture was dilated under chloroform. The child was however, discharged otherwise the next day at the request of its mother.

My grateful thanks are due to Dr. C. A. Wells, I. M. D., the Civil Surgeon, Tavoy, for granting me permission to publish these notes.

Yours truly,
B. R. SHENOY, TAVOY.

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## COBRA EGGS.

### I

*A Correspondent writes :—*

With reference to the article in your issue for May under the heading "Cobra Eggs", these are probably identical with Pharaoh's Serpents. The following is an extract from Martindale and Westcott's Extra Pharmacopœia :—

Hydrargyri Sulphocyanidum Syn. Mercuri Rhodenide $Hg(C.N.S.)_2 = 316.75$.

White powder slighty soluble in water. Swells up on burning producing "Pharaoh's Serpents".

Possibly this information may be of interest to your readers.

---

### II

TO THE EDITOR *The "Antiseptic"*, MADRAS:

DEAR SIR,

I came across one of the articles headed "Cobra Eggs in your May issue. The writer has described the poisoning symptoms produced by the above substance of which he wants to know the chemical composition. It is a salt of mercury called Hydrargyri Sulphocyanide (Synonym, Mercuric Rhodenide, Hg (cns)2. The serpent-like swelling of a stick (of this salt) produced after burning is called "Pharaoh's Serpents".

The salt is slightly soluble in water and so is not so poisonous as other soluble salts of mercury. The symptoms produced will be that of gastro-intestinal irritation.

I hope the writer will be satisfied with the information he aspired.

I shall be much obliged if you will publish the above information in your correspondence section.

Station Mwanza.
*Dated 5th July* 1928.

Yours truly,
D. A. PARANDARE.

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### III

### A CORRECTION.

TO THE EDITOR, "*The Antiseptic*", MADRAS.

SIR,

I have the honour to point out that there are some mistakes in doses in the prescriptions of the article "Measles" published



in the 'Antiseptic' of July 1928. I shall be glad if you kindly publish the necessary corrections, as noted below, in the next issue of the 'Antiseptic.'

*Page.*—423 Liq. ammon citratis——dr. ii (3 ii) instead of oz. ii (oz.ii). B. P.

*Benzoas.*—Should be written as Sodi Benzoas.

*Syr. Aurenti*—dr. ½ (3 p ), instead of oz. ss. (oz. p.)

*Page*—424. Syr. Tolu dr. i (3 i.) instead of oz. i (oz. i.)

My private copy (manuscript) of the article does not show such wrong doses. I am sorry for such printing mistakes or mistakes in the copy sent to you for publication.

Yours truly,
BRAJANDRA CHANDRA BHATTACHARYYA,
L. M. F. (BENGAL),
M/O, in charge of Mahiram Kole,
Charitable Dispensary,
P. O. Fulkocha,
Dt. Mymensing (Bengal).

*1st August* 1928.

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## BOOK REVIEWS.

### RECENT ADVANCES IN TROPICAL MEDICINE.

By Sir Leonard Rogers, C.I.E., M.D., B.S. (Lond.), F. R. C. P., F.R.C S., F. R. S. With 12 illustrations, Pages 398. Published by J. & A. Churchill, 40, Gloucester Place, Postman Square, London. Price 12/6.

In this useful book, the author supplies an interesting and detailed precis of much recent work on some 23 tropical diseases. As the author acknowledges, much of the information of the present work is got from the Tropical Diseases Bulletin, and some of them are his own contributions in the field of tropical medicine. His selective judgment of what is recent and what is advance will receive wide attention. Especial prominence has been given to treatment and to other points of most practical importance rather than to the minute pathology and laboratory technique, which the isolated medical man in the tropics has rarely the facilities or time to make use of. Historical sections are very interesting, treatment is adequately dealt with and a good index is given. As the vast majority of practitioners in the tropics are situated far from libraries, we hope this book will be useful for their reference and guidance.

---

## MODERN METHODS OF TREATMENT.

By Logan Clendening, M.D. Second Edition. With illustrations 95, pages 815. Published by the C V. Mosby Company. Price doll. 10.

Therapeutics is not given the prominence it deserves in all text books of medicine, and more space is devoted to etiology, pathology, signs, symptoms and diagnosis than to this important branch of medicine, namely treatment. This long-felt need is supplied by this useful book, in which modern methods of treatment are described in detail. In this second edition many additions are made, and the text is thoroughly revised. All the aspects of therapeutics are discussed, namely actions of drugs and their administration, prophylaxis, extracts of ductless glands, dietetics, hydro-therapy, electro-therapy, radio-therapy, hetio-therapy and psycho-therapy. Treatment of diseases connected with each system of the body is discussed one by one in great detail. This is one of the best books in the field of medicine, and will be very useful to all medical students and general practitioners.

