

The Antiseptic

A Monthly Medical Journal

Edited by

Dr. U. Rama Rau, M.L.C. & U. Krishna Rau, M.B. B.S. A.D.B.A.

24 APR 1941

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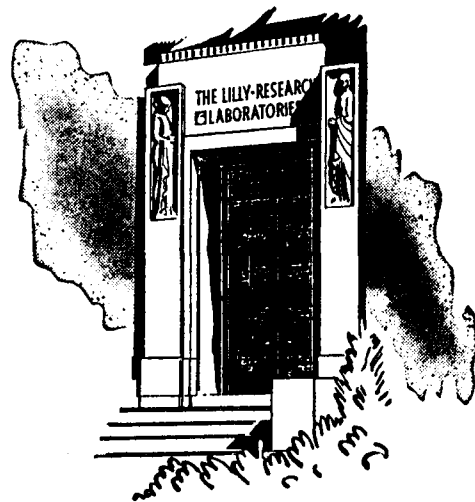
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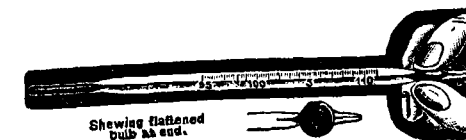
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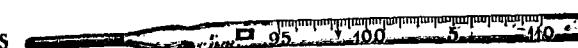
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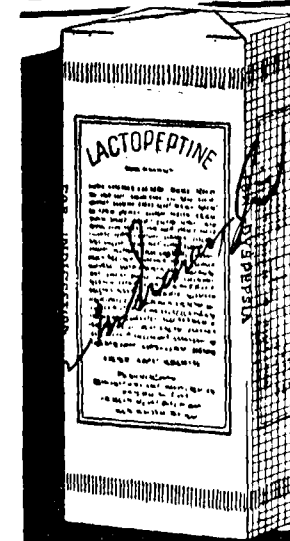
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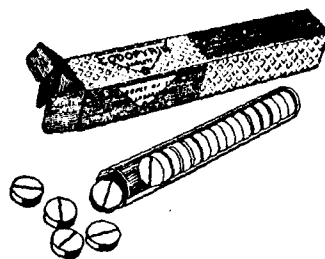
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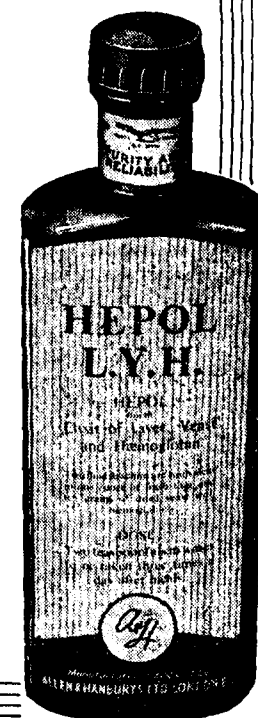
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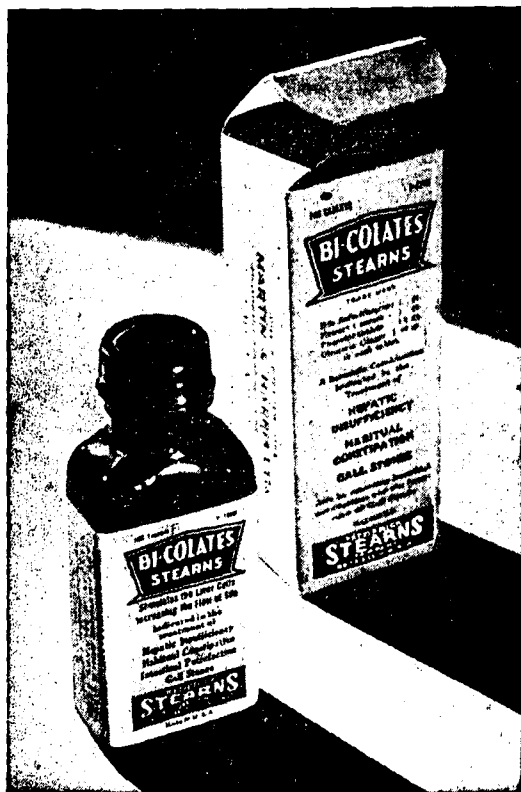
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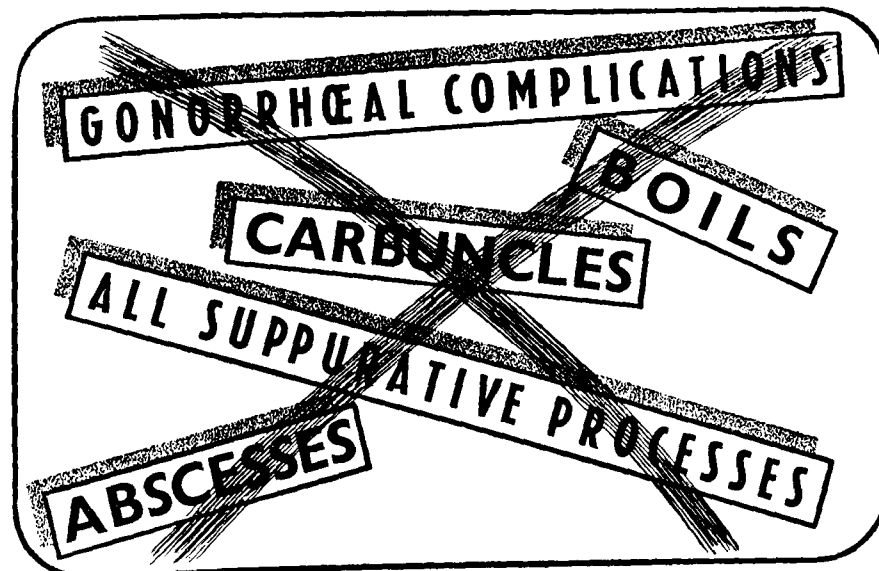
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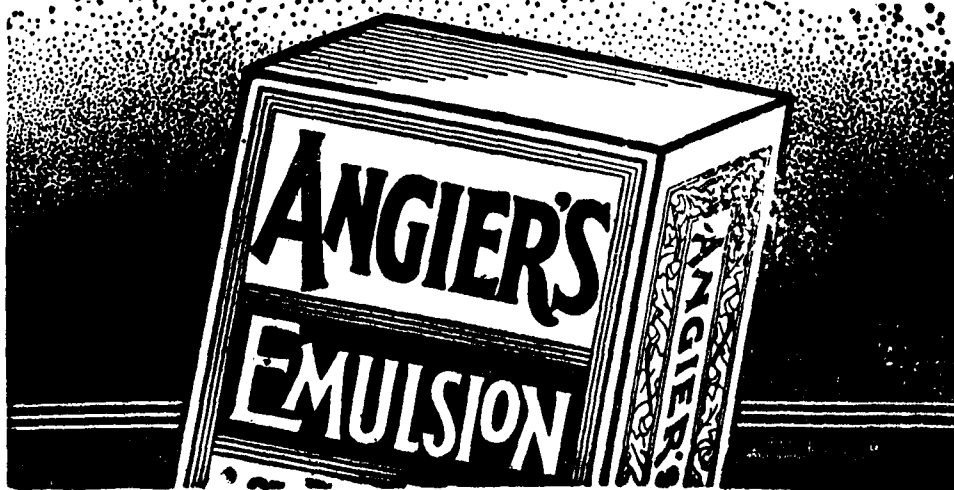
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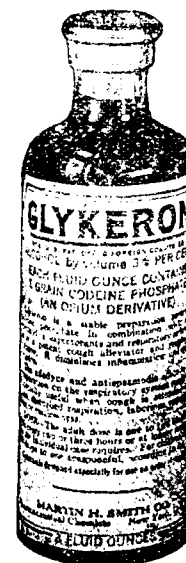
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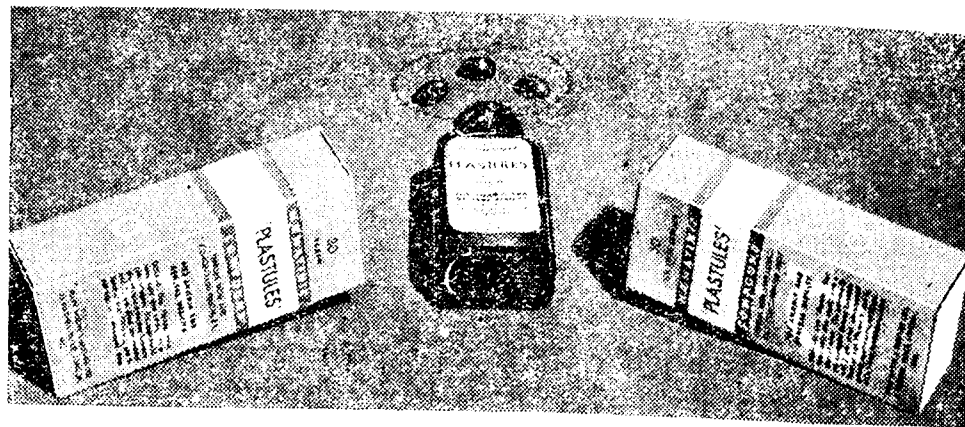
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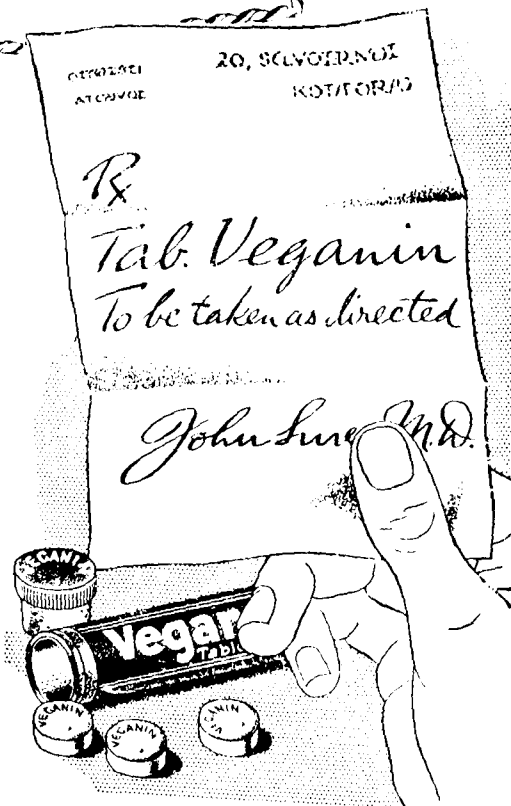
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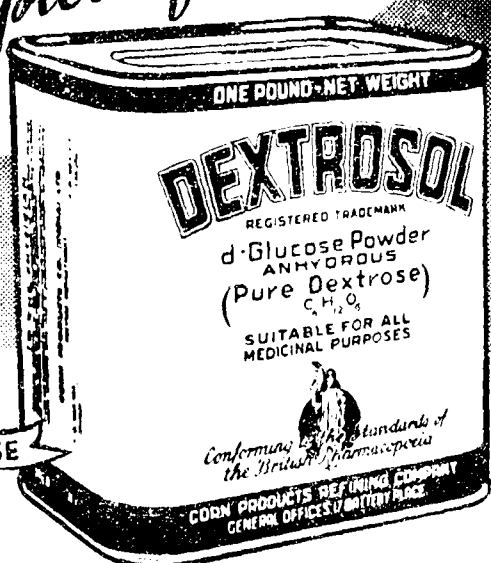
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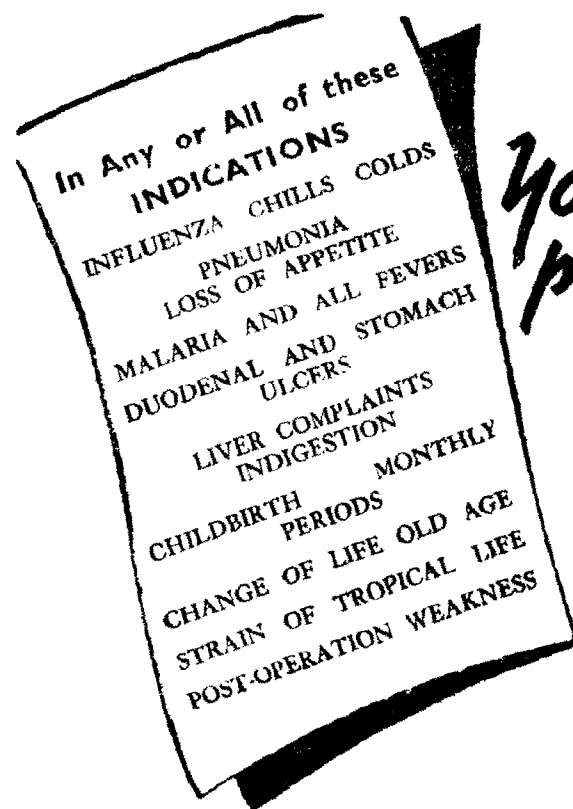
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Original Articles

Splenomegaly*

BY

D. R. DHAR, M.B., D.T.M. (CAL.), M.R.C.P. (LOND.)

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Associate Prof. of Medicine, National Medical Institute,
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Probable ætiology.—All the world over, we come across sporadically with groups of comparatively young subjects with enormous enlargement of the spleen and later on of the liver, associated with profound anæmia and debility, apart from those caused by kala-azar, chronic malaria and similar other known clinical entities, associated with splenomegaly. How far this condition, met with in the tropical countries, is related to the similar clinical condition known as splenic anæmia, which, when develops to cirrhosis of the liver with ascites, is called Bantis syndrome or how far it is a condition quite by itself and unrelated to the well-known splenic anæmia, it is not possible to decide unless its relative rates of incidence, histopathology and most important the pathogenesis are worked out. In the tropics, may it be due to some initial protozoal infection or to some other sub-acute infection, whose main site is the spleen; but this ultimately may die out, leaving no traces of it, though initiating the splenic enlargement, terminating to its enormous size, till there is either cirrhosis of the liver or the supervention of some intercurrent disease, or hæmatemesis or melæna carrying the patient away. Recently, the splenic anæmia group, characterised by splenomegaly, anæmia, hæmatemesis, leading ultimately to cirrhosis in some cases, is suspected to be caused by increased pressure in the splenic veins as a result of contraction of the area and field of portal, specially hepatic circulation, which necessarily does not mean that the hepatic changes preceded those in the spleen. Similar cases met with in Bengal have been, one wonders why, termed as "Bengal splenomegaly", thus singling it out from similar other conditions of identical or at least undifferentiable ætiology, and clinical picture. Though an apparently strong case has been made out against the spleen as the primary cause of this condition and that removal

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of that incriminating organ generally improves the clinical picture, yet there are at least two other clinical entities, namely hæmolytic jaundice and thrombo-cytopenic purpura which, though are benefited by splenectomy, have not been established to be caused through the spleen.

The usual clinical history.—The patient, generally a young, and uncommonly a middle aged person, suffers from fever, usually of an intermittent type, sometimes indistinguishable from malaria, off and on for months—usually for years. At the beginning, Quinine appears to be somewhat effective—but gradually it loses all effect on the fever and the general condition of the patient. The *spleen* goes on enlarging, specially during the febrile period, in an all round manner, to an enormous extent occupying almost the whole of the abdomen, reaching much below the umbilicus and to the right side of the middle line, thus producing great enlargement of the abdomen. Profound anæmia, debility, cachexia and lethargy develop along with this. The spleen is quite hard, smooth; and such an enormous enlargement is, as a rule, not encountered, specially during its latter part, in any other condition as in this state. The liver generally shows enlargement, the edge being rather hard and sharp at the beginning, to be impalpable later on with full grown cirrhosis. This combination of a huge, hard spleen with hard margin of the liver, marked anæmia, leukopenia not responding to average treatment, is highly suggestive, if not pathognomonic of this clinical condition. The *blood picture*—like all other forms of anæmia, shows hypochromic, microcytic and rarely, macrocytic anæmia with leukopenia, also a neutropenia and increase of lymphocytes, thus making it indistinguishable from that of kala-azar. Van den Bergh reaction is either indirect or delayed positive. Sedimentation rate is increased generally. The Formaldehyde test of kala-azar is as a rule negative. CHOPRA'S urea stibamine test may be positive with undiluted serum but serum diluted 1:10 gives a negative, rarely a doubtful one. Some of them ultimately terminate on to the stage of cirrhosis of liver with ascites. Some are carried away by some such complication as pneumonia, broncho-pneumonia, tuberculosis of lung etc.; others get cancerum oris, dysentery—usually bacillary, as a terminal event. Others again die of hæmatemesis, or repeated bleeding from piles and so on.

Pathology.—*Spleen*:—The capsule is thickened and trabeculae are prominent. The splenic sinusoids are found packed with big cells, mono or multinuclear (reticulo-endothelial?) with a large number of red and white blood corpuscles engulfed in them. Later on, in advanced cases, the reticulum and the fibrous tissues are considerably increased, giving rise to the hard consistency and all round enlargement of the organ. No parasites are found.

Liver:—In ascites, there is portal cirrhotic changes. Dilatation of the sinusoids with infiltration of round cells is common. Similar changes are met with in portal spaces. In moderately advanced cases, fatty changes in the liver—may be a precursor of cirrhosis—are not uncommon.

Bone marrow:—Is hyperplastic, the yellow being changed into a red formative one. Nowhere are there seen any parasites even after careful search.

Diagnosis.—The history, clinical picture, relentless progress, inspite of specific treatment, the huge, all round enlargement and hard consistency of the spleen with rather sharp margin of the liver where present, the characteristic blood picture with other negative findings of kala-azar or similar

other known clinical entities, absence of parasites even on careful search, tendency towards a progressive fatal issue with either ascites and cirrhosis or some other infective complication or hæmorrhage, closing the scene; removal from endemic areas to a better radio-active soil and water or removal of the spleen improving the patient, suggests the diagnosis to be made more or less by exclusion.

Differential diagnosis.—Has got to be made from those commoner conditions, causing enlargement of the spleen and liver—such as chronic malaria, kala-azar, leukæmia, portal cirrhosis, Hodgkin's disease etc.

Malaria:—Is suggestive from the history of onset; in benign tertian and quartan, the primary fever comes generally in the forenoon, characterised by the cold, hot and sweating stages, the periodicity of 48th or 72nd hours. Duration of explosive pyrexia is six to twelve hours, characterised by headache, vomits, anorexia, coated tongue, constipation, jaundice, anæmia, etc. Response to Quinine and the finding of parasites are diagnostic. In malignant tertian again, the fever, burning of the skin, restlessness, headache, bilious vomits, jaundice, anæmia and slight or moderate enlargement of the spleen, and an effective therapeutic test, finding of the parasites, help in the diagnosis. Seldom is the spleen so enormous and the liver so palpable in chronic malaria.

Kala-azar:—The spleen usually enlarges in a linear way along its axis in contrast to the all round enlargement of the spleen in splenomegaly. The consistency is soft, though firm; the liver is rather soft too in kala-azar. Anæmia is not so pronounced as in splenomegaly. The aldehyde test and Chopra's test are positive. There are parasites—L. D. bodies—in sternal puncture and peripheral blood culture in N. N. N. medium is positive in K. A. Pentavalent Antimony compounds too are specific here.

Leukaemia:—During the active stage, the sternum is tender on pressure; there may be pain over the spleen in leukæmia. The typical blood picture containing myeloblasts or cytes or lympho-blasts help in the diagnosis. In lymphatic or the monocytic leukæmia, there might be enlargement of the systemic lymph glands besides the typical blood picture and the enlarged spleen and liver. Deep ray therapy ameliorates this condition, which so far has not influenced splenomegaly.

Hodgkin's disease:—The lymph glands, specially the cervical ones, are enlarged, rubber-like in consistency, discrete, with comparatively slight enlargement of the spleen. The characteristic clinical picture with three stages of the disease, and three types of temperatures, eosinophilia, pruritus and progressive course of Hodgkin's, usually distinguishes it from splenomegaly.

Portal cirrhosis:—Though cases of splenomegaly pass on to portal cirrhosis, yet the simple cases of typical portal cirrhosis are in comparatively elderly subjects with history of either Alcohol or spices or gastro-intestinal upset etc. The symptoms start with digestive disturbances, flatulence, water-brush indigestion, dislike for meat and fat. Emaciation, slight or moderate enlargement of the spleen, hæmatemesis, malæna, piles, prominent veins, ascites, hepatic facies etc. The enormous spleen, the severe anæmia and the freedom from other signs and symptoms of gastro-intestinal disturbances as in ascites, help to differentiate splenomegaly from portal cirrhosis. But at the later stages, with fully developed ascites in splenomegaly, the diagnosis may be difficult. Still, a careful history, pointing

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to the progressive, hard, all round enlargement of the spleen and the ascites starting after several months, more commonly years, and the lack of other characteristics of portal cirrhosis, help to come to a conclusion.

Treatment.—As the ætiology is uncertain, so too the treatment is rather unsatisfactory and tends to be symptomatic.

In early cases.—The best thing is to send the patient to areas where malaria and kala-azar are not endemic. The patient should get an all round vitaminous diet. Big doses of Iron, and suitable amounts of Arsenic and Quinine in febrile cases may do some good. Saline purgatives, if repeatedly given, may help in the reduction of the size of the spleen.

A few of my cases in Bengal, have received the above method of management and have gone out to non-malarious localities during the epidemic season for several consecutive years with some definite benefit. Before sending them for changes, one must be sure that there is no malaria or kala-azar in the patient. Unfortunately, the blood picture so much resembles that of kala-azar that cases have been encountered in which injudicious, intravenous injection of Pentavalent Antimony compounds have hastened the cirrhosis of liver, with quicker collection of fluid in the peritoneum. Intramuscular injections of liver extract, alternating with ordinary sterilised cow's milk to produce a febrile reaction, coupled with oral Quinine, Arsenic, Iron and purgative therapy, and removal to a better, non-endemic place for malaria and kala-azar, appear to have done some substantial good to some of my patients. Irritants like Turpentine, Camphor, Creosote in Olive oil, starting from very small doses intramuscularly into the gluteus, were tried with some result, but the injections are so painful that, in private practice, it is very difficult to use universally.

Radiation with deep rays may be tried. But, if subsequent splenectomy is desired, the adhesions formed by radiation stand in the way of an operation.

Splenectomy is done with variable results. Unless done early, they stand the operation badly and adhesions interfere with proper handling. In a series of advanced cases, twenty patients had their spleens removed, with nearly 45 per cent. mortality, immediately following the operation due to its direct effect. Ligature of the splenic artery, early in the disease, may be tried. Those who survive splenectomy usually do well.

Indications of splenectomy are in short : (1) Splenomegaly with anæmia. (2) Thrombocytopenic purpura. (3) Acholuric jaundice. (4) Rupture of the spleen or torsion of the pedicle of the spleen. (5) Neoplasms of the spleen.

Splenectomy is dangerous in leukæmia.

36, Chowringhee Road,
Calcutta.

Puerperal Fevers in Private Practice*

BY

B. L. KAPUR, M.D. (BERIAN),

Hon'g. Med. Superintendent, Lahore Maternity Hospital, Lahore.

THERE being a limited number of Maternity Hospitals in India, quite a large number of cases have got to be conducted in private houses. Unfortunately, the circumstances are usually never congenial; so, quite a large number of cases go septic. Very few of them find admissions in the hospitals; the rest have got to be attended to by their family physicians.

Puerperal sepsis is not a disease with special characteristics and symptoms but rather a condition, resulting from the entry of organisms in the blood, during or after child-birth, by a route not normally available viz., the female genital tract.

The avenues of entrance of the bacteria are traumatism of the birth canal viz. rupture of uterus, laceration of cervix, vagina, vulva and perineum. There are contused wounds. Consequently, the tissue resistance is lowered and the bacterial infection and inoculation is favoured. The infection can spread :—(1) Through blood vessels, in which case, it may manifest itself as thrombophlebitis, pyæmia and bacteræmia. (2) Through lymph channels, causing parametritis, perimetritis and metritis dëssicans.

Vagina ordinarily harbours organisms. They ascend to the uterus in 25% of cases on the first day of *parturition* and in 100% on the 3rd and 5th days. The uterine infection increases upto the 5th day and decreases later. COLEBROOK and RONALD HARE say that uterine discharge shows on the 3rd day strongly reduced alkalies and loss of antitryptic action and this favours the possibility of infection. Further, the uterus is capable of sterilising its cavity with normal uterine retraction and drainage. If the retraction and contraction are deranged, the organisms multiply.

Bacteriologists like ROSE WHITE, SCHOTT MULLER and COLEBROOK hold Streptococci as being chiefly responsible for puerperal infection. SMITH is of the opinion that there are no hæmolytic Streptococci ordinarily in the vagina, but only in the nose and throat and are carried from there to the vagina. ROSE WHITE and PAINE hold nurses responsible. According to PAINE, WRIGHT and NIXON, hæmolytic Streptococci present in the vagina, nose and throat have the same serological reaction and there is no evidence to believe that non-hæmolytic Streptococci could be converted into the hæmolytic ones in the vagina. LANCEFIELD has made further researches on Streptococcus Hæmolyticus. He has described different stains A, B, C, etc. The stain A. can produce severe infections. Further, Staphylococci, Bacillus coli, Bacillus ærogenes capsulatus, Bacillus perfringens and diphtheria have been held responsible for puerperal fevers.

KAPUR has divided the case of puerperal fevers into 8 groups.

1. Rise of temperature and high pulse rate for a day with stoppage of lochia. They get all right on application of heat.
2. There may or may not be stoppage of lochia. The uterus may be normal. Fever persists for a day or more with high pulse rate with or

* Specially contributed to 'The Antiseptic'.

without remissions and the patients ultimately die. In such cases, it is very virulent streptococcal infection and nothing can be done by way of treatment.

3. There is purulent discharge, fever persists for days and days together and all sorts of complications may arise. There is no rest as long as the uterus is not fully evacuated.

4. There is severe headache with rigors and high rise of temperature and pulse rate. Further, the patients may get pain in the pleural region, loss of vision, abdominal pain, muscular pain, stiffness of the vertebræ and joints due to the spread of small emboli in the small vessels. Big emboli may occur and cause the well known picture of phlegmasia alba.

5. The high rise of temperature and pulse rate may be accompanied by diarrhoea, flatulence and tympanites. There is no defensive rigidity of the muscles and the abdomen moves with respiration. There is no pain in the lower abdomen. In one case, there was pain only on movement of the uterus. RIVETT LE CARNAC opened the abdomen and found, in his cases, a large quantity of pus full of Streptococci. It is rather difficult to diagnose this type of localised peritonitis (OLDFIELD, PYRAH and RIVETT LE CARNAC).

6. Patients complain of severe pain in the region of adnexa. On palpation, a tumour is found on the right and left of the uterus. The uterus and tubes may be swollen; para and peri-metritis with or without pus formation, salpingitis purulenta or non-purulenta and metritis dессicans may occur. It may also cause general peritonitis with muscular rigidity.

7. There is a sudden rise of temperature with severe rigors and remissions, accompanied by pain in the kidney region and bladder. Examination of the urine reveals pus cells, also ureter cells and albumin (pyelitis). Pyelitis may have existed even before delivery. If the infection involves the kidneys, only casts and blood corpuscles are present.

8. High rise of fever with quick pulse and rigors coming on irregularly. Urine is highly acidic and contains *B. coli*. According to TAKAYAMA, there is a foamy secretion from the vagina in *B. coli* infection with pain in the joints, herpes and skin necrosis on the fingers.

The heart is affected in all these groups. There is a hypotensive tendency on account of the disturbance of the vegetative nerves and cardiovascular system (GRACIA). Lung complications may arise.

Blood-count.—The count of white blood cells goes up very high even upto 20-25-30 thousands. Polymorphs are increased. According to DIETRICH, there is a decrease of platelet count. There is a slight rise of Calcium and Potassium in the blood (RAFALKES and KOROLEVA). HAZAY could show in animals a decrease of alkaline reserves. GREEN could show a low reserve of vitamins.

TATA GUISEPPE has given the following reactions:—

1. Bilirubin is at first very high, decreases proportionately to improvement and comes to normal on restoration of health. The serum of a blister raised by applying Cantharidine gives a lower count of monocytes first, but they increase to about 17-20% on improvement.

2. (a) In severe septicæmia, bilirubin is under normal constantly. (b) Monocytes are at the most 1-2% in blister serum.

These changes are due to different reactions of the reticulo-endothelial

cells. In group 1, there is hyperplasia and hypertrophy with hyperfunction of the reticulo-endothelial cells; in group 2, there is paralysis of the cells and it is found in peritonitis and fulminating sepsis (SCHEYER). SCHEYER found these stages in human beings and LOUROS, in animal experiments. The third stage, according to them, is found in the human beings or animals who die sometime after the disease. All these stages, *viz.* hyperplasia, hypertrophy and necrobiotic processes are found in the reticulo-endothelial cells.

The reticulo-endothelial system originates from mesenchyme and covers the inner surface of vessels. The cells are met with as the capillary endothelium of the liver, the so-called Kupffer's cells and the endothelial cells of the spleen, supra-renal glands, kidneys and lungs. It is the protective element of the body (ADLER and SINGER). According to ASCHOFF, SCHITTENHELM, GOLDMAN, KUCZYNSKY, SIEGMUND, DIETRICH and STANDENATH, the reticulo-endothelial system takes an important part in the metabolic processes and is normally connected with the immunity processes.

Prognosis.—Prognosis depends on the severity of infection. TATA GUISEPPE estimates it by bilirubin in the blood and monocytes in the serum. BATISWEILER considers more than 3 rigors as unfavourable. By experience, we find that patients having 7—8 rigors come through with just a little care. The prognosis beyond this number of rigors becomes unfavourable. Anæmias play a very important role; with hæmoglobin below 35% the cases should be considered fairly serious—SAHLI.

Prophylaxis.—Prophylactic measures lie in the following:—(1) Looking after antenatally. (2) During parturition. (3) Looking after post-partum.

1. *Looking after antenatally*:—It is very important that these patients should attend antenatal clinics and be examined from time to time for the prognosis of the labour. The food of the pregnant should be rich in vitamins, raw vegetables and fruits should be administered liberally. MELLANBY suggests vitamin A in the form of Adexolin etc. According to GREEN, PINDAR, DAVIS and MELLANBY, vitamin A is anti-infective and when absent or deficient in diet, multiple foci develop resulting in death.

Most of the pregnant women look pale. The blood should be examined and in cases of anæmias, Iron or Liver therapy should be advised as indicated. The examination of urine for albumin and sugar from time to time is very important.

2. *During parturition*:—The room of the parturient should be well lighted, neat, clean and tidy. If possible, sunshine should come into it during sometime of the day. There should be just a few articles of furniture *viz.* a bed, 2-3 low stools and a baby cot or any other suitable alternative. Regarding bedding, the sheets or Khes or whatever available should be freshly ironed. At the time of labour, the expectant should have freshly ironed clothes on. In winter, the feet should be kept warm. The room should be nicely heated and must have a temperature of 75°C.

Unfortunately, the maternity is in the hands of ordinary *dais*. I wish they would disappear and proper midwives take their place. The attending *dai* or whoever available, must have clean clothes on. She should not have attended a septic case just before. Her nails must be clean. Whilst conducting the case, she must have a mask on. COLEBROOK will have the

throat swabs examined, but this is not possible in private practice. Repeated examination of the parturient should be forbidden.

ZIMPLINI suggests Quinine as a prophylactic measure. It would be a dangerous suggestion in the opinion of so many writers. We have given it to 30 cases, in 5-10 grain daily doses 2-3 weeks before term. It had no bad effects. The patients were safe, guarded against malaria and none of them went septic. Prophylactic immune sera have been suggested in the literature. SOMMERVILLE advocates pre-sterilisation of vagina with Mercurochrome Glycerine. Although this procedure is followed by some writers, in our opinion, the vaginal handling unnecessarily disturbs the vaginal flora and there is a greater danger of a case going septic than otherwise. Since we have given it up, our results have improved.

3. *Looking after post-partum* :—Sulphanilamides have been suggested as prophylactic measures after labour. We are giving 10% 5 c.cm. of Soluseptasine per injection in all doubtful cases and the results are good.

Treatment.—The principles of treatment lie in the following :—
(1) Making the organisms inactive. (2) Saving the heart. (3) Bringing the uterus to contraction. (4) Raising the chemical activity of the reticulo-endothelial cells. (5) Raising the cellular defensive organism. (6) Increasing the blood-platelets.

1. *Making the organisms inactive* :—The stertisata magna (EHRlich) would be the proper treatment of puerperal fevers, but no such medicine has been discovered so far. The literature mentions quite a number of preparations like Euhagen, Dispargin, Detoxin, Orgochrome, etc. The activity of all these medicines is limited. Protein therapy has been advocated. SERROTINI has revived an old barbaric treatment of fixation abscesses by injecting 3 c.cm. of pure Turpentine oil partly in the fascia lata and partly in the muscle. The sera and vaccines have played a very great role in the therapy of puerperal fevers for quite a number of years. But all these madicaments have been replaced by Sulphanilamide preparations.

As regards the action of Sulphanilamides on the organisms, it is highly probable that in some way, the process is a vital one which will not be explained in terms of chemical action of these preparations. According to LEVADITI, Sulphanilamides prevented the encapsulation of the Streptococci in the body and so favoured the natural phagocytosis. OSGOOD and BROWNLEE believe that the major action of the Sulphanilamide compounds on the Bacillus hæmolyticus is to neutralise or to destroy the toxins or to cause a decrease in the rate of division; this neutralisation of the toxins and decrease in the rate of multiplication enable the bacterial action of blood to overcome the infection. The microbes are starved to death (LOCKWOOD).

The dosage is usually of 7 grammes daily for an average 10 stone man (LONG and BLISS), these giving concentration of 10 mg. in 100 c.cm. of blood.

The toxic effects of Sulphanilamide compounds have been described in the literature by SNOWGRASS, ANDERSON, FAQIR CHAND and VIDYA WATI and others. The patients get cyanosis which is due to Met- and Sulph-hæmoglobinæmia.

The treatment is 1-2 mg. of Methylene Blue per kilogramme of

body weight. The relief is, however, temporary. Fortunately, the dye is harmless and can be repeated without interfering with the therapeutic action of Sulphanilamides. We administered intravenous Glucose Saline by drop method in our cases of toxicity due to Sulphanilamides for 24-28 hours with great success.

In the Sulphanilamide therapy, Sulphates, eggs, onions are prohibited. Purgatives, causing liquid motions, are best avoided; liquid Paraffin can be employed as a laxative. Phenacetin and coal tar should not be used as accompaniments.

In the Sulphonamide therapy, one is more inclined to depend on its action alone. In our opinion, the therapy must be supplemented by following in middle serious and serious cases.

2. *Saving the heart* :—The heart must be saved and the uterus must be brought to contraction. Pituitrin is the only medicine which fulfills both the conditions. One c.cm. of Pituitrin is administered six hourly. If the heart is still bad, combine it with Suprarenin and Caffein. In many serious cases, intravenous Glucose should be given drop by drop. It feeds the sick, helps the heart, raises the blood pressure, compensates the loss of fluids and increases the diuresis. In severe anaemia cases, blood transfusion is advocated. It fulfills the principles of treatment No. 3-5.

According to KAPUR, Digitalin and Digitalis would not do much in puerperal fevers. Strophanthin may be a little useful. BERGMAN has suggested Camphor and believes it to be a cardiaca. Cardiazol and Hexeton are medicines of choice.

3. *Bringing the uterus to contraction* :—For the contraction of the uterus, constant heat application over the abdomen is very essential. Very hot vaginal douches should be given with Hesses bulb. If any piece of placenta is left behind, manual evacuation or curetting should be avoided. In such cases, it is always wise to use intra-uterine Glycerine. Glycerine has an hygroscopic action. Further, it acts as a foreign body in bringing the uterus to contraction. Many a time, there is reaction of this therapy for some hours.

4. *Raising the chemical activity of the reticulo-endothelial cells* :—For the 3rd principle, KUCZYNSKI, NEUFELD, MAYER, WATRUM, SIEGMUND, DIETRICH and SINGER have tried to increase the functional activities of the reticulo-endothelial system with different medicines, but experiments have so far remained unsuccessful.

5 & 6. *Raising the cellular defensive organism and Increasing the blood-platelets* :—These conditions are fulfilled by auto-hæmotherapy.

The ligature of hypogastric vein is the topic of modern literature but we have no experience. In cases of parametritis if it comes to pus formation, it should be attended to surgically.

Great stress should be laid on the general treatment. The patient should be kept completely at rest. Visitors must be avoided, proper feeds should be given. Milk alone is not sufficient. Broths, soups, fruit juices, egg-flip, brandy, honey, glucose, kichhis and boiled vegetables should be prescribed. Lemon juices and water should be given in large quantities.

Fever mixtures are the fashion of the day. They can be avoided if the patients are not anxious to have them. They are slightly diuretic only.

Sometimes, the patients are in a great agony on account of pain. Morphia is the only best suggestion. Troubles of intestines should be treated with charcoal by mouth and turpentine stupes.

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The Use of Cotton Thread as a Suture Material*

BY

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THROUGHOUT the history of the human race, many materials have been used to suture together torn fragments of human beings. Probably the most common suturing material in use to-day is called cat-gut. However, there has been a steady, persistent increase in the use of non-absorbable sutures during the past ten years. These materials are silk, stainless steel wire and cotton. The average physician still fears non-absorbable sutures, because pathologists and some of the older surgeons have emphasized that "foreign bodies" are detrimental to tissue and by improper use of non-absorbable sutures, these fears have been justified. *The fact that any suture used is a foreign body* has been largely forgotten while the more important fact that *some foreign bodies are inert and cause no appreciable reaction in tissue* has never received proper recognition or emphasis. It is not my purpose to attack the use of other suturing materials but I wish to call your attention to the use of cotton and compare some of its qualities with other suturing materials as I have found them and as reported in the literature.

An ideal suture should be: (I) pliable; (II) easily available and easily prepared; (III) easily sterilized; (IV) inexpensive; (V) should tie securely; (VI) should not excite reaction in the tissue; (VII) should maintain its strength for a known, predictable period of time in all patients; (VIII) should show no incidence of infection or sinus formation.

(I) I have used cat-gut, stainless steel wire, silk and cotton. The last two sutures are extremely pliable and are inserted in tissue with a minimum of trauma, while the first two are not pliable and if cat-gut is wet enough to make it pliable, as compared to silk or cotton, rapid loss of strength is noted.

(II) Cotton thread is easily available in the bazaar of almost any village. It does not require special preparation. The same cannot be said of cat-gut. The average cat-gut suture has been treated by Iodine, Copper, a solution of Formaldehyde, Tannates, and Chromic acid salts before it is ready for sterilization. This is not only a laborious procedure which increases the cost tremendously and which is quite outside the realm and ability of the average hospital, but these chemicals produce an increased inflammatory exudate not seen in the use of cotton.