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## EMERGENCIES OF A GENERAL PRACTICE.

By the late Nathan Clark Morse, A.B., M.D., F.A.C.S. Revised and rewritten by Anus Watson Coleord, M.D. Second Edition. With 311 illustrations. Pages 541. Published by The C. V. Mosby Company, St. Louis.

In these pages are described how to handle emergency cases, which a general practitioner comes across in his every day practice, and in which he is called on to think quickly and to act with rapidity and good judgment. Signs, symptoms, diagnosis and treatment of these conditions are explained in full length, which are important for the prompt recognition of the condition and immediate action. This will not only tend to relieve him of personal responsibility, but will enable him to insist upon surgical assistance at a time most opportune to his patient. In the first chapter, the contents of a surgical emergency bag is given, and in the second, removal of foreign bodies from the various parts of the body is explained. Chapter on First Aid is very interesting. Treatment of asphyxiation from various causes, surgical and medical emergencies are dealt with at length. Amputations, fractures, and dislocations are considered strictly from an emergency standpoint. Treatment of obstetric emergencies and poisoning is also given A work of this character devoted exclusively to this subject of emergency cases will prove of practical value and material assistance to many practitioners.

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## MINOR SURGERY.

By Arthur E. Hestzler, M.D., F.A.C.S., and Victor E. Chesky, A.B, M.D., F.A.C.S., With 438 illustrations and pages 568, published by the C. V. Mosby Company, St. Louis.

This useful book, extensively illustrated, deals with minor surgery. The subject is elaborately dealt with, and contains all important and practical points about minor surgery. In the first four chapters, suture materials, kinds of knots and sutures, surgical dressing, drainage material, types of bandaging of the various parts of the body, kinds of wounds, hæmorrhages and technique of blood transfusion and various kinds of inflammations and infections are explained clearly. In the other seventeen chapters, each part of the body is taken one by one, and all the diseases connected with it which come under the domain of minor surgery, are fully dealt with. Pathology of the disesases is omitted, because the author had in view wholly a practical end, and those things which have been proved in practice are included. This is a very useful book for the student of medicine to understand what he sees in the outpatient clinic. We highly commend it for medical students and general practitioners for reference during their daily practice.

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## AIDS TO EMBRYOLOGY.

By Richard H. Hunter, M.D. M.Ch. Lecturer in Anatomy Queen's University, Belfast. Pages 160, published by Bailliere Tindall and Cox, 7 & 8, Henrietta St., Covent Garden, London. Price 3-6 net.

This little book is based on the short series of lectures on Embryology delivered by the author before the class preparing for the second professional examination in Medicine. A study of embryology is essential to the student of medicine for the complete understanding of adult anatomy, and also supplies valuable information to the student of obstetrics. The aim of this book is to give in as short a space as possible an account of more important changes which occur in human development A list of anomalies of development is given at the end of each section, together with a brief summary of the main facts of normal development. It is a useful book for the student of medicine.

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## BAILLIERE'S SYNTHETIC ANATOMY.

By J. E. Cheesman. In 12 parts. Published by Bailliere Tindall and Cox, London. Price of each part 2-6 net.

These are transparent coloured drawings of the human body published in twelve parts, namely Arm and Shoulder, Forearm, Hand, Thigh

and Hip, Leg, Foot, Thorax, Abdomen, Head and Neck, Brain, Perineum (Male) and Perineum (Female). Each of these is complete with Index and Instructions, bound in grey stiff paper cover A. binding case, which will hold one or more of these parts, and very useful in keeping them together, will also be supplied on payment of 16 extra. Each part contains twelve drawings, which are coloured and drawn clearly, showing various structures as vessels, muscles, nerves, bones, ligaments, etc. These are one of the useful assets in memorising the subject by repeated tracing of the pictures. Furthermore, owing to the transparency of the books, superficial, deep and lateral relations, can be perceived, so that a composite mental picture of the part can bo formed at the same time. This is a very useful book for medical students in the study of Anatomy.

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## TREATMENT OF DIABETES MELLITUS.

By O. Leyton M.D., D.S.C., F.R.C.P. IV. Edition. Adlard and Son Ltd., 21, Hart Street, W.C.I London, 99 Pages 6 s. net.

Dr. Leyton has considered the details of treatment in this book under 3 heads: (1) by diet alone, (2) by diet with insulin and (3) by other preparations, with or without restrictions in diet. The author starves his patient for about 2 days (during which period tea, Soda water and water is allowed) till the sugar disappears from the urine and the blood sugar falls below 0.14%. Thereafter a progressive diet, for which various tables are given by the author. If in 2 days' fasting the urine does not come sugar-free, the patient is investigated as to his renal threshold and if the blood-sugar persists above 0.15% after 4 days fast insulin is given. The book is very useful for general practitioner.