(III) Cotton thread is easily sterilized. Boiling for 20 minutes has been found to be sufficient. Studies of over 80 different samples of cotton failed to show any B. Welchii or B. Tetani¹. Only the usual pyogenic organisms are present.

(IV) Cotton is very inexpensive. 400 yards of any size can be purchased for 4 annas. This is much cheaper than either silk or cat-gut; the latter costing 1 anna for 2 inches. This saving alone can add up to quite a figure. In Miraj, we use about 800 rupees worth of cat-gut each 18 months. It has been conservatively estimated that the cost of cotton is one tenth that of cat-gut. This would mean a saving of slightly over 700 rupees each 18 months.

* Read before the Christian Medical Association meeting, held at the Miraj Medical Centre, on 28th Dec. '40 and 1st Jan. '41, and specially sent to 'The Antiseptic', for publication.

(V) Cotton thread ties securely and the knot is reliable when properly tied. The ends may be cut on the knot without fear. The square knot is easiest and safe; the triple throw knot is the safest. Personally, I feel the way a knot is tied is more important than the material with which it is tied as far as the reliability of the knot is concerned, but many writers feel cat-gut is much less reliable than cotton because the frictional value of cotton is much higher.^{4, 5, 6, 7.}

(VI) Cotton has proven to be one of the most inert suturing materials yet used and causes no visible irritation in the tissue. Silk and cat-gut are proteins. Experimental animals² have been sensitized to cat-gut and the use of cat-gut then is followed by a marked reaction and rapid, unpredictable absorption. Repeated studies in humans³⁻¹ have demonstrated the marked irritative reaction cat-gut causes in tissue; indeed this irritative process is the very reason that it is absorbed. MEADE and OCHSNER¹ graded the reaction of tissue to implanted suture according to the amount and persistence of leucocytic infiltration, amount of serum and fibrin, the appearance time of fibroblasts, and length of time to produce final healing. Cat-gut, by producing the most reaction and slowest healing, was graded 4; linen 3; silk 2; and cotton, producing the least reaction and earliest healing, 1.

I have repeatedly opened wounds sutured with cotton and have never found the gummy exudate and serum so common with cat-gut. In the study of cotton, no fluid collection in the wound has been observed. This is in contrast with cat-gut whose properties are so well known that men who use cat-gut in most operations have discarded it in plastic work and thyroidectomies because of fluid collections and frequent infections.

(VII) Cotton maintains its strength for a known, predictable period of time in all patients. The tensile strength of cotton increases 10% after boiling for 20 minutes. When placed in tissue, it loses 10% of its tensile strength at the end of 14 days. This is contrasted with cat-gut which loses 50-70% at the end of 14 days¹, while silk loses 35%. To allow for loss of tensile strength in cat-gut, a much bigger suture must be used originally. PRIESTLEY² at the Mayo Clinic, found "labels which indicate the time necessary for absorption of cat-gut are entirely fallacious in so far as the human being is concerned" and, "Variations among individuals in the absorption time are great." Follow up studies on hernias demonstrate the value of having a suture whose strength for a given length of time can be accurately predicted. LONGACRE¹¹ at the Presbyterian Hospital, New York, reports 3.4% recurrences in 496 cases using silk; 12.5% recurrences in 270 cases using chromic cat-gut. PARSONS¹² reports similar figures. Repeated sterilization of cotton or silk does not decrease its strength⁴.

(VIII) Cotton shows a low incidence of infection and has not shown any evidence of sinus formation in infected cases. MEADE reports 196 cases in which 191 healed by primary intention—an incidence of infection in 2.5%. The infected wounds healed readily without sinus formation and no sutures were extruded.¹ In my own small series of cases, there has been an incidence of 3.3% infections and no sinuses have developed. MEADE explains this lack of sinus formation with cotton as compared to silk, to the fact that no tissue in-growth between the fibrils of cotton occurs as it does in silk, because the cotton is much more compact. The incidence of infections in clean wounds depends on many variable factors, but practically, all series of comparisons between cat-gut and non-absorbable sutures have shown a

definite advantage in favour of the non-absorbable sutures until this is a rather widely accepted fact, particularly in America. GOFF⁹, in a study of 3,000 abdominal incisions at New York Women's Hospital, found the average incidence of faulty wound incision from all causes, closed with absorbable suture material to be 21.1% while those closed by non-absorbable suture material was 4.3%. WHIPPLE¹⁰ states, since adopting silk in his clinic, the improvement in wound healing is so striking as to leave no room for argument. SULLIVAN¹¹, in a study of the immediate post-operative complications in 2,000 inguinal hernias, found infection with silk was half that of cat-gut; one third that of kangaroo tendon or ox fascia; and one fifth that of autogenous fascia. In comparing consecutive, clean operations done in Miraj with cat-gut, infection in the wounds was found to be 12.5% compared with 3.3% done with cotton.

Cotton is an inexpensive, pliable, easily prepared, non-irritating suture material which ties securely, maintains its strength for a known predictable period of time in all patients and has shown a very low incidence of infection without sinus formation.

However, before the above results can be achieved and accepted, we should consider the objections to cotton and point out that the technic used in suturing with either cotton or silk cannot be the same as applied to cat-gut or bad results will certainly cause the rejection of the suture.

HALSTED⁵ clearly stated the rules one must follow to secure good results with non-absorbable sutures and these must be followed with cotton or poor results will ensue. These rules are:—(1) Only interrupted sutures are to be used. Personally, I have modified this rule and use a continuous cotton suture on the peritoneum but otherwise interrupted sutures are used throughout. I have not seen any ill effects from the use of continuous suture on the peritoneum if it is not pulled too tight but have had one infection which showed up on the seventh post-operative day in a case of splenectomy for ruptured spleen where continuous sutures were used for fascia because of the poor condition of the patient. A finger on the right glove was torn during the operation but this was disregarded for the same reason. The upper end of the wound was twice found exposed in the ward due to poor bandaging and on the seventh day infection here was noted. The wound healed readily without sinus formation. (2) Never use buried absorbable sutures with buried non-absorbable sutures. (3) Never use coarse suture material. (4) Never bridge over a dead space as a chord subtends an arc. (5) Avoid mass ligature. (6) Avoid careless hemostasis with blunt nosed hemostats. (7) Never use tight sutures.

I see two main objections to cotton from the view point of a man who has used cat-gut and who turns to cotton. One is that interrupted sutures take longer to put in. I think this can be answered by saying they have proven to be more secure; less suture material is left in the wound; no continuous path for infection to travel along a suture is made; no retention sutures are needed; and as DEW¹³ points out, continuous sutures are prone to produce strangulation of some tissue between the loops, thus interfering with nutrition and healing. Our primary interest is not the fastest surgery but the best surgery. The second objection I see from the view point of a man changing from cat-gut to cotton is, the suture breaks too easily. I have repeatedly seen men accustomed to using cat-gut which has a tensile strength, for a few days in tissue, of 16 pounds, attempt to close a

wound with a silk or cotton suture with a tensile strength of 5 pounds, and after breaking a number of sutures, throw the silk or cotton away with disgust and call for cat-gut. Personally, I regard this as an asset as it demands gentle handling of tissue. My advice to any man beginning to use cotton is to start with far coarser sizes than those recommended and quickly work down to the smaller sizes. Repeated experiments have shown fascia will not hold a suture, with a tension of 5 pounds, long enough for healing to take place. The strength of a suture is about 75% greater than a single strand, therefore, theoretically much finer sutures than are now being used could be used with good results. Finer sutures with cat-gut are impossible when a loss of strength of 50—70% occurs before healing has taken place.

In cotton, No. 60 has been recommended for ligation of small vessels; No. 50 for skin; No. 30 for peritoneum and fascia; No. 20 or No. 10 for retention sutures if these are used. These sizes are all 6 chord thread. In India, all the cotton I have been able to secure is 4 chord. I have used No. 30 for fascia and peritoneum; No. 40 for ligatures, subcutaneous and skin. I never use retention sutures. I attempted to use No. 60 at first but found this breaking too easily after having used cat-gut in a few operations. After using cotton for 2 weeks, you will be aghast at the stiffness of cat-gut and the amount of trauma, inserting it into the tissue entails, while the knots will seem as if you are tying rope as compared to cotton.

A few other remarks concerning the use of cotton would be helpful. In sterilization of cotton, it must not be wrapped tightly on boards which swell in water, for the fibres are broken and the cotton becomes very weak. I use a teak wood paddle, 9 inches long and 3 inches wide, boiled for 5 hours with changes of water to remove any juice from the wood that might be harmful. Pieces of gauze are inserted at the ends and the cotton is then wrapped on the boards over the gauze; then the gauze may be removed so that the cotton is quite loose on the board and ready for sterilization. The paddle is made of this length so that a suture or ligature, about 18 inches long, is readily cut. Cotton is so cheap that no effort is made to tie with a short end; if you do so as you do with cat-gut, you will find it takes a great deal of unnecessary time and the saving in money is negligible. I have size No. 40; No. 30; and No. 10 on metal spools—the metal spools vary in size for easy identification. The spool is used in the hand for ligatures as indicated.

Sutures are already threaded and the suture and needle threaded through a piece of gauze which is then sterilized. Gauze is used, as finer woven cloth makes the suture difficult to pull out. You will use a great many more sutures with cotton than you do with cat-gut (sutures may be cut 20 inches long and used twice); so, to save time on the part of the nurse at the operating table, it is essential that these be threaded in advance; otherwise, you will spend a great deal of time waiting for a suture. Black cotton is used instead of white, as the white becomes red coloured and loose ends may be lost in the wound.

I always use interrupted subcutaneous sutures to close Scarpia's fascia. All interrupted sutures are placed so that the knots are buried—thus no sutures are felt in the wound. I usually apply Tincture of Benzoin after the wound is closed and wait a moment for it to dry. The first dressing is done on the fourth or fifth day when the sutures are painted with Iodine and

removed. In removing sutures, the scissors are placed against one side of the wound beneath the suture so that no stress is transmitted against the sealed skin edges when the suture is pulled out. On visible parts as neck or face, skin sutures are removed within 24-48 hours as the skin edges are then sealed and the subcutaneous sutures hold the approximation. In this way, no pin-point scar results from the suture.

Summary.—Cotton is a cheap, pliable, readily available, non-irritating suture which shows definite evidences of advantage over other sutures because of its predictable strength, lack of serum accumulation, and low incidence of infections without sinus formation.

The technic in the use of cotton is quite different from that used with cat-gut. This must be recognized or disappointment will follow its improper use.

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Reaction After Intravenous Injection of Glucose*

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ONE hears so often about the reaction after intravenous Glucose injection that it has become necessary to discuss the scientific aspect of the subject. Reaction after intravenous injection means, rigor, rise of temperature, vasomotor disturbance, or symptoms of shock, differing in intensity in different patients, resulting even in death. The following may be considered as causes of the reaction:—(1) Infection producing fever with rigor. (2) Concentration of the Glucose solution—the higher the concentration, the more the possibility of reaction. (3) Excessive quantity of concentrated solution at a time. (4) Temperature of the Glucose solution. (5) Impurities of the Glucose used. (6) The defective preparation of double distilled water used for making the solution. (7) Sterilisation by heat above 80°C. (8) Alkalinity of the glass of the ampoule. (9) Imperfect sterilisation.

1. *Infection producing fever with rigor*:—Records which have been collected from a fair number of clinical observations, show definitely that severe reaction is very common after injection of Glucose in cases where the fever was accompanied by rigor irrespective of the quality of the Glucose solution. Three cases of malignant tertian malaria died from severe reaction produced after intravenous injection of Glucose. The attending physicians attributed the cause of death to defective Glucose solution, but in all these cases the Glucose used happened to be manufactured by one of the reputed European manufacturers. It seems that when the tendency of the infecting toxin is to produce rigor, Glucose provokes a severe rigor, and profoundly disturbs the vasomotor system. In rigor, there is constriction of the peripheral vessels, driving the blood into the internal organs. If the heart is already severely embarrassed by the infecting toxin, then the additional strain on the heart by the increase of volume of blood in the heart will certainly produce collapse which may end fatally. In malaria, pneumonia, streptococcal infections such as cellulitis, erysipelas, puerperal infection, malignant endocarditis, it will be prudent to give Glucose subcutaneously or intramuscularly. If the heart is weak, and if Glucose is quite necessary, a small quantity of not more than 10 or 15 c.c. of a 10% solution may be given intravenously, very slowly, after warming the solution, followed by 50 to 60 c.c. of 10 or 12½% subcutaneously or intramuscularly.

2. *Concentration of the Glucose used*:—The higher the concentration, the more is the likelihood of reaction. In highly toxic cases or where the pulse is feeble, it is always advisable not to inject any Glucose solution intravenously above 12½%. It is better to repeat the injection oftener rather than inject a solution of high concentration.

Excessive quantity of Glucose is often pushed in in all kinds of diseases. It must be clearly understood that Glucose has no directly stimulating effect on the heart muscle or on the nerves, supplying the heart muscles. Its tonic effect on the heart muscle is due to the direct nourishment and the energy it thereby supplies. It tends to improve the functions of the

tissues of all the internal organs by merely supplying nutrition to the tissues as the source of energy and not by stimulation of the nerve centres.

It is, therefore, prudent to use a small quantity of 10 or 12½% solution intravenously for quick effect and a larger quantity of 10 or 12½% solution up to 50 c.c. subcutaneously or intramuscularly for sustaining the effect. The subcutaneous or intramuscular injection may be repeated every 4 or 8 hours. Concentrated solution, subcutaneously or intramuscularly, takes too long a time to be absorbed.

3. *Excessive quantity of concentrated solution*:—Too frequent intravenous injections of a large quantity of concentrated Glucose or a large quantity at a time are almost always fraught with danger in severe or acute infection. The desired effect of Glucose can be obtained by the prudent use of a small quantity, say 10 to 20 c.c. of 10% or 12½% solution, intravenously for quick action, followed by large quantities of 12½% or 10% solution subcutaneously or intramuscularly for sustained effect.

4. *Temperature of the Glucose solution below body temperature*:—It is very common to find that when 25 c.c. or more of the Glucose solution is injected without warming it up to the body temperature, it will often produce reaction. It was observed that patients showed signs of reaction when 25 c.c. of a cold solution was injected intravenously, while the same quantity of a warm solution did not produce any reaction whatsoever in the same patients. It is, therefore, quite necessary always to warm the ampoules to body heat before giving intravenous injection of Glucose solution.

5. *Impurity of the Glucose used*:—The only impurity of Glucose is Dextrine. If the quantity of Dextrine is slightly higher than the allowable margin, there is every possibility of reaction. It is, therefore, advisable to recrystallise the Glucose in order to eliminate all traces of Dextrine. Of course, in the process of recrystallisation, a fair quantity of Glucose is lost, thus increasing the cost of production. It is, however, advisable to pay a slightly higher price than risk the patient's life.

6. *The defective preparation of double distilled water used for making the solution of Glucose*:—When the preparation of the solution of Glucose in a manufacturing concern is left to laboratory assistants, it is not uncommon that simple distilled water is boiled and filtered and used for the solution, because the laboratory assistants do not understand the importance of the use of double distilled water. Such a solution is apt to give reaction. Often, the double distilled water is prepared 4 or 5 days before use and stored in alkali soluble glass carboys. Any kind of solution, intended to be used for intravenous injection, must be prepared from fresh double distilled water and must be collected and kept before use in clean neutral glass receptacles. The second distillation must always be made in all-glass condenser, preferably of pyrex glass. It is regrettable that due to lack of knowledge of the principle of manufacturing medicines, unhappy incidences occurred in the past. For eliminating every possibility of reaction, the use of fresh triple distilled water is strongly recommended for the preparation of Glucose solution.

7. *Sterilisation by heat*:—If Glucose solution of a high concentration, such as 20% or above, is sterilised by heat, there is always a possibility of slight caramel formation which will give the solution a slightly brownish tinge. Such a solution will always give reaction; consequently, the ampoule

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should be inspected carefully before injection, and if there is a slightly brownish tinge in the solution, which is easily noticeable, it is better not to use it, as such ampoules probably have been sterilised by heat, or have undergone some kind of deterioration or oxidation.

Experienced and well-known manufacturers do not use heat for sterilisation. Glucose solution is sterilised by filtration through filtering candle or Seitz filter. After filling the ampoules aseptically, they are put into a water bath at 60°C, for 30 or 40 minutes.

8. *Alkalinity of the glass of the ampoule* :—If ordinary glass ampoules are used for putting the solution, Sodium or Potassium Silicate of the glass is dissolved into the solution gradually changing the pH. Such a solution is apt to produce reaction. It is, therefore, imperative that absolutely neutral glass ampoules should be used for Glucose solution for intravenous injections. Due to war conditions, it has been very difficult to get absolutely reliable neutral glass. Two local firms are now manufacturing neutral glass and their effort in this direction is very encouraging.

9. *Imperfect sterilisation* :—Due to technical defect, sterilisation may not be perfect. Sometimes, due to defective filtering candles or the Seitz film used for filtering or due to contact with contaminated air, bacterial or fungous contamination may take place. The problem of sterilisation of Glucose has become more difficult due to the unavailability of good filtering candles or Seitz filtering films. If fungous contamination takes place, white or brownish wooly growth will be noticeable in the ampoule after storing it for sometime. Often, due to a crack in the ampoule, fungous contamination takes place, in which case it is not due to any technical defect. Cracks may often appear after the ampoules are packed in the box. Contents of cracked ampoules or a solution showing even slight turbidity, or wooly flocculum must never be used.

The points described above have been gathered from clinical observations and laboratory studies for a period of over 10 years. In the light of these observations, it is obvious that every caution should be used in injecting Glucose solution intravenously, and in selecting the make and preparation to be used.

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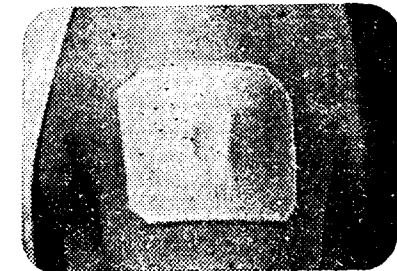
2 Almost universally successful results. One baby failed twice, but "took" the third time.

3 Marked diminution of scarring, particularly important in women and female infants.

4 Almost complete absence of malaise in infants, and there was no interference with bathing.



Application of 'Elastoplast' Bandage



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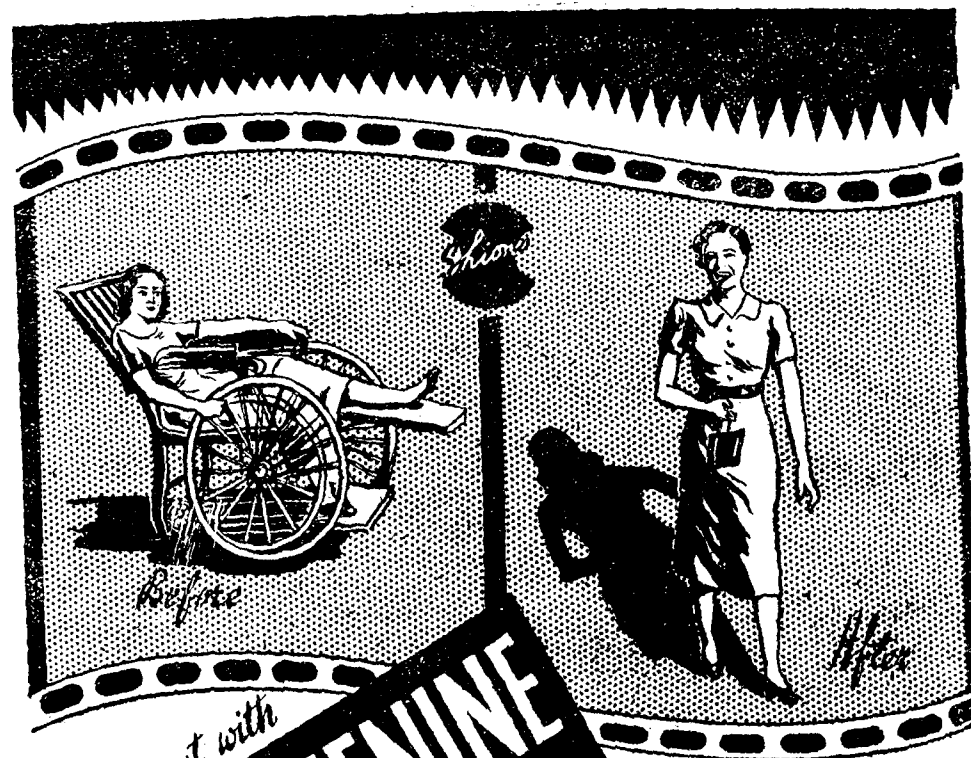


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Modern Therapeutic Agents in Ophthalmology*

(Non-Specific Protein Shock Therapy, Ultra-violet Ray Therapy.)

BY

NABIN KISHORE BIDYADHAR, M.B., B.S. (PAT.),

Surgeon, Sonpur Raj, Orissa.

In the following pages, I shall discuss briefly the subject of modern therapeutic agents in ophthalmic practice, dealing mainly with the principles and practice of non-specific protein therapy and ultra-violet light therapy. The subjects of röntgen-ray and radium therapy and diathermy, etc., would be dealt with in a separate paper. These modern therapeutic medicaments provide very effective weapons in the therapeutical armamentarium of the modern ophthalmologists for the successful treatment of numerous ocular diseases which usually prove refractory to the general modes of official therapy.

Non-specific protein therapy in eye diseases.—The introduction of non-specific protein therapy into the therapeutical armoury of the ophthalmic surgeon is comparatively new in modern ocular therapeutics. This therapy has practically evolved from observations made by several investigators that certain intercurrent infections accompanied by fever produced remarkably beneficial and healing effects in various ocular diseases. Various methods of non-specific therapy may be resorted to in order to raise the body temperature. The fever may be produced by the injection of malaria parasites (as in the case of treating parasymphylis), typhoid vaccine and sterile milk etc. Non-specific therapy plays a very important role in the treatment of various ocular diseases. It has been experimentally found that many diseases of the eye, not responding to the usual modes of treatment, are readily amenable to non-specific protein therapy.

Various hypotheses have been advanced to explain the biologic reactions, following the injection of non-specific protein. The principle involved in its therapy is the reinforcement or fortification of the defensive mechanism of the system by the effective mobilisation of combatant phagocytes i.e., by increased production of leucocytes as a result of the febrile reaction. By the injection of non-specific protein into the system, a syndrome or a symptom-complex is produced, characterised by fever which is generally the main manifestation of a series of symptoms which have come to be known as foreign protein shock. The non-specific protein seems to stimulate the hæmopoietic system to emergent activity, evoking an immunological response and mobilising the defensive forces of the system. A leucocytosis in which the mono-nuclear cells predominate is part of the symptom-complex.

The classical investigations of PETERSEN, VON SZILY, ALLEN, HOWARD WICK, KEY and others have illuminated us regarding the theory and practice of non-specific protein therapy. With regard to the phenomena accompanying foreign protein shock therapy, PETERSEN observes that a number of tissue ferments are elaborated which help in the breaking up and disintegrating bacteria and their toxins into harmless and innocuous products; another phenomenon is an increase in cell permeability as a result of which the antibodies have a chance of migrating from the bloodstream to the cells. This whole series of biological processes leads to the

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reinforcement and strengthening of the defensive mechanism of the body to the maximum limit; effective mobilisation of the resisting forces of the body against the invading organism is increased. According VON SZILY (1930), one of the effects of foreign protein injection is the production of a definite inflammatory process in which the whole uveal tract becomes hyperæmic and infiltrated with lymphocytes.

The criteria of judging clinically the intensity and efficacy of protein shock therapy are two-fold, namely the observation of the febrile reaction and the blood count; of these two factors, the febrile reaction would give ready information to the clinician as to whether a sufficient and efficient reaction has been or is being produced. There are many non-specific proteins, however, which, when injected into the system, are not accompanied by marked febrile reaction—such products being Omnadin, Lactolan, Aolan, etc. According to GIFFORD, these proteins which produce fever are more beneficial and potent in their therapeutic effects than those producing less or no febrile reaction. To this category of drugs belong whole milk and typhoid-paratyphoid vaccine—both are very efficacious therapeutic agents. Since the shock-producing properties of milk depend in large part, as BARKAN has shown, on its bacterial content, certified or pasteurised milk is less valuable than poorer grades of milk or pasteurised milk which has been incubated for four to six hours, so that its bacterial content is increased. Such milk is boiled for four minutes, cooled and injected intramuscularly (GIFFORD).

In my practice, the desired quantity of milk is taken in a clean test tube, boiled for about 4 to 5 minutes, till it just begins to simmer; it is then cooled down and the required amount made ready for intramuscular injection.

Milk therapy is very largely used now-a-days in the treatment of gonorrhœal ophthalmia as well as ophthalmia neonatorum. Milk injections very favourably influence the course of gonorrhœal ophthalmia (BIDYADHAR). In my cases, I usually begin with 2 c.c. intramuscular injection, given either on the 1st or 2nd day of the disease; continually, two more injections of 3 c.c. and 4 c.c. are given on the following days. In the majority of cases, the results have been found to be highly encouraging and intensely relieving to the patient. Only in resistant cases, however, one or two more milk injections of 5 c.c. or more become necessary. According to the observations of other authorities (GIFFORD and others), much larger doses of milk injection, 8 to 12 c.c., may be required to produce the desired effect.

In the case of new-born infants affected with ophthalmia neonatorum, injection of about 1 to 2 c.c. of milk produces a definite reaction, with the rise of temperature, ranging from 100° to 102° or 103°F.

Milk therapy is also advantageously used in blepharitis, corneal ulcers, sympathetic ophthalmia, iridocyclitis, choroiditis, and optic neuritis, etc. In all these cases, all larger doses of the milk injection have to be administered, beginning with a small initial dose of say 2 to 3 c.c. and rising up to 10 to 12 c.c., the dosage being judiciously adjusted and regulated according to the resulting reactions.

I have successfully employed milk therapy in the following eye diseases: acute conjunctivitis, gonorrhœal ophthalmia and ophthalmia neonatorum,

blepharitis ulcerosa, corneal ulcers, hypopyon, sympathetic ophthalmia, nebula and leucoma, in all of which satisfactory results were observed by milk injections, ranging from 2 c.c. to 5 c.c. continued up to 7 to 10 c.c. in resistant cases. In the treatment of nebula and leucoma, I found in recent cases, that the corneal opacities greatly cleared up after the fifth milk injection. In long standing cases, of course, patience on the part of the patient and perseverance on the part of the physician are to be emphasised in the institution of this non-specific protein therapy.

WHALMAN and HAY emphasise the value of non-specific protein therapy in the treatment of corneal ulcers. According to these observers, this therapy is especially valuable in severe cases of hypopyon ulcers. They maintain, however, that milk is less constant in its action than typhoid vaccine, administered intravenously.

The other non-specific protein medicament is typhoid-paratyphoid vaccine which, when injected intravenously, is more constant and potent in action than milk therapy. Intravenous injections of typhoid vaccines are highly useful in sympathetic ophthalmia; such injections are usually much less painful than milk injections and produce no painful local inflammation. The initial dose is 30 millions which would bring about a febrile reaction of 100° to 101°F in most of the cases. The doses are to be increased to 40 millions, and then graded up to 50, 60, as far as 70 millions, the surgeon being judiciously guided by the resulting reactions. In those obstinate cases which do not usually yield to smaller doses, ALLEN (1928) advocates the use of much higher doses up to 100 million organisms in certain cases with good results. For intravenous injections, these doses are to be taken in smaller quantities than the subcutaneous immunising injections. In cases of children and young adults, of course, smaller doses are to be administered. For the accurate measurement of such doses, a tuberculin syringe would be profitably employed.

Certain authorities (VERHOEFF, KEY and others) have advocated the use of anti-diphtheritic serum in the treatment of sympathetic ophthalmia and of ulcus serpens. VERHOEFF prescribes using anti-diphtheritic serum in 16,000 units doses daily in sympathetic ophthalmia; while 2400 to 3200 units every two to three days are used for the treatment of serpent ulcer (KEY).

Some authorities (VILA CORO, VAN SZILY, WICK and others) are very enthusiastic about the use of auto-serum therapy in eye diseases. The technique involved in this process is the removal of about 5 to 10 c.c. of blood from the patient's vein; either the whole blood is immediately injected by the intramuscular route or the serum collected from the sample of blood and reinjected into the system. According to the observations of VILA CORO, this method of therapy which often causes little or no febrile reaction is said to be superior to that of foreign protein injection, especially in regard to the treatment of sympathetic ophthalmia. WICK (1926-1927), in a series of observations made a comparative study of the efficacy of auto-serum therapy over that of the foreign protein therapy. His findings show that the therapeutic efficacy of auto-serum is not different from that of other proteins, with this exception that the febrile reaction is much less of other proteins, with this exception that the febrile reaction is much less in auto-serum therapy. GIFFORD, however, does not agree with the findings of those authorities who attribute remarkable advantages to auto-serum therapy. Milk and typhoid vaccine, therefore, still remain as powerful and efficient therapeutic agents in the field of non-specific protein therapy.

Ultra violet ray therapy in eye diseases.—The curative properties of ultra violet light was known to the ancient scientists of the pre-historic Susrutian period. They accordingly advised treatment of many systemic diseases with ultra violet light therapy.

Light is a form of energy, caused by the periodic vibration of electrons, and consists of electro-magnetic waves, travelling with a velocity of 184,000 miles per second through ether. The visible light rays of the sun consist of seven primary colours, at one end of which are the red rays, and at the other, the blue and the violet. "The visible light rays are seen arranged as a coloured band on the spectrum having the following characteristics: visibility begins usually at about 8000-7800 A.U. (An Angstrom unit—one ten-millionth of a millimetre), the rays of the longest wave-length being red. As the wave-length becomes shorter, the colour gradually changes to orange, the transition being at 6500 A.U. nearly. From orange, the colour changes to yellow at 6000 A.U. nearly. From yellow to green at 5500 A.U., to blue-green at 5000 A.U., to blue at 4500 A.U., and to violet at 4000 A.U. The violet extends to 3800 A.U., where visibility ceases. The spectrum, therefore, exhibits a gradual change of colour with wave-length. Above the red is the invisible region, occupied by the infra-red or heat rays, and below the violet, the invisible ultra-violet or actinic rays." (HARTRIDGE and STARLING).

The ranges of absorption of light by the different media of the eye have got to be remembered. With regard to the intensity of absorption of light rays by the cornea, it absorbs nearly all the light between 16,000 and 13,000 A.U., while from 13,000 A.U. down to the range of the visible red rays at 7700 A.U., a greater amount is transmitted reaching almost 100 per cent. for the rays of the visible spectrum—7700 A.U. to 4000 A.U. With regard to ultra-violet rays, the cornea absorbs practically all rays below 2950 A.U. Fifty per cent. of the longer infra-red rays between 18,000 A.U. and 16,000 A.U. are absorbed by the normal cornea; while the remaining half is absorbed by the lens. As for the aqueous humour and the vitreous, all rays passing through the cornea are transmitted by them.

In the case of the lens, it absorbs most of the longer infra-red rays passing through the cornea as well as 25% of the rays between 13,500 A.U. and 11,000 A.U.; it absorbs all the ultra-violet rays lying between 2950 and 3200 A.U. and also a portion of those rays between 3200 and 4000 Angstrom Units.

Partly due to its high power of absorption and partly due to the richness of its innervation, the cornea is highly sensitive to the absorption of ultraviolet light. The exposure of the cornea to ultraviolet irradiation of sufficient intensity is followed by the occurrence of an abiotic reaction after a latent period of about 6 to 8 hours—the corneal epithelium becomes irregular and swollen up and formation of vesicles takes place. On longer exposure, the corneal epithelium becomes completely desquamated; disintegration of the nuclei of the corneal corpuscles takes place, followed by the appearance of eosinophil cells in the cornea—all these phenomena occurring in those cases in which the cornea has been exposed to irradiation much longer than the usual therapeutic dosage. The production of even the slightest degree of such an abiotic reaction is always accompanied by intolerable pain. The occurrence of photophthalmia, characterised by the clinical syndrome of burning pain, photophobia, lacrimation, blepharospasm

and ciliary neuralgia, or the phenomenon of snow-blindness appearing in typical form after an accidental exposure to the electric arc flash, is based upon such abiotic reactions.

Sunlight is very essential to the well-being of all living beings, both animal and vegetable. The biological action of sunlight depends largely on its intensity, the power of its penetration and the degree of absorption. It has been experimentally found that in the case of ordinary light, a whole gamut of waves varying greatly in length is present. The visual rays are those which, falling within certain limits, are able to stimulate the eye, these limits being slightly less than 8,000 A.U. for the longer limit and 4,000 A.U. for the shorter one. Those rays whose wave length falls beyond these limits become invisible to the eye; they are denominated as infra-red rays when they are too long, and ultra-violet when they are too short. The wireless waves are of longer wave length than the infra-red rays, while the X-rays are of shorter wave length than the ultra-violet rays. The infra-red rays are also called the heat rays, as they are able to stimulate the sensory end-organs of the skin which respond to heat; while the ultra-violet rays are called actinic rays or chemical rays, so called from their ability to produce certain chemical reactions, and especially those used in photography.

From studies on the absorption of ultra-violet rays by the cornea and the lens, we know that only the longer ultra-violet rays between 3,200 and 4,000 A.U. and that only a part of these, reach the retina, and changes in the retina as a result of absorption of these rays have not been found to occur experimentally. From BIRCH HIRSCHFELD's observations we learn, however, that retinal changes were noted in rabbits from which the lenses had been previously removed and that only after a longer exposure than the usual therapeutic dose. Exposure to larger doses of infra-red rays would surely be followed by causation of injury to the retina.

Larger doses of ultra-violet rays, passing through the cornea have the same deleterious effects on the epithelium of the lens, as they have on that of the cornea. Incidence of cataract on intense irradiation has been noted in the literature. SCHNEERER has reported two cases of cataract, developing as an after-effect of photo-therapy as well as roentgen-ray therapy. It has been shown that the lens can tolerate large doses of ultra-violet light without the development of any lental opacity (VOGT). Lens opacities have, however, been observed in VOGT's clinic as a result of infra-red rays passing through the cornea. The time factor in the occurrence of lenticular opacities after irradiation with rays of various wave-lengths has recently been investigated by WOLFFLIN (1938). According to the observations of WOLFFLIN the times intervening between the irradiation and the production of degenerative lesions of the lens are diametrically proportionate to the wave-lengths. Occurrence of lesions after irradiation with infra-red rays may take place within a few hours; after irradiation with ultra-violet rays, in a few days; while after irradiation with short-wave roentgen or radium, lesions may occur in a few months or years. DUKE-ELDER rightly warns against the dangers of indiscriminate use of ultra-violet therapy. "In the application of the treatment, however, great care must be exercised and a special apparatus must be employed in order to allow the dose to be graded adequately, and—more important—in order to protect the lens; for, while massive doses of light tend to produce a radiational cataract, smaller doses can undoubtedly induce changes in the proteins of this tissue which

render their subsequent coagulation and opacification more easy" (DUKE-ELDER). The principal maxim that a therapist should observe in any technique of local phototherapy is that the rays should be adequately controlled in order that the lens is excluded from their direct attack.

In the application of ultra-violet therapy to the eye, the delicacy and extreme sensitiveness of the organ must be kept in mind and on this account, one should use a lamp, running under constant conditions, in which the intensity and delivery of energy can be correctly gauged and graded. The use of ultra-violet rays, shorter than 3,000 A.U., is indicated when an irritating effect is desired, while waves of longer length are to be profitably employed in order to produce a mild abiotic action. In all cases, the highly dangerous infra-red rays are to be excluded.

The Carbon arc, the Mercury or hot Quartz and the cold Quartz lamps—these are the three main sources of artificial ultra-violet light, generally employed for the purpose of general irradiation therapy of the body. For local treatment of the eye with ultra-violet light therapy, different types of apparatuses have been designed for use by different ophthalmic surgeons, viz. the Mercury vapour arc slit lamp apparatus with a Quartz lens system (DUKE-ELDER); the Kromayer lamp, a small Mercury arc in a water-cooled Quartz container with a Quartz applicator (KOEPE); a Carbon arc fitted with a filter of uvio glass and a Quartz lens system, one lens of which is movable, so that a fine group of light rays can be focussed on to the corneal lesions (BIRCH-HIRSCHFELD). BIRCH-HIRSCHFELD used a Quartz cell containing 0.5% Copper Sulphate solution for the exclusion of the infra-red rays. The BIRCH-HIRSCHFELD apparatus is very popular in European clinics.

The classical investigations on the treatment of systemic diseases by means of heliotherapy, carried out by ROLLIER, who exposed his patients to solar irradiation on the high Alps, paved the way for harnessing phototherapy in the treatment of various eye diseases. Since then, the ocular therapists have utilised general light therapy in the treatment of tuberculous eye diseases and phlyctenular keratitis. For the routine treatment of phlyctenulosis, general light baths, provided by the Mercury vapour or the Carbon arc are frequently employed in numerous eye clinics. "The object of general phototherapy is to produce a mild skin reaction, with increase in the bactericidal power of the blood" (GIFFORD). For the routine treatment of phlyctenulosis, administration of light baths is now a common feature in most of the modern clinics. The technique of phototherapy as followed in MOORFIELD'S Hospital consists of irradiating one third of the body surface at every sitting with the Mercury vapour arc, after having ascertained the dose of light capable of producing a slight skin erythema. Such applications are to be repeated on other areas twice or thrice every week. Having administered fifteen such light applications, the therapist uses a Carbon arc light, which being richer in long ultra-violet light, possesses a greater penetrating effect. With this light, a course of five treatments is given, supplemented if necessary, by another course after an interval of two to three weeks.

In addition to the special therapeutic efficacy of irradiation in phlyctenular keratitis and tuberculous eye diseases, general light therapy is also indicated in the treatment of the following ocular disorders, namely sclerosing keratitis, tuberculous iridocyclitis, tuberculous choroiditis and other eye diseases, associated with general cachectic conditions.

Local phototherapy.—The principle underlying the local ultra-violet irradiation in various eye diseases is two-fold, namely, to make use of the direct bactericidal effect of the light as well as to stimulate and reinforce the immunological and regenerative processes of the system. The various ocular diseases in which local phototherapy has been advantageously used are discussed below.