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## TEXT-BOOK ON MIDWIFERY.

By Jane Aitken (formerly chief midwife to the Nurses' Charity at Guy's Hospital). Ash and Co., Printers, Southwork S. E. Henry St. Bermondsey Street London. Price 2/6 net. 94 Pages.

The author after her long and varied experience in the actual practice of midwifery and the training of nurses as midwives, has put together in this book, her experience in a compressed form. This is very useful for those who are preparing to qualify as midwives. The main simple facts are clearly and briefly set down.

---

# SERRAVALLO'S TONIC

From the 5th Medical Department of the Councillor Aulique Prof. DASHE at the I.R. General Hospital at Vienna.

At the request of the maker. "**Serravallo's Tonic**" was introduced into this Department by Dr. Stein in order to try its value. To get a comparative measure of the results obtained the patients were weighed every week, always with regard to the time of their meals, the amount of food eaten and the quantity of fæcal matter passed, and measured as to Hæmoglobine, according to Fleischl, for the Erythrocyten coefficient according to Thoma-Zeiss, and for the pressure of the blood, according to Basch. The results observed after giving the patients "**Serravallo's Tonic**" will be seen in the following table:

| Age Profession | Illness | Duration of cure | Weight of Body on entering | Weight of Body on leaving | Amount Hæmoglobine on entering | Amount Hæmoglobine on leaving | No. of red Corpuscles on entering | No. of red Corpuscles on leaving | Pressure of the Blood on entering | Pressure of the Blood on leaving |
|---|---|---|---|---|---|---|---|---|---|---|
| B. M. 30 years Sempstress | Anæmia Tumor adnex | 6 wks. | kg 58 | kg 63½ | 0% | 75o/o | 4210000 | 5735000 | 95 mm | 110 mm |
| P. I., 19 years, Sempstress | Chlorosis | 7 wks. | 42 | 46 | 20% | 45o/o | 4060000 | 5040000 | 110 ,, | 120 ,, |
| P.L.34 years, Smith | Anæmia Ulcusventric | 4 wks | 61 | 64 | 30% | 45o/o | 2400000 | 3240000 | 90 ,, | 90 ,, |
| H.E., 21 years, Servant girl | Anæmia Perimetritis | 5 wks. | 53 | 62½ | 20o/o | 15o/o | 1800000 | 3280000 | — | — |
| V.M., 24 years, Accountant's wife | Chlorosis | 5 wks. | 36 | 43 | 20o/o | 60o/o | — | — | — | — |
| S. E., 23 years Saleswoman | Chlorosis | 4 wks. | 49 | 51½ | 35o/o | 60o/o | — | — | — | — |
| E.M., 16 years, Servant | Chlorosis | 7 wks. | 43 | 47 | 50o/o | 80o/o | — | — | — | — |

From the above figures, it will be seen that the patients show an increase in the quantity of Hæmoglobine, in the number of red corpuscles, therefore that the changes which are generally produced by treatment with Iron are also produced by giving "**Serravallo's Tonic**".

I must however remark that this mixture was willingly taken by two patients, to whom other Iron mixtures had been given, but who could not stand them; therefore this must be mentioned as an advantage which this mixture has over others: it never caused any disturbance to the stomach.

On the contrary, patients suffering from Chlorosis with want of appetite (in consequence of parenchimatose Gastritis) "**Serravallo's Tonic**" proved itself a very powerful appetiser. The same result was obtained in six other cases with anorexia during convalescence after different illness and always had a speedy effect.

The increase of appetite was ascribed by the patients themselves to this mixture, and was most willingly taken on account of its agreeable taste.

Therefore "**Serrvallo's Tonic**" is most advisable in cases where the therapeutic use of Iron is intended to act as a tonic to the appetite, such as in primary and secondary Anæmia in slow convalescence and especially for children.

**J. SERRAVALLO, Manufacturing Chemist, TRIESTE-Barcola (Italy).**





# Whenever Depletion is Paramount

*As in*—

**Cervical or Inguinal Adenitis**
**Mammary Complications**
**Inflammation of the Abdominal Viscera**

*Antiphlogistine* **is indicated.**

APPLIED over the affected area, as hot as can be comfortably borne by the patient, Antiphlogistine, by virtue of its marked hygroscopic action, serves to deplete the enlarged glands, relieves the swelling and pain and adds materially to the comfort of the patient.

This simple treatment, entirely compatible with internal medication, is becoming more and more an every-day procedure with uniformly gratifying results. The world-wide use of this topical application by the medical profession is the best evidence of its merits.

**Antiphlogistine**

# INDEX TO ADVERTISEMENTS.

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