The subject of ultra-violet therapy in the treatment of corneal ulcers has been investigated by numerous eminent authorities, namely, PASSOW, SCHINCK, SCHWARZKOPF, BIRCH-HIRSCHFELD, POYALES, DUKE-ELDER, HOLLOS and LINKZ, TROVATI and others. All varieties of corneal ulcers are favourably treated by ultra-violet irradiation. The chronic, the more severe and the recurrent types of corneal ulcers respond satisfactorily to this therapy. In the case of simple forms of corneal ulcer, healing at once begins to take place without any residual opacity. In case of obstinately severe type of corneal ulcerations, ultra-violet irradiation therapy gives the best results, and is therefore the method of choice.

BIRCH-HIRSCHFELD and HOFFMANN, LOTTRUP-ANDERSEN, ARNOLD, GILBERT, FLASCHENTRAGER, and others have all observed the remarkable results obtained by treating hypopyon ulcers with ultra-violet irradiation. BIRCH-HIRSCHFELD and HOFFMANN have reported that out of 190 cases of all types of hypopyon ulcers treated with light, only 9 eyes were lost—which is an extraordinarily satisfactory result in a disease of the severity of hypopyon ulcer.

In the treatment of dendritic ulcers of the cornea or other forms of ulcer, caused by the herpes virus, local ultra-violet therapy gives the most satisfactory result. According to STOCK'S observations, such diseases responded well after a single exposure of five minutes to the uvio light; while the observations of GIFFORD show that in the cases treated with ultra-violet therapy, healing was more rapid and the resulting scar much less dense than in others not subjected to light therapy.

Local phototherapy has also given good results in the treatment of sclerosing keratitis, as is well-known from the observations of STOCK, GILBERT, and others. In treating this condition, the BIRCH-HIRSCHFELD apparatus with uvio filter is used and a course of light treatments of 5 to 11 minutes, covering the whole lesion, is given either daily or every two days.

Chronic ulcers, associated with a varying degree of keratitis and corneal opacity and often complicated with iridocyclitis, the deep lesions of corneal acne, recurrent ulcers of the marginal type, cases of mild epithelial dystrophy of the cornea—all these respond very favourably to the ultra-violet therapy.

The observations of KOEPE, PASSOW, LOWENSTEIN and DUKE-ELDER show that cases of tuberculous keratitis which have resisted all other forms of treatment are wonderfully cured by ultra-violet therapy.

The therapeutic efficacy of local ultra-violet irradiation is exhibited in cases of very chronic phlyctenular ulcer, occurring in children, with ulcerated, opaque and highly vascularised cornea and accompanied with intolerable symptoms of continued irritation. Ultra-violet therapy is also indicated in the treatment of trachomatous ulcers and in degenerative ulcers.

In certain cases of resistant types of conjunctivitis, ultra-violet therapy may be given a trial with advantage. In blepharitis, which proves refractory to ordinary therapy, ultra-violet therapy may be employed. In the treatment of the diseases of the lids and conjunctiva, the Mercury vapour arc gives satisfactory results, and with the use of this apparatus a greater amount of light can be delivered over as large a field as required; while the BIRCH-HIRSCHFELD apparatus is to be advantageously used in treating diseases of the cornea, etc., as this produces no painful reactions of the corneal or the conjunctival epithelium.

Some authorities have advocated local phototherapy in the treatment of the diseases of the inner eye, especially of tuberculous origin—namely iritis, cyclitis and choroiditis. Local ultra-violet therapy seems to be justifiable in these tuberculous cases in which nodules have appeared on the anterior surface of the iris, provided the beam of light be prevented from affecting the lens.

Recently, TROVATI (1939) reported the treatment of some corneal diseases with ultra-violet light. His cases included 5 of scarring from ulcerative keratitis, 2 of interstitial keratitis, 5 of vascular pannus and 2 of disciform keratitis. He administered doses, ranging from 3 to 30 minutes with the idea of provoking repeated, moderate reactions. The local reactions, accompanied by increase in the vascularity already present, resulted in some absorption of the corneal opacity. In some cases, vision remained unchanged, while in others, it improved considerably, in 1 case, from 1/60 to 2/10. Opacity completely disappeared in the two cases of disciform keratitis. In the majority of cases, from 6 to 9 doses at intervals of 2 days to 2 weeks were administered.

BIRCH-HIRSCHFELD (1939), in one of his latest studies on short waves in ocular therapy, reported on the results of his observation in 94 cases. His findings are as follows: Excellent results were obtained in 57 cases; good results in 24; slight improvement in 9 cases, while no improvement was noted in 4 cases. In 3 of the last 4 cases, the disease was glaucoma, while the fourth one was parenchymatous keratitis. Best results were obtained for inflammatory and purulent conditions of the lids and tear sac, superficial keratitis and neuralgias in the region of the trigeminal nerve. Speedy and steady improvement was noted in 3 out of 5 cases of optic neuritis and in 15 cases of exudative chorioretinitis. Short wave irradiation brought about prompt cure in 2 cases of spontaneous vititis; in 6 out of 9 cases of tuberculous iridocyclitis, a very good reaction was obtained and in 3 other cases, response was fairly satisfactory. In cases of vitreous opacity, no uniform results were observed; in 3 cases, the opacities cleared up in a short time; in 3 cases, there was slow response, while in 3 others, the opacities remained uninfluenced. In none of the 94 cases, adverse results were obtained by the author. According to BIRCH-HIRSCHFELD, short wave irradiation produces good results; its therapeutic advantages are that it exercises an analgesic effect and considerably shortens the duration of treatment in cases of inflammatory and purulent disease of the lids, the lachrymal apparatus and the anterior segment of the eye ball. Satisfactory results are obtained in diseases of the retina, choroid and optic nerve.

BIRCH-HIRSCHFELD employed an ultra-therm constructed by SIEMENS, regulating the dosage in every case, a voltage of 19 being applied for from 10 to 15 minutes as the average dose. He started with a period of exposure

of five minutes in extreme cases of the eye disease and in cases of involvement of the fundus.

I beg to express my indebtedness to the various authorities whose works, I freely consulted in the compilation of my paper.

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A Study in Suicides*

BY

S. A. SUBEDAR, L.C.P.S., R.M.P.

West Kathiawar.

THE problem of suicide remains one of the unsolved mysteries of human nature. It is a perversion of the instinct of self-preservation. Whether the action of a man, who ends his life in a fit of temporary insanity is justifiable or not, wiser heads shall judge. The increasing misery of a large number of people has led them to take their lives. Whatever may be the motives, suicide is a social malady and its increase is an ill omen.

The ancient Greeks and Romans compared man to a sentinel or guardian over his own body; and just as a sentinel who shirked his duties was liable to be severely punished, a man who committed suicide deserved no sympathy. By law, the body of a suicide was not allowed to be burnt. It was buried after its right hand was cut off. In the later period of dissipation and fall of Rome, the doctrine of suicide grew fashionable. Special courts were set up to hear the cases of those who wished to die. If the applicant showed good cause, he was granted permission. They argued that, to a man incessantly tortured with mental and physical worries, nothing was more desirable than death.

Some religions favour the commission of suicide. The doctrine of transmigration of souls is a strong incentive to self destruction. The advent of Christianity and Islam prevented this to some extent.

Legal aspect.—It is a felony if the act is committed by a man who has reached the age of discretion. If two persons agree to commit suicide together and one of them survives, he is guilty of murder and may be hanged.

Age.—Suicide under five years is unknown. It is rare under ten years. A young girl in Paris committed suicide because her parents did not give her sweets. In U.S. of America, a boy aged twelve years drowned himself, because his parents did not allow him to go to a cinema. Onset of puberty may be one of the factors.

Season.—Great number of suicides in India occur in spring and in early summer. In England and America, more men attempt suicide in April than in any other month, and more women in August. Exposure to cold makes the resistance of the body low and consequently, the body becomes an easy prey to functional disturbances.

Occupation.—Suicides are found to be the highest in soldiers, doctors, chemists and lowest in clergymen and sailors.

Time.—Suicides mostly occur in the forenoon. Night suicides are rare. This is due to the instinct to attract attention. Thus, a man will write flamboyant farewell letters and funeral directions. In fact, "Their life is a mask and their death a pose."

In Germany, sixty cases of suicides are reported daily. Japan comes next; 1600 cases per year in New York. In U.S.A. San Diego, California gives the largest number. In Bombay, the number of suicides per year is 130,

* Specially contributed to 'The Antiseptic'.

In Calcutta, 128; In Madras, 83. In British Isles, 14 cases of suicides are reported daily. In India, the number of females committing suicide is comparatively lower than that of males. In Europe, MOORE analysed 1147 cases of suicides. He found that 616 were females and 531 males. The attempts of males are more successful than those of the females. Another observer has found that in females, attempts at suicide are commonly made during a menstrual period, especially on the first day. In India, cases of suicides are given undue prominence by the local papers and are described as sensational news.

Usual forms. The most usual forms are poisoning, drowning and hanging. In males, the most popular forms are hanging and poisoning. In females, drowning, hanging, jumping from heights and setting fire to the clothes.

Causes.—Inability to adapt oneself to the surrounding circumstances, monetary difficulties, self punishment, disappointment in love matters, frustration of sexual desire. A well-to-do man of advanced age in Jetpur married a young girl. Only after a month of his marriage, he was found with a deep wound, self inflicted on his neck. Cases have been recorded where lovers entered into a death pact and ended their lives clasped in an eternal embrace. Physical pain, pain of sarcoma, tic, fear of insanity, extreme thirst, bankruptcy, dismissal and exposure of fraud, are some of the causes in males.

In females, ill treatment from the mother-in-law; although no male has ever committed suicide owing to the treatment of his mother-in-law. Neither is there any case on record of an European woman who has committed suicide owing to this sort of ill treatment. Loss of a child and the habit of suttee; unmarried women sometimes commit suicide in order to avoid social disgrace.

HENDERSON believes in the constitutional predisposition to suicide and is unwilling to put all blame on the social causes. He never saw any one committing suicide who was of sound mind. He maintains that only people suffering from mental disorder commit suicide. According to him, melancholics should not be left alone.

Varieties. *Suicide by custom*:—In olden days, relatives of a ruling monarch committed suicide after his death in order to keep him company, in the next world. This is proved by the archaeological excavations from the tombs of Pharaohs of Egypt. When the "Mikado" the late Emperor of Japan died, some of the courtiers and near relatives of the Emperor considered it a high privilege to accompany him to the next world and committed suicide. Even now, in Japan, instances are frequent, where a man in a fit of religious or patriotic frenzy, performs "Hari, Karri" a ceremony in which the devotee plunges a sharp sword in the abdomen till he dies. The ceremony is conducted with great show and elaborateness. We have also heard of creditors who have smashed their brains out, on the threshold of the defaulting debtor.

Political suicide.—Mr. MacSweeney, the Mayor of Cork in Ireland, committed suicide by undertaking a fast. During this period, he took nothing but water. He died on the 73rd day. This form of suicide by fasting unto death is now-a-days undertaken by political prisoners in order to create sympathy in their cause. We also hear of prisoners in jail

resorting to this method as a protest against jail routine and regulations. Mr. Gandhi, the greatest apostle of non-violence creed, has on several occasions, undertaken a fast for the sake of eradicating social evils or as a penitence for the sins of others. Few are capable of following this philosophy.

Religious suicides.—A form of self destruction indulged in by the devotees of "Shiv." They dedicate their lives to the hero of their faith, inflict severe injuries on their bodies—at times severing their necks from their trunks, or allowing themselves to be crushed under the huge chariot-wheels.

The highest rate of suicides is found in Protestants and the lowest in Roman Catholics. It is common in alcoholics and epileptics. It is a wrong belief that melancholics never commit suicide.

The Sarda Act has been of great benefit in reducing cases of suicides in females. In Germany and New York, there are regular offices where expert advice is given to these maniacs in order to prevent them from committing suicide. In England, the Coroner and the papers are strictly prohibited from expressing and publishing any irrelevant and unnecessary remarks in connection with the case. Salvation Army has also done a great deal in preventing people from committing suicide.

Is suicide justifiable?—It is not found in lower animals. It is, therefore, an acquired characteristic of mankind. It is anti-social.

At the inquest, the man who committed suicide is described as having ended his life in a fit of temporary insanity. If he survives the attempt, he is imprisoned. The plea of insanity is then overlooked. The Law requires to be changed. Punishment in such cases does not improve. Reform and not retribution is the solution.

How suicides can be prevented or decreased.—HENDERSON believes that a combined effort, in which all the resources of the community can be utilized, should be undertaken. This will modify the occurrence of suicide and keep it within bounds. It is certainly desirable that all hospitals and especially surgical wards, to which patients are admitted after a suicidal attempt, should make provisions for adequate and systematic psychiatric examination and plan of treatment.

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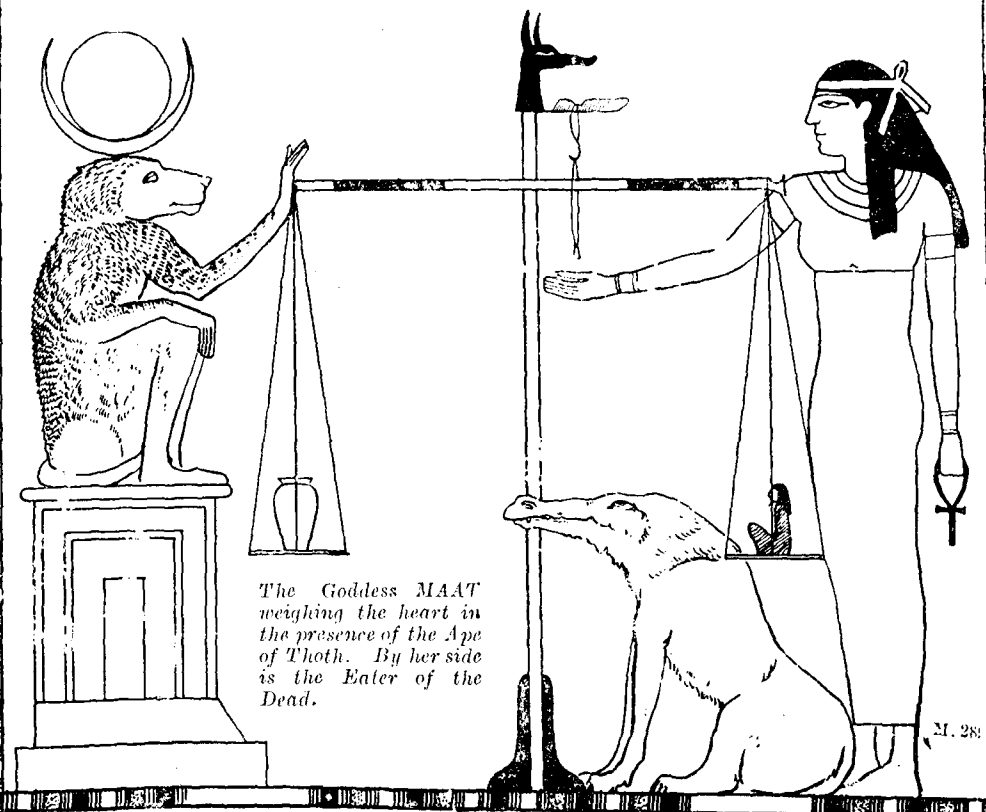
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Cases and Comments

On Two Cases of Extensive Lesions of Lungs of Epitubercular Origin

BY

RAI DR. G. C. CHATTERJEE BAHADUR, M.B. (CAL.), F.R.I. (LOND.),
Calcutta.

FISHBERG stated that RANKE, by a comparatively clinical, immunological and pathologico-anatomical study, extending over many years, divided the course of tuberculosis into 3 stages, on analogy with syphilis, which are as follows:—

- (1) The initial localization of the infection which, with the corresponding lymphatic glands, constitutes the primary complex.
- (2) A secondary stage of generalization with the development of hypersensitiveness, and often with development of hæmatogenous stasis.
- (3) A tertiary stage, with relatively high immunity and isolated organ tuberculosis.

Regarding the primary complex, with which we are concerned here and not with the correctness or otherwise of this classification, FISHBERG further stated *that "as its first stage can be demonstrated in the vast majority of civilized humanity, it is obvious that, in most instances, it develops and heals without causing clinically characteristic symptoms. But, from the disease in the tracheo-bronchial glands, there may appear apparently non-specific and transitory condensation of the pulmonary parenchyma in the vicinity of the involved nodes". This was described by ELIASBERG and NEULAND as epituberculosis, which was first noted by GRANCHER some 60 years ago.

FISHBERG also gives an X-ray film of epituberculous infiltration in the right lower lobe in a child aged six years, which, when X-rayed six months later, showed complete absorption of the infiltration and the child was then in excellent health, and the X-ray film of another child, 7 years of age, which showed marked epitubercular perihilar infiltration, but when X-rayed 3 months later, the infiltration was found absorbed and the child was found healthy.

POTTENGER, in referring to the subject, says that it is characterized by a more or less exudative or atelectatic involvement of the lung, without corresponding co-extensive infection. Most of the lesions disappear, leaving a surprisingly clear lung field. An enlarged caseous or partially calcified hilar gland or glands or a caseous lung node, may be detected as

* In this connection, two other classifications of tuberculosis are given here. These are also not free from objection, thus showing how hopeless is the task of classification of tuberculosis.

(a) Lænnec—1st stage, the accumulation of tubercles showing dullness, 2nd stage, softening, 3rd stage, elimination (cavity).

(b) National Tuberculosis Association (U.S.A.).—(1) Minimal lesion. (2) Moderately advanced lesion. (3) Far advanced. The difficulty being unlike syphilis, an incipient, 1st stage case can flare up in a few weeks' time to hope-less third stage, while a third stage case can go on for years and may ultimately heal by itself and become indistinguishable from the 1st stage.

the probable source of the bacillary portein, responsible for the exudative lesion. In support of this, he reproduced in his book on 'Tuberculosis in the Child and the Adult', 8 serial roentgenograms in a boy aged 13, from Dr. H. C. BUSH, illustrating the evolution of mediastinal, glandular tuberculosis, extending over a period over 1 year, in which extension from the glands into the lungs was visually observed and which was seen to pass away without producing much clinical symptoms. He says further in this connection that "primary focus may run the complete course from infection to healing without producing any disturbance in the child's feeling of well-being and without being of medical or social significance. It might not even be suspected if the tuberculin tests were not administered and X-ray films were not taken".

Under the heading 'Prognosis of Epituberculosis and of Tuberculosis of Lung in Children in General', FISHBERG says that it embraces two problems:

(1) Immediate outlook and (2) Ultimate outlook. Immediate outlook is good. Most children recover after a protracted illness. In support of this, he quotes FRANZ HAMBURGER as follows:—

"In general, we can lay down the fundamental principles that the prognosis of tuberculous manifestations in children is not at all bad. It is, in fact, one of the most important achievements of recent years that we know 'tuberculosis in children is a relatively harmless disease'. It will naturally take decades until the lay public will learn this important fact, and I may add, until physicians in general will appreciate it."

FISHBERG states further that an active tuberculous lesion during childhood is not necessarily followed by phthisis in later life, as is evident from the following facts. He says in this connection, "we meet with many persons who show unmistakable signs of having some form of tuberculosis during childhood, but who pass through life as healthy and even vigorous individuals. Again, those who see a large number of phthisical patients are struck by the fact that consumptives with scars on the neck or with ankylosis of joints, following earlier tuberculosis etc., are extremely rare. This seems to indicate that an early tuberculous lesion may have some immunising effect on the organism which prevents the development of phthisis in later life".

In GOLDBERG'S treatise on 'Tuberculosis', BLATT and GREENGARD wrote an article under the name of 'Epituberculosis' about the origin of which they are not very clear and they call it also "splenopneumonia" "massive benign exudative", "massive benign infiltration, resolving exudate, secondary exudative". They give an X-ray film of a boy aged 7 of epituberculosis involving the left lung. 5 months later, another film was taken, showing almost complete clearance of massive infiltration, and showing only the residual glands at the left root region. Another case, aged 8 years, was related whose X-ray showed massive epituberculosis of the left upper lobe; 5 months later, it completely cleared away.

As regards clinical picture, they say, in contrast to the extensive X-ray findings, there are rather meagre symptoms. This consists of elevated temperature. Some amount of hæmoptysis may occur. Marked dullness will be found. Breath sounds diminish and a few rales may be audible or none at all. Most of these cases are ambulatory when seen first.

As regards prognosis, they say that the recognition is of great

importance, because it is distinctly benign and terminates in complete recovery.

They say, however, it is perfectly possible for superinfection to occur with infiltration of massive doses of toxic bacilli upon the highly allergic soil. Such an event would result in violent exudative reactions going on to rapid necrosis and ulceration—the benign process then becoming one of malignancy with greater danger to life.

Two cases of this nature came into my hands; though, when first detected, the disease was found occurring in persons a little older than the above cases, and though in both, marked symptoms and physical signs, characteristic of adult type of apical phthisis which would make one give as grave a prognosis as possible appeared, in both of them the symptoms cleared away with astonishing rapidity with the disappearance of physical signs, not a vestige remaining, with the marked improvement in weight. This made the writer think of some possible anatomical condition in the chest to be found by X-ray, which might explain this remarkable phenomena. This was found out by serial films, covered over three years in the first. The lung lesions were found not to belong to adult type of apical lesion but as extension of hilar involvement, a thing known as epituberculosis, occurring only in children.

The detailed reports with serial skiagrams of the cases, spread over 3 years in the first and 6 months in the 2nd, are given in the appendix, essential points of which are, however, given in the above resume.

Now, it is necessary to lay emphasis on the point that the fact of the apical lesion occurring as an extension of hilar one and not as an independent lesion of hæmatogenous origin would have remained unsolved so long as the writer depended entirely on the physical examination. In the first case, he at first remained satisfied as to the diagnosis for more than 2 years that they were ordinary apical lesions; till then, he did not look at the films, nor did the doctors who saw them previously, though X-ray films were available to them. Three of them, consultants of repute, advised immediate A.P.,—themselves not looking at them critically—nor did the radiologists make it out as can be gathered from the reports given in the appendix. The remarkable recovery in both cases—in No. 1. there was, in addition, a history of her elder sister and mother dying of tuberculosis and so there was a possibility of massive infection—made the writer look at the X-ray films to find the explanation and he found these cases to be of epituberculosis, occurring as extension of hilar involvement. So, the prognosis is as good as possible, both as regards the present outlook as well as future. In this opinion, he is fortified in the case of patient No. 1, by finding, when there was a sort of mild relapse some 3 years later, only loss of weight and no evidence of recrudescence of lung involvement; the glands in the cervical region were found enlarged from which, one must surmise, it is similar in nature to the hilar lesion.

APPENDIX

Case No. 1.—In August 1938, the patient, a girl aged 18, was brought to my clinic by her father, accompanied by her attending physician for relief of her complaints which consisted of fever, ranging between 100° to 103° and cough and sputum, showing innumerable Tubercle bacilli. There was marked physical sign, occupying the upper part of the right lung from the

1st to the 5th space, found easily both by physical examination and by X-ray film (Plate No. 1, Fig. 1). By typhoid rest, in a well ventilated room in the fourth storey, the temperature came down to normal and then a course of Tuberculin was started. Cough gradually disappeared, and so also the physical signs, till the lung appeared normal. Weight increased from 93 to 113 lbs. She was then allowed to move about freely. At that time, another X-ray film was taken (Plate No. 1, Fig. 2). There was marked resolution. Since then, (from 1-10-38 to 8-11-40, i.e., about 2 years), she remained in perfect health. There being present no cough, no examination for Tubercle bacilli was possible, till, after an attack of bronchitis without any fever, she brought out some phlegm which gave an opportunity for examination of her sputum, in which no Tubercle bacillus was found even after enriching method.

Subsequent history: In September 1940, she was brought to my clinic for getting a little emaciated without any apparent cause. Weight was found 95, i.e., 18 lbs. less than before which came down later to 91 within a month and a half. She was taken for a sea trip, but there was no improvement in her weight—rather she lost weight. At that time, I found some of the cervical glands were enlarged. After a course of Tuberculin without resorting to rest treatment, she gained weight up to 98 lbs. A third X-ray film was taken (Plate No. 1, Fig. 3), showing marked diminution of the lesion, which had besides undergone fibrosis.

Copy of X-ray findings of Case No. 1.—Erect postero-anterior, 3-7-38, diaphragm excursion—feeble right side.

HILA.—*Right*—Peri-bronchial infiltration; *Left*—Small fibro calcific nodes.

LUNGS—APEX.—*Right*—A triangular patch of exudative type of infiltration, with a small *cavitation* in the periphery; *Left*—free.

MIDZONE.—*Right*—Hyper vascularization, engorged bronchial; *Left*—free.

BASE.—*Right*—Costo-phrenic angle free; *Left*—free.

2nd X-ray report of the same case on 12-10-38, i.e., 3 months later, Plate No. 1, Fig. 2. Erect postero-anterior—diaphragm excursion, slight restricted movement.

HILA.—*Right*—Peri bronchial infiltration and engorged vessels; *Left*—Few fibro-calcific nodes.

LUNGS—APEX.—*Right*—The infiltration in the sub-apical region is much cleared up, comparing with the previous skiagram; *Left*—free.

MIDZONE.—*Right*—There is evidence of healing and fibrosis, the cavity is practically healed up; *Left*—free.

BASE.—*Right*—Hyper-vascularization and lymph engorgement; *Left*—free.

Costo-phrenic angle free—Conclusion—marked improvement:

3rd X-ray report of the same case taken on 18-1-41, i.e., 3 years later, Plate No. 1, Fig. 3.

HILA.—*Right*—Hilar shadows clearer than before; *Left*—Few small fibro-calcific nodes.

LUNGS—APEX.—*Right*—Old infiltrations show evidence of healing and

On Two Cases of Extensive Lesions of Lungs of Epitubercular Origin
By Dr. G. C. Chatterjee.

FIG. No. 3.



Same case, 2 years after. Shows marked fibrosis of the lesion, no physical sign no symptom.

PLATE No. 1.

FIG. No. 2.



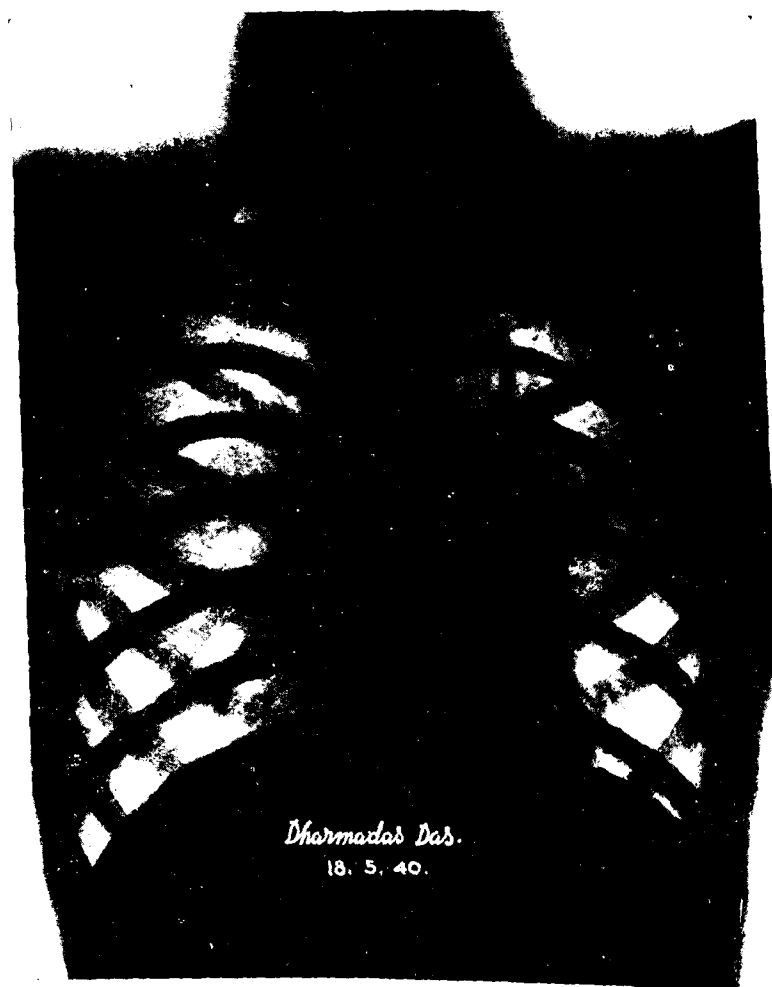
Same case, 3 months after, marked reduction of the exudation. T. B. — No fever. Weight 20 lbs. more, no physical sign, no symptoms.

FIG. No. 1.



Shows marked hilar and apical engorgement. T. B. ++ Temperature 102°, marked symptoms and marked physical sign.

On Two Cases of Extensive Lesions of Lungs of Epitubercular Origin
By Dr. G. C. Chatterjee.



Skiagram of the chest of Babu Dharmadas Das, dated 18-5-'40.

Shows hilar engorgement of the left side, with marked exudative infiltration at the apex of the left lung.

fibrosis. There is a small patch of early infiltration in the apex (marked by arrow) and evidence of slight pleural thickening in the periphery; *Left*—free.

BASE.—*Right*—Engorged bronchial costophrenic angle free;—*Left*—free.

Case No. 2.—In September 1940, a young man aged 18, was brought to my clinic by his father from Nabadwip, suffering from fever and cough, and occasional hæmoptysis and emaciation for over 6 months. He was diagnosed already as a declared case of tuberculosis, the X-ray film and examination of sputum showing Tubercle bacilli, and was being treated as an ambulatory case by the supposed specific Calcium Gluconate injection by a Calcutta practitioner.

Dissatisfied with the treatment, the patient was brought to my clinic in September 1940, when he was highly pyretic and in a markedly hyper-sensitive condition, with dullness over the left apex, extending down to the 4th rib. Weight taken at the time was 108 lbs. As he was running a temperature of 102°, injudiciousness of the procedure adopted by his previous medical adviser was pointed out to the patient and his father, who readily agreed to make him lie down absolutely at rest in his house at Nabadwip. By this simple rest of a month and a half without any help of the so called specific injection, the temperature came down to normal, the physical signs disappeared as by magic, not a vestige remaining, and he gained in weight from 108 to 126 lbs. Any tendency to rise of temperature even on movement did not reappear on assumption of movement—which meant a journey by train from Nabadwip to Calcutta, every week. One interesting point of the case, found later by examination of X-ray film, taken during the pyretic period, is that the nature of the lesion showed that it was not of the adult type of lung lesion, but that of the exudative lesion, originating from enlarged hilar gland, illustrating epituberculosis occurring in a young man; and to this is due its benign nature, showing in a remarkable way the true idea of a case of tuberculosis, physical signs, clinical symptoms and X-ray finding of which dovetail into each other, a thing not usually admitted by radiologists, not to speak of the general practitioner, who depend entirely on X-ray film.

In the second case, radiologist's opinion of the 1st film is not available, but it appears to the writer that there was marked hilar engorgement of the left side, with marked exudative extension into the apex of the left lung on 18-5-40.

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Dextrocardia Caused by Diaphragmatic Paralysis (Lead-Poisoning)

BY
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AND
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In October 1938, A. S. aged 55 years, was admitted into the Clinical Wards of the Hospital. He was sent by a distinguished physician of Bardes, to determine the cause of the abnormal position of his heart as the apex was found to be beating in the 5th right intercostal space and which appeared to be a case of dextrocardia.

Examination of the patient.—*Cardio-vascular system*:—Strained dyspnoea. The pulse rate was 110 per minute. Blood pressure: systolic 150 and diastolic 105 (BOULITTE-KOROTKOW). On inspection and palpation of the heart, the apex beat was located in the 5th right intercostal space outside the nipple line. On percussion, the following points were observed:—On the left side, a resonant sound as far as the 5th space, dull on the 6th and tympanitic downwards. On the right side, the zone of superficial dullness stretched from the 2nd to the 5th spaces, from the left margin of the sternum to the right nipple line. The dullness continued downwards with that of the liver. To auscultation, cardiac sounds were very weak. Inside and a little below the nipple, on the 5th left intercostal space, however, proceeding according to a horizontal line from one nipple to the other, it was observed that the sounds were getting stronger, till they reached their maximum on the level of the xyphoid process. A little further, they weakened, a little accentuation being observed, however, on the 5th right intercostal space, a little outside the mammary line. On the 2nd right intercostal space outside the lateral border of the sternum, the two sounds were strong; nothing else of importance was observed at the examination of the heart.

Respiratory system:—The respiration rate was 24. On inspection, the depression of the xyphoid was more accentuated during expiration. The thoracic symmetry was one in which the right hemi-thorax was bigger than the left one. Nothing abnormal was found on palpation and percussion of the posterior side of the thorax. On auscultation, the respiratory murmur was found blowing in character on the upper half of the left lung, and at the base, there was weakening of the breath sounds. The mensuration supplied us the following data:—

	TOTAL.	RIGHT-HALF.	LEFT-HALF
Axillary circumference	76.5		
Circumference at the level of the nipples	40	36.5	cm.
Xyphoidal circumference	77	39	38. cm.
Antero-posterior diameter of C. axillary	75	38.5	36.5 cm.
" " mammary			17 cm.
" " xyphoidal			20 cm.
			20.5 cm.

Digestive system and adnexa:—Dental caries and alveolar pyorrhœa; the gums were black with the gingival lead line. Tongue slightly furred. Difficult digestion. Constipation. No diarrhœa.

Genito-urinary system:—Urine, of a normal aspect. Had nocturia with the rhythm of $\frac{1}{2}$.

Nervous system:—Burning and creeping sensations on the soles of the feet. Reflexes were normal. The sense-organs were normal, too.

Laboratory examinations:—Blood.—Differential count: Neutrophils 60%, Eosinophils 7%, Basophils 1%, Monocytes 2%, Lymphocytes 30%, Abnormal nil; R.B.C. Total 4,500,000; W.B.C. Total 9,100; Hæmoglobin 60%, Abrahmi dots present. Urine:—Reaction—acid; Specific gravity to 15 — 1013; Albumin, slight traces; Sugar—not found; Casts—not found; Kidney cells—not found; R.B.C.—not found; Leucocyte—few; Crystals of uric urates, crystals of uric acid—few; Sputum—Bacillus of Koch not found; Kahn's test negative.

Hereditary history:—Unimportant. Married 24 years ago, wife and children living. Healthy in his personal antecedents, a fall is noted at the age of 8 years, which was followed by acute pain in the right hemi-thorax, hemoptysis or hematemesis (?) and melana. He was a printer in Africa for 25 years. He is alcoholic. He suffered from articular pains. He had a crisis of intestinal colicky pains which lasted for two days. Fond of sports, and played foot ball without dyspnoea or palpitations. Five years ago, having called in a doctor on account of an attack of influenza, he came to know from him, with a great surprise, that he had the heart on his right side. On examination of the patient, we had to formulate 3 hypotheses:—

- (1) Congenital dextrocardia with visceral transposition.
- (2) " " isolated or pure.
- (3) Acquired dextrocardia.

Clinically, the first hypothesis could be excluded as the distribution of the dullness showed the existence of the liver on the right side. It could not also be an isolated, congenital dextrocardia, because the location of the most accentuated sound did not correspond to the zone of the heart beat (outside the right nipple line). It should be, therefore, an acquired dextrocardia, i.e. the *dextroposition* of the heart by pathological processes: pleural effusion, tumour of the mediastinum, pleuro-diaphragmatic adhesions, chronic mediastinitis, pulmonary sclerosis, fibrous tuberculosis, eventration, diaphragmatic hernia.

Although on auscultation the vesicular murmur of the left base of lung was noticed to be diminishing, yet the diagnosis of a pleural effusion could not be accepted for lack of other main symptoms. For the same reasons, the existence of pleural adhesions, mediastinal tumour, pulmonary sclerosis, fibrous tuberculosis, diaphragmatic eventration, diaphragmatic hernia, should be excluded. The causes of eventration are three in number:—

- (1) Congenital mal-formation of the diaphragm: mega-diaphragm (BARD), mega-phrenia (LÆPER).
- (2) Paralysis of the diaphragm frenectony (LÆPER).
- (3) Inflammatory atrophy of the diaphragm phrenatrophy (LÆPER).

The radiological examination should enlighten us. A radiography of the thorax, made with postero-anterior incidence and at the distance of 2 metres, indicates an elevation of the left hemi-diaphragm with deviation of the shadow of heart towards the right. We noticed in the radioscopy that the left hemi-diaphragm did not shift with respiratory movements. In the functional examinations by means of proofs of MULLER, of HIRTZENBERGER and of VALSAVA, the immobility of the above mentioned hemi-diaphragm was

proved. Afterwards, we made the radiographies 2, 3 and 4, after the ingestion of a Barium meal.

There are no direct signs of a diaphragmatic hernia. We could not find the typical image of double outline which might make us think of a relaxation. Besides, a congenital relaxation is generally accompanied by other troubles of development like the inverted situation of other viscera, smallness of the left lobule of liver etc. In order to study better, we made the radiographies 5 and 6 after the introduction of an opaque Barium enema and we noticed that the fornix was found just opposite the left hemi-diaphragm but the splenic angle was not found elevated, which was a sign against the relaxation, because in these cases, there was better shifting of the abdominal organs with regard to the paralysis.

Conclusion.—Fixity of the radiographical images of the left hemi-diaphragm, verified in the most varied positions; the small shifting of the abdominal organs and the small elevation of the left hemi-diaphragm are radiological elements which are in favour of a paralysis.—(Sig.). SOARES DA VEIGA.

* * *

"The paralysis of the diaphragm" writes SCHINZ, "is a pathological picture, which encloses physical problems extremely interesting. The medical diagnosis is in effect very difficult, but not impossible; it can almost never be settled." However seducing to our clinical sense, the hypothesis of a *congenital relaxation* of the diaphragm might be, considering the *tolerance* with which the patient bore the violent physical strain, such as the one exerted in the foot-ball game, the radiological examination inclined towards paralysis of the diaphragm. The elevation of the dome of the left hemi-diaphragm shifted the heart to the right side and it caused the respirations to be blowing at the upper half and the respiratory weakening at the base of the left lung, which the physician stated. What is the cause of this paralysis? It is undoubtedly a phrenic nerve lesion, caused by central and local causes. Among the former ones are included the poliomyelitis of the cervical medulla, bulbar paralysis, spondylitical or traumatic alterations of the spinal cord.

Now, the examination of the nervous system and the spinal cord did not supply us with elements which might lead us to realize these causes. As local causes, one could cite the toxic neuritis, the sectioning of the nerve or its compression by any tumour. Considering the history of the patient and clinical and radiological examinations, the last two local causes could not be admitted. There remained, therefore, the hypothesis of paralysis of the diaphragm by *toxic neuritis of the phrenic nerve*. Medical bibliography on the etiology of this neuritis is very poor. SCHINZ refers to toxic neuritis by alcohol, lead and diphtheretic toxin.

ASSMAN and TICE relate cases of paralysis of the diaphragm by lead poisoning described by DUCHENE and GERHARDT. Our patient was an alcoholic one and although he had not the classical symptomatology of colics (lead colic?) and showed, when he had been sent to the hospital, *lisere gingival* of the type of Burton.

These are the reasons which lead us to admit the possibility of a rare localisation of lead poisoning—the phrenic nerve—causing, as a consequence, the paralysis of the left hemi-diaphragm and dextrocardia.

Dextrocardia caused by Diaphragmatic Paralysis—Lead Poisoning

By Prof. J. M. Pacheco de Figueiredo and Ercilio M. de Melo,



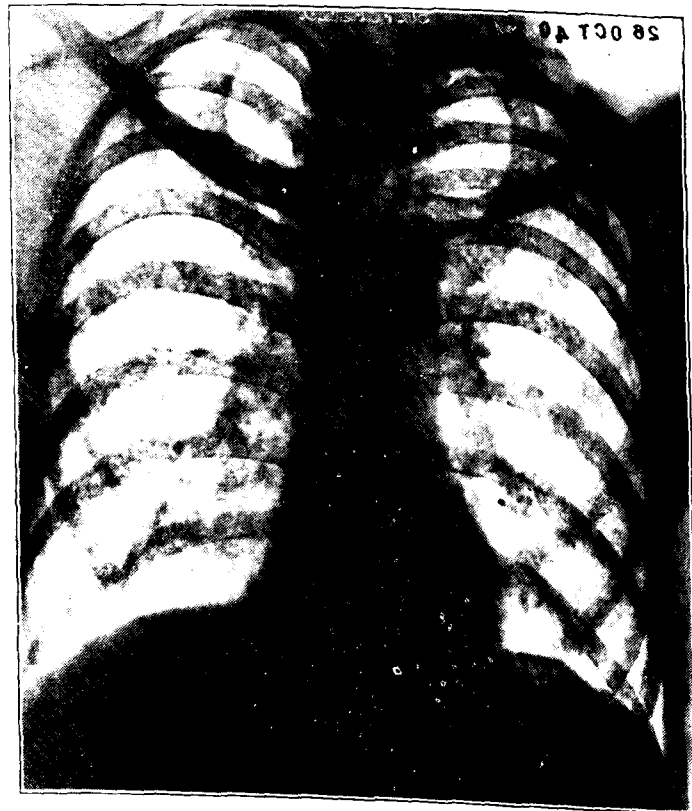
A radiography of the thorax made with postero-anterior incidence and at the distance of 2 months indicates an elevation of the left hemi-diaphragm with deviation of the shadow of the heart towards the right.



The radiography of the same patient under Barium meal.

Acute Miliary Tuberculosis with a Case Note of a Chronic Miliary Tuberculosis

By RAO SAHEB M. G. RAMACHANDER RAO and Mr. N. THIYAGARAJAN.



Skiagram of Karuppiah aged 35.

Shows Chronic Miliary Tuberculosis.

Acute Miliary Tuberculosis

With a Case Note of a Chronic Miliary Tuberculosis

BY

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THAT tuberculosis is an infectious disease is a fact recognised from the days of VILLEMIN. An impetus is given to its early recognition and control by Her Excellency Lady LINLITHGOW, who organised a system by which each District Hospital is provided with a tuberculosis clinic under the supervision of a specially trained medical graduate with T.D.D. qualification. This will be a great boon and all the early cases can be detected in time, treatment given and the disease arrested.

Acute miliary tuberculosis is an accident which is observed in many cases. What precipitates the acute dissemination is vaguely understood. It is frequently noted in young people with poor resistance exposed to massive infection. Three forms of the disease are noted according to the clinical symptoms it produces:—(1) The pulmonary form. (2) The meningitic form. (3) The typhoid form.

1. *The pulmonary form*:—This form of the disease is familiar to every one.

2. *The meningitic form*:—The disease results from the invasion of the cerebro-spinal lepto-meninges by the Tubercle bacilli through the blood stream from some previously existing focus of tubercular infection within the system and most commonly from the caseous glands and tubercular bone disease. The onset is usually gradual with the signs of vague and slight illness. In children, gradual apathy, neglect of amusements and play, headache, loss of appetite, restlessness, vomiting and pyrexia are common. In older subjects, delirium and frontal headache are usually complained of. Further development of the disease is marked by the appearance of lethargy, which soon deepens into a stupor from which it is difficult to arouse the patient. Ocular phenomena make their appearance towards the end of the first week of the developed disease—strabismus, ptosis, and paralysis of the external rectus being the most common. Convulsions are common in every stage of the disease in children but not in adults. KERNIG's sign is usually present. As the disease advances, general paralysis of the limbs appears with rigidity in the extended position. The temperature is higher and irregularity of the pulse is of considerable diagnostic importance. CHEYNE-STOKE's respirations are common. The case of tubercular meningitis is progressive to an invariably fatal end in a few days to 3 weeks. The diagnosis must be made certain by the examination of the cerebro-spinal fluid which will be found to contain lymphocytes in excess and Tubercle bacilli. In cases where it is difficult to isolate the bacilli, the fluid may be injected in the subcutaneous tissues of the guinea-pig when the characteristic lesions of tuberculosis result. Treatment can only be directed towards the relief of symptoms. Relief of headache may be brought by lumbar puncture repeated several times. Bromides, Chloral-Hydrate, Aspirin may be used to relieve convulsions and restlessness.

Hexamine injections are used intravenously but without success. The disease is always fatal.

3. *The typhoid form* :—Resembles typhoid fever. A period of vague ill-health precedes the more severe illness. Head-ache, insomnia, soft, rapid pulse, rapid respiration, dry tongue, pyrexia which is less continued in character than in typhoid fever. During the first two weeks, the diagnosis may be very difficult. The points in favour of typhoid fever are the persistence of head-ache, relative infrequency of pulse rate, diarrhoea and early tumidity of abdomen. Those in favour of tuberculosis are, a frequent pulse rate, early cyanosis and intermission in temperature curve. There is leucopenia in both the diseases. Blood culture is positive for typhoid in the first week and Widal positive at the end of the first week. The disease is invariably fatal in six weeks. The treatment is entirely palliative. No specific is known.

Recently, there came to be recognised a distinct clinical entity, where there is miliary hæmatogenous dissemination of the bacilli, but yet it lacks the dramatic onset, the stormy course, and has always the inevitable fatal end. Such cases have been termed chronic miliary tuberculosis. The onset may be mild or insidious. The progress of the disease is slow. Even cases of cure have been reported (SAYE quoted by BUNELL). Such a case is reported below :

A patient by name Karuppiah, aged 35 years, was admitted into the hospital on 22-10-40 with the following complaint :—

Previous history :—Nothing abnormal so far.

Family history :—Married 10 years ago—two children—all healthy—father and mother died recently of old age.

Present complaint started 2 months back with fever, swelling and pain in the back portion of the right testis, cough and frequency of micturition. The fever was of sudden onset which lasted only for ten days and then subsided. The swelling on the back of the testis gradually increased in size, softened and burst after 20 days, leaving a sinus discharging purulent fluid. He lost weight, passed urine frequently—about 7 times in the day and 7 times in the night. He also complained of pain referred along the course of the sciatic nerve.

Examination.—The patient is a thin, emaciated individual, slightly anæmic, tongue clean, P. A. present.

Respiratory system :—Rate 20 per minute—movements equal on both sides. V. F. & V. R. not altered. There is no change in the percussion notes. Harsh breath sounds heard over both the lungs and fine inspiratory rales present.

Cardiovascular system :—Nothing abnormal.

Abdomen :—Abdominal wall retracted. Spleen and liver not palpable. Cæcum not thickened. No palpable abdominal glands.

Genito-urinary system :—There is a sinus situated on the posterior aspect of the right side of the scrotum. The epididymis, especially the upper part, is enlarged, thickened, nodular and tender. The cord is also nodular to the feel. Prostate :—Both the lobes enlarged, craggy to the feel. Seminal vesicles are palpable.

Skeletal system :—The right hip is kept in a position of flexion. The

hip joint appears to be free. TAILOR'S position is possible. LASÆGNE'S sign is positive, i.e., extension of flexed knee over flexed hip causes tenderness along the course of the sciatic nerve.

Nervous system :—Nothing abnormal.

X-ray—Lungs :—Picture showing typical appearances of miliary tuberculosis. Miliary mottlings distributed uniformly over both the lung fields. All the nodules are apparently of the same age (*Vide picture*).

Laboratory findings :—Blood—Hæmoglobin 60% ; R.B.C. 4.78 millions ; W.B.C. 5000.

Differential leucocytic count :—Poly (Jug)—O ; Stab—52 ; Seg—18 ; Mono—9% ; Eosino—5% ; Mast. cell—1 ; Lymphocytes—15% ; Urine :—Sp. gravity—1012 ; Reaction acid ; Albumin nil ; Sugar nil. No pus cells or acid-fast organisms. Sputum :—Repeatedly negative to the T.B. KAHN'S test—Negative.

Discussion.—The typical sinus, situated on the epididymis, which is itself enlarged and craggy with the beading of the cord, suggests that it is tubercle of the epididymis. The fact that the prostate is enlarged indicates the source of infection of the epididymis. The enlargement of the epididymis is preceded by a period of temperature. This probably is due to bacillæmia from the prostate and metastatic infection of the epididymis and the lungs. The absence of temperature now and his low condition is due to the low reactive power on the part of the patient. This is also shown by the differential count. The frequency of micturition may be a sign of early involvement of the bladder. It is very unusual to find sciatica in a tubercle of the prostate.

Further course of the patient could not be followed as his general condition deteriorated and he was removed from the hospital. The case appears to be one of disseminated type of tuberculosis—the source of the bacilli being the prostate, the sites of metastatic being the lungs and the epididymis.

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A Case of Meningo-vascular Syphilis

BY

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JAGPAT Singh, aged 44, male Hindu, was admitted to the Mayo Hospital, Nagpur, on 23-7-40 with the following complaints :—(1) Headache, 4 weeks ; (2) Paralysis of right side of the face, 2 weeks ; (3) Fever, 2 weeks ; (4) Delirium, 1 day.

History of the present illness :—About 4 weeks before, the headache started. It was so severe that he was unable to move his head. He vomited when the pain was severe. This relieved him of the headache. About 2 weeks back, he suddenly noticed that water flowed out from the right eye completely. Fever started about the same time.

Past History :—History of syphilis about 5 years back.

Family History :—Wife is healthy. Three children quite healthy. No history of abortions or still born infants.

Condition on admission :—The patient is an adult male, well built and robust. He was very irritable and in a state of delirium. Temp. 97.6°, pulse 96 p.m. Respiration 22 p.m.

Clinical Examination :—Right side of the face completely paralysed—infra nuclear type. Complete loss of power of hearing in the right ear. Hearing, both by air conduction and bone conduction, greatly diminished in the right ear. Rinne's test, positive for nerve deafness. Complete loss of sensation on right side of face. Pupils reacted to light and accommodation. No paralysis of limbs. None other positive findings detected. Blood pressure $\frac{110}{90}$ m.m.

Ophthalmoscopic examination :—Optic discs in both eyes swollen. Optic neuritis.

Pathological and Radiological Findings.—(1) Cerebrospinal fluid : Pressure—Not increased to any estimable degree. Colour quite clear. Alb. not increased. Sugar present in normal quantities; micro-organism-nil. W.R. strongly positive. (2) Urine—Nothing abnormal detected. (3) Stool—No ova or cysts. (4) Blood—(a) No. M.P. (b) Diff. W.B.C.; P, 68; L, 27; M, 3; E, 2. (5) Blood W.R.—Strongly positive. (6) Skiagraphy of the skull—No evidence of increased intracranial pressure.

Treatment.—23-7-40.—Hot water bottles to the feet. Camphor-in-oil 1 c.c. Intravenous Glucose, 25 c.c. 25%. Hyoscine Hydrobromide Gr. 1/200 subcutaneously.

24-7-40.—Put on Pot. Iodide and Sodii Salicylas mixture, one ounce 3 times a day. Lumbar puncture done. Canthardin blister to the area of exit of VII nerve. Sodii Salicylas and Iodide intravenously 10 c.c. on alternate days.

25-7-40.—Aspirin-Phenacetin-Caffein Citras powders to be given 8 hourly. Hyoscine Hydrobromide gr. 1/200. hypodermically at bed time. Headache continued to be severe.

26-7-40.—Lumbar puncture done again and 7 c.c. of clear fluid drained out. No increased pressure noted.

29-7-40.—15% Sodii Chloride sol. 20 c.c. intravenously. Pulv. Jalap Co. 3 ii H.S. Mag. Sulph. 3 vi em.

1-8-40.—Headache severe. Morphia gr. 1/4. Atropine gr. 1/100 subcutaneously. Luminal gr. 1/2 orally daily H.S.

3-8-40.—Bismostab 1 c.c. biweekly. Pot Iodide mixture gr. 20 T.D.S.

Discussion.—The patient presented the symptom-complex of cerebello-pontine angle tumour on admission. Headache was very violent and nothing short of Morphia hypodermically gave him relief completely. It was considered that the headache and vomiting were due to increased intracranial pressure. But absence of papilloedema and absence of positive findings in the skiagram of the skull did not substantiate the above opinion. W.R. of blood and C.S.F. were the deciding factors in arriving at the correct nature of the lesion. After a few days of antisyphilitic treatment, headache and vomiting subsided. Now the patient is doing his normal work. Antisyphilitic treatment is continued.

My thanks are due to Major D. Kelly I.M.S. for permitting me to publish these notes.

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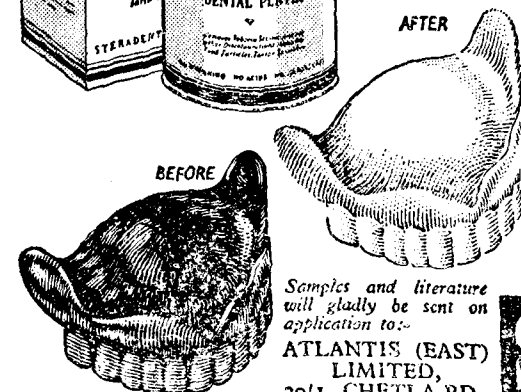
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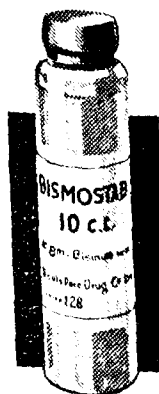
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No. 4.

Editorials

The D. M. S.

THE Government of Madras have sanctioned the conferring of a new diploma D. M. S. upon those students of the L.M.P. course, who are undergoing training for five years, to differentiate them from the large majority of medical practitioners, who hold the diploma L.M.P.

The Government must be aware of the fact that this class of medical practitioners were originally called "Dressers". They were later on styled as 'Hospital Assistants' and were meant primarily for military service. They were also allowed to do duties as assistants and were put in-charge of dispensaries in the mofussil in civil employee. Their course, which ranged from 1½ to 3 years, was raised later to 4 years. The designation of "Hospital Assistant" was subsequently changed to that of 'Sub-Assistant Surgeon' and they were permitted to call themselves as L.M.Ps. This order of the Government was given with retrospective effect, even though there was a difference in the course and in the period of studies between the two batches of students. In 1933, the course of study was again raised from 4 to 5 years, and the preliminary educational qualification was also raised. In the succeeding years, admission to this course was sought mostly by students who had passed the Intermediate Examination and who had failed to get admission into the Medical College. It is to the benefit of these students that the Government have now changed the name from L.M.P. to D.M.S.

There has been a great agitation going on in the country for the abolition of the various castes in the medical profession. The L.M.S. of the Madras University which differed from the M.B.B.S. degree, only in the percentage of marks obtained by a candidate has been abolished. In Madras, the L.M.P. course itself has been abolished and a uniform standard of medical education has been aimed at. The Stanley Medical School has been converted into a College preparing candidates for the M.B.B.S. degree of the Madras University. The Vellore Medical School is going to be converted into a College. The Lady Willingdon Medical School has been abolished. In other parts of India, there has been a cry for a uniform standard of medical education and also for the abolition of all distinction among medical men. In the elections to the Madras Medical Council, these

compartments have been abolished and a common register has been made. Even for the Indian Medical Council, there is a proposal to have one common register. Such being the case, it is surprising that there should be another class of medical practitioners now set up with a new name. There can be no question that this is a retrograde step which should not have been taken.

We have been advocating, all along in the columns of *The Antiseptic*, the removal of caste distinction among medical men and the elevation of the status of the L.M.Ps. We cannot, therefore, rest satisfied till these objects have been achieved. We have pointed out above, why the institution of the new diploma of D.M.S. is unnecessary and unfair. But since the Government have already passed orders, let them, in view of the intense agitation that is going on in public platform and in the press, confer the new diploma with retrospective effect, so that all the existing L.M.Ps. may have its benefit. By doing so, they will earn the good-will and gratitude of all the Licentiates of our Presidency. There is a precedent to this, and we trust, the present Government will follow the footsteps of their predecessors and do justice by giving the present diploma also with retrospective effect, to the large body of medical practitioners, who now hold the diploma of L.M.P., and who are doing yeoman service to the country.

The Andhra Medical Degrees

THE decision of the Indian Medical Council to recommend to the Government of India to grant recognition to the Andhra University medical degrees with retrospective effect will be received with great pleasure by the medical profession. It removes a great wrong done to some of those who have passed out from this University prior to 1938. When the central Government issued a notification in May '39 recognising the medical degrees conferred by the Andhra University after 1938 only, there were vigorous protests from all quarters. Both the Andhra University and the Madras Government protested against this discrimination. It was pointed out to the Indian Medical Council, in unmistakable terms, that they had done a great injustice to some of the medical graduates who passed out of this University prior to 1938, for no reason whatever and for no fault of theirs. After much deliberation, the Indian Medical Council have now come out with their new recommendation to give recognition with retrospective effect from 1928, when the Andhra University first conferred its degrees on medical graduates. Our thanks must go to them; and we are sure the old graduates of this University will be under a deep debt of gratitude to them. They have now fulfilled one of the aims of the Indian Medical Council Act—that of securing "honour abroad".

It was perhaps in the fitness of things that it was left to Dr. B. C. Roy, the first elected Indian President of the Indian Medical Council, to have guided it to this wise decision. Our readers are well aware of the various controversies that arose as a result of the non-recognition of the Andhra University medical degrees and of the various protests expressed in public meetings and in the press—both lay and medical—and also of the references made to this vexed question in the various conferences that have been held in India. Even as late as last December, in the Indian Medical Conference held at Vizagapatam, a reference was made to this question

in the speech of the President, Dr. K. S. Ray, and resolutions were passed requesting the Indian Medical Council to reconsider their previous decision and to recommend to the Government of India to recognise the medical degrees of the Andhra University with retrospective effect. We are glad that the Indian Medical Council has fairly settled this vexed question.

It would be invidious to single out personalities who put forth their great efforts to rectify this wrong. But, we would be failing in our duties if we did not refer to the very excellent work done in this connection by Dr. T. S. TIRUMURTI, the ex-Principal of The Stanley Medical College and also a former member of the Indian Medical Council and by Dr. M. V. KRISHNA RAO of Vizagapatam. Due credit should also be given to the indomitable will and courage of our erstwhile Premier and the Public Health Minister who did all in their power to satisfy the Indian Medical Council's requirements. We are glad that the combined efforts of all these distinguished people have been crowned with success.

The New Surgeon-General

WE welcome Col. H. STOTT, O.B.E., K.H.S., I.M.S., the new Surgeon-General with the Government of Madras, who took charge of his new and onerous appointment from 21-2-41. Col. STOTT joined the Indian Medical Service in 1908 and had his appointment in St. Thomas Mount. Since that period, he has a good record of service to his credit. He served in Burma, North-West Frontier Province, Mesopotamia, and other places. He worked in the Hospital Ship, Madras, as Surgeon Specialist. He was also the Surgeon to His Excellency the Governor of Madras, till 1914. He joined the civil employe in 1922 as Professor of Pathology, King George Medical College, Lucknow, where he became Principal in 1926. He was made the Inspector of Civil Hospitals, Bihar, in 1937, which position he occupied with distinction till he took charge of his duties as the Surgeon-General with the Government of Madras. In the various responsible positions he has held, he has shown his great ability, remarkable powers of judgment as an administrator and reformer and his full sympathy towards the Medical Profession. He has attempted in many places to raise the standard of medical education. His literary attainments are of a high order and his medical contributions to the various medical and research journals have been much appreciated. His interest in the Order of St. John of Jerusalem is well-known. He succeeds Major General WILSON who has left a good record of service in this Presidency. His speeches, since he took charge of his distinguished office in Madras, have given us abundant proof that he has great sympathy to the Medical Profession and that he would carry on the good work done by his predecessor during these difficult days. We congratulate Col. STOTT most heartily and wish him a most useful period of service in this Province. We can assure him that, in his endeavours to improve the standard of medical education and the efficiency of medical service in this province, he will have our full support and our services will be always at his disposal.

Health of the Army*

BY

V. KRISHNA ROW, L.M. & S.,
Medical Officer, Presidency College, Madras.

"The care of public health is the first duty of the Statesman".—Disraeli.

THE Army Health Report is discussed under three headings—the health of the British Army, Indian Army, and Special Subjects. The Army in India is viewed as a whole from a professional aspect rather than as two distinct entities (British and Indian troops). Considering the present war period, the constant movement of troops and also the increased recruitment, the health of the Army is satisfactory.

The average constantly sick, seeking admissions, has increased over last year's admission rate. But the invaliding rate and the death rate have decreased. This means that the fighting fitness is maintained.

The principal causes of sickness in soldiers, under 20 years of age, are:—

"Dysentery, tonsillitis, minor septic diseases, skin diseases, digestive diseases, malaria, diseases of ear and nose, venereal diseases, sandfly fever, and jaundice."

The sick-rate for followers is on the increase. The main diseases of the followers are:—

"Malaria, venereal diseases, dysentery, pneumonia, sandfly fever, and pulmonary tuberculosis."

The *invaliding* causes† in the British and the Indian Army serve a very useful study, from the aspect of public health administration. In the British Army, the mental disease, tuberculosis, diseases of bones and joints, are the main causes while in the Indian Army, tuberculosis, injuries, diseases of bones and joints and mental diseases—are the principal ones.

The causes of this difference are worth investigating:

The chief causes of *death*‡, among the British and Indian troops, show marked variation. The primary cause of death in the British Army is the *local injuries*, while that in the Indian is *pneumonia*.

Army recruits§.—The diseases making the recruits permanently *unfit* in the British Army are:—

"Visual defects, hernia, bilateral, rigid, flat foot, pulmonary fibrosis, sclerotic periostitis, and low weight of 112 lbs."

For the Indian Army, the diseases are:—

"Disordered action of heart, visual defects, otitis media, malaria, valvular disease of heart, varicose veins, pyorrhœa, flat feet, knock-knee, skin diseases, poor physique, and pulmonary tuberculosis."

A comparison is made with a similar data in the U.S. Army (Table II).

The percentage of Indian recruits, rejected by the Army is increasing. There is a jump of above 9.5% over 1938 percentage, from 35.73% to 45.4%.

* Annual Report on the Health of the Army in India for 1939—Vol. II (Part I).
† Appendix I.
‡ Appendix II.
§ Appendix III.

A summary* of defects among men drafted in the World War and the *estimated* number of physical defects in the recruits to the present war, is appended. This is a very interesting study, helpful to the public health problems.

The same increase in the incidence of physical defects is found in my College Health Report†. The same may be said generally of all students in India. The condition of health among the school-boys, as recorded by the various Municipalities in India, is still worse. It is obvious, therefore, that the diseases and defects found in childhood, but uncorrected, persist throughout adolescence and adult life, which permanently unfit the man in any walk of life.

Venereal diseases.—The rate of V.D. has been steadily increasing in the British Army from 1936 (34.5 to 52.4 per 1,000); while in the Indian Army, it has been varying during the same period (1936-1939) from 9.8 to 8.5. The 1939 rate is greater than the 1938 rate—8.5 : 7.5.

The worst stations in India for V.D. are, in numerical order, Hyderabad, Cawnpore, Jullundur, Barrackpore, Jubbulpore, Madras, Karachi, Poona, Secunderabad, Lucknow, Ferozapore, Bombay, Lahore, Calcutta, Wellington, Agra, Bangalore, Meerut, Bareilly, and Delhi.

In 1938, there were 13 stations with over 50 rate for V.D. In 1939, this number has increased to 20 stations.

This depressing situation, has been fully discussed (pages 41 to 45). It has been ascertained that 50 to 80% of the Army do not avail themselves of the preventive admission rooms.

"Whatever precautions are enforced, and whatever prophylaxis is offered, the final court of appeal is the man himself, who can nullify all these measures by just ignoring them."‡

Therefore, my suggestions are:—(1) Health education and propaganda; (2) Intensive anti-venereal drive; and (3) the *truth* must be broadcast that there is *no antiseptic* or *prophylactic drug* to ward off venereal diseases.

Tuberculosis§.—The number of recruits, rejected by the Army for pulmonary tuberculosis, is increasing. Tuberculosis is responsible for 1/3 of the total invalidated in the Indian Army.

The general opinion is that tuberculosis is on the increase. In the Army, it is more or less stationery and is not growing as in the case of civilian population.

Hot-weather conditions.—The management of troops in the hot weather, suffering from heat-stroke and heat-exhaustion, is of great importance to the civilian population, who suffer from heat-stroke and heat-exhaustion, in a greater or lesser degree.

Confinement in barracks is being stopped. Plenty of out-door or in-door exercises, free supply of cooled drinking water, increased use of common salt in all foods, are now advocated to avoid heat-stroke and heat-exhaustion.

* Appendix IV.

† Page 41. Army Health Report 1939.

‡ Appendix V.

§ Appendix VI.

Extra-salt.—The loss of salt per day in really hot weather is estimated at nearly $\frac{1}{2}$ oz., whereas the normal day's ration contains only $\frac{1}{4}$ oz. Unless this deficiency of nearly $\frac{1}{4}$ oz. is made good, the bodily tone is bound to decrease. Therefore, intake of extra-salt is advocated and more salt is mixed with all food preparations, during the hot-weather.

It has been confirmed that the consumption of extra salt is (1) relished by the Army; (2) able to reduce the severity of the heat-stroke and heat-exhaustion; and (iii) responsible for improving the bodily tone and increasing the physical fitness.

In this connection, I would like to draw the attention of the readers to the various diets of the Indian people, living in the different climatic conditions of the Indian sub-continent, using different quantities of salt, i.e., a South Indian diet contains more salt than the North Indian diet (as generally understood).

New and old type of buildings.—A set of experiments and observations was carried out to contrast the internal temperature and feeling of comfort in the old and the new type of barrack and quarters. The results favoured the old type, as being the cooler and more comfortable for summer use, having thick, mud-coated, white-washed walls with deep verandahs, compared to the modern fashion of thin, red brick-walls. The old type heats up more slowly, but the new type cools quicker.

Buildings, so situated and protected by verandahs that they were not heated up by the early morning or late evening sun, were more comfortable, both for day and for night. "It appears that, provided adequate verandah protection can be given, the modern type is really the better for the Army needs".

White-washing the buildings has the cooling power of reducing the temperature by 10 to 15°. A well white-washed wall or roof has been shown to be 15°F cooler than one, which is dark red, dark green, or dark brown, and 17°F cooler than a black one.

This knowledge is of extreme use, in these days of rapid growth of "concrete" houses and buildings, discarding the time-honoured Indian method of building houses and their up-keep.

Special subjects.—Section III deals with special subjects, like accommodation, hygiene, anti-malarial methods, control of pure food-supply, including ghee, water-supply, experiments with new drugs, and adulteration of drugs, etc. This knowledge is of incalculable value and it would certainly profit the medical profession, including the public health workers.

Enteric group of fevers.—Investigation concerning the production of VI antibodies in the blood, during an attack of typhoid fever and during the career stage, was undertaken by the Army Laboratories. The points of inquiry are: (1) "Are VI antibodies present in the serum of inoculated and un-inoculated individuals in health? (2) Are VI antibodies invariably demonstrable in diagnosed cases of typhoid fever? and (3) from a scrutiny of completed tests, what is the characteristic of the VI agglutination curve?"

Results.—In both the inoculated and un-inoculated personnel, the VI content of the serum is extremely low—below 1/20 in 80% of inoculated cases and in 89% of un-inoculated cases.

In health, the VI titre is 1 in 20 or less in 90-95% of the individuals.

In cases of typhoid fever, the VI titre is 1 in 40 in 83% of the cases and 1 in 80 over in 70% of the cases.

There is no well defined type of curve such as used to be found with "H" agglutination tests, in uninoculated individuals.

The VI curve in typhoid shows a definite rise and fall, while in non-specific typhoid (like typhus), there is no ascending peak.

The methods employed to increase the physical fitness of the troops are: (1) "Deworming"; (2) Tetanus toxoid immunisation; (3) T.A.B. prophylactic inoculation; and (4) Vaccination.

I have drawn the attention of the medical profession and of the public health worker to the salient features in the Army health, which have a direct bearing on the health of the civilian. Of what use is this Army Health Report to the civilian and public health worker? The Army is healthy and physically fit. Can we parallel this record in civil life? My answer is "yes, and beat it too". But, it is not an easy thing. It will demand patience and skill in adopting the required measure to the varying conditions in the several States and Provinces.

The general physical state of the population has been disclosed by sickness surveys, by examinations for life insurance, for military service, and in industry. Statistics derived from these sources show that the average man presents a number of important impairments, the correction of which would prove distinctly beneficial.

The indices of the public health activities and their successes are the death rate of the population, the infantile mortality rate, the maternal mortality rate, and the average life of the individual.

These rates in India are not at all complimentary to the existing medical and health services.

The constitution of an adult is affected by the conditions of growth in early childhood. Where the early life has been crippled by diseases or physical defects, it cannot grow to maturity with strong lungs and good physique. Consequently, a weakly or sickly community or nation is nurtured to the final detriment of the nation, as a whole.

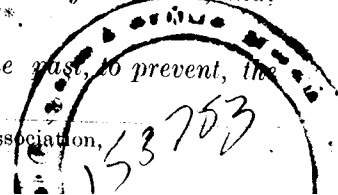
The present state of low level of health and poor physical fitness (which has been adversely commented upon by all publicists), calls forth the best and earnest attention of all the public leaders and the Government, especially, when we are to enjoy Swaraj or political liberty. The present *laissez faire* attitude towards the vital health problems is suicidal, and must be definitely abandoned for good. The principle—*Mens sana in corpore sano*—has been ignored to-day.

The health policy of all modern countries is:

"To improve the individual or community life of the future; to insure a better second generation, and a still better third generation; and, to promote a healthier and fitter Nation and Race".

The health motto is: "To cure is the voice of the past, to prevent, the divine whisper of today".

* American health policy, endorsed by the British Medical Association,



Suggestions.—To raise the low average life of the Indian, to reduce the infantile and maternal mortality and to improve the health and physical fitness—to stand the tests of peace and tasks of war, my suggestions are :—

(1) A health policy to be framed (as recommended by the Skeene Committee on Military Training, in 1927);

(2) A health education programme for school-children and the masses to be chalked out;

(3) A planned health programme,* affording—(a) “ facilities for mothers and infants; (b) facilities for the conservation of children’s health; and (c) increased opportunities for post-graduates in medical nursing, and medico-social subjects ”.

(4) †A systematic medical examination of all children of the school-going age with the aim to insure their health;

(5) †A regular and graded physical exercise and training, suited to the individual child, with the object of increasing physical fitness.

N.B.—The present propaganda of the so-called “ physical education ”, does not touch the crux of the health problem, has no direct bearing on the health of the individual. As the late LORD BADEN-POWELL aptly remarked—“ it is a veneer to cover up the defects in the State, in not attending to the child welfare, anti-natal health, and food problems ”.

(6) †A nutrition or food policy so that all sections of the population may have a reasonable opportunity of getting a *satisfactory diet*” (recommended by the Mixed Committee of the League of Nations on Nutrition, 1937).

N.B.—All other diets—the balanced, the standard, the adequate, and the optimum—are of *academic* interest only. Fetish should not be made of vitamins and their products. Motivated advertised food-stuffs are all to be avoided.

The medical profession is responsible for this propaganda of foodstuffs. Professor BAYLISS’ dictum—“ take care of calories, and the other contents would take care of themselves ”, is worthy of adoption in a poor country like India.

A health policy is as much important as agriculture, education, revenue, war, prohibition, and other reforms. This means money. So do hospitals and the services. If there is a cut in the expenditure on education, or increased taxation, or a political crisis, the whole country is up in arms, as one man, and demands that something must be done. Why not rise up as one man, and demand treatment and improvement of health?

If my suggestions are adopted (as it can be), then I dare say, that we could have not only built a healthier and physically fitter nation, within five years from now, but also could have placed India in the forefront among nations which are healthy and physically fit. “Where there is no vision, the people perish”.

* Report of the Inter-departmental Committee to Co-Ordinate Health Welfare Activities (1938). Washington, D. C.

† My articles—*Journal of the Madras University*. July 1938 and January 1939.

‡ *Indian Medical Journal*, December 1938—My Special Article.

APPENDIX I.

Invaliding Causes.

BRITISH ARMY.	INDIAN ARMY.
1. Mental diseases.	1. Tuberculosis.
2. Tuberculosis.	2. Injuries.
3. Diseases of bones & joints.	3. Diseases of bones and joints.
4. Injuries other than fractures.	4. Mental diseases.
5. Schizophrenia.	5. Diseases of Nervous system.
6. Diseases of bronchii and bronchioles.	6. „ of Eye.
7. Diseases of urinary organs.	7. „ of Respiratory system.
8. „ of Heart.	8. „ of Digestive system.
9. Deformities of limbs.	9. „ of Circulatory system.
10. Disordered action of heart.	10. „ of Teeth & gums.

APPENDIX II.

Death Causes.

BRITISH ARMY.	INDIAN ARMY.
1. Local injuries	1. Pneumonia
2. Infectious diseases	2. Infectious diseases
3. Digestive diseases	3. Circulatory „
4. Circulatory „	4. Digestive „
5. Pneumonia	5. Injuries.
	6. Pulmonary tuberculosis.

N.B. Why the British Army should be more invalided on account of the mental diseases than the Indian, and why the former should be more susceptible to deaths from injuries, and the latter from pneumonia—what are the constitutional factors—all these are well worth investigating in determining and comparing the stamina of the British and the Indian troops.

APPENDIX III.

TABLE I

Diseases causing Rejection of the Recruits to the Indian Army.*

	1938—39.	1937—38.	1936—37.
Percentage rejected	45.4 %	35.73 %	36.89 %
Common causes of rejection are :			
Trachoma	5.6 %	5.86 „	4.45 „
Disordered action of heart	4.8 „	4.16 „	3.62 „
Otitis media	3.0 „	2.62 „	2.29 „
Malaria	2.4 „	2.41 „	2.29 „
Defective vision	5.0 „	1.91 „	1.76 „
Valvular disease of heart	2.2 „	1.34 „	1.70 „
Hernia	0.7 „	—	1.57 „
Venereal diseases	1.2 „	—	1.55 „
Varicose veins	1.9 „	—	1.08 „
Pulmonary tuberculosis	0.2 „	—	0.69 „
Other defects	5.2 „	—	11.78 „

* Army Health Reports, India 1938, and 1939. (The increase in percentage of incidence is the same, as found in my College Health report).

TABLE II.

Causes of Rejection of Recruits to the United States Army,
due to physical defects—New York areas (1939).*

Percentage rejected	...	32.5 %
<i>Age group: 18 to 35 years (unmarried)—school and college students who believed themselves to be physically fit to fight for their country.</i>		

The common causes, in the order of their importance numerically are:

Defective and deficient teeth	...	23 %	Neuro-psychiatric defects	...	3.05 %
Eye defects	...	21 "	Allergy	...	2.37 "
Height and weight stature	...	15 "	Heart diseases	...	1.50 "
Poor feet	...	10 "	Glandular diseases	...	1.41 "
Ear defects	...	10 "	Skin diseases	...	1.18 "
Skeletal defects	...	3.51 "	Respiratory diseases	...	0.96 "
Genito-urinary defects	...	3.28 "	Miscellaneous defects	...	2.69 "

APPENDIX IV.

Summary of Defects among Men drafted in the World War, in the
"Second million" after May 1, 1918†

Total rejection	...	21 %
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TABLE I.

Rate of physical defects for 1,000 drafted men.

The common diseases or defects are:

Infectious diseases	...	0.604 %	Circulatory diseases	...	47.631 %
Tuberculosis	...	24.30 "	Respiratory "	...	4.26 "
Veneral diseases	...	7.12 "	Digestive "	...	51.955 "
Nervous system diseases	...	14.275 "	Genito-urinary "	...	2.441 "
Mental alienation	...	15.540 "	Skin & cellular tissue "	...	3.680 "
Eye diseases	...	12.381 "	Bones and organs of locomotion	...	93.256 "
Ear diseases	...	12.897 "	diseases	...	47.055 "
Nasal diseases	...	0.866 "	Congenital malformations and ill-defined	...	
Throat diseases	...	5.710 "	diseases	...	

TABLE II

Estimated number of defects that will be found in the recruits, by July 1, 1941.

According to the Selective Training and Service Act of 1940 (U.S.A.), 1,200,000 men would have to be examined, to meet the quota of 8,00,000 men (expected by July 1, 1941). On the basis of the world war data, the number of defects, which will be noted among the 4,00,000 men would be as follows:—

Rate per thousand drafted men.		Rate per thousand drafted men.	
Orthopaedic impairments	... 105.3	Nervous and mental diseases	... 23.8
Eye defects	... 55.5	Ear defects	... 14.6
Cardiovascular-renal diseases	... 47.2	Veneral diseases	... 7.1
Defects, not elsewhere classified...	36.2	Varicose veins, varicocele	... 6.1
Underweight	... 29.6	Goitre	... 5.7
Hernia and enlarged inguinal rings	25.8	Hypertrophic tonsillitis	... 3.1
Tuberculosis (all forms)	... 24.3	Asthma	... 2.2
Defective and deficient teeth	... 24.2		

APPENDIX V

Presidency College Health Examination Report (1939—40), Madras.

TABLE I

Incidence of Physical defects.

1939—40.	1938—39.	1937—38.	1934—35.
53.00 %	39.2 %	54.8 %	28.5 %.

* J. A. M. A. Vol. 115, No. 15, pages 1283—84. Oct. 12, 1940.
† United States Public Health Service: Public Health Reports: Vol. 56: No. 2: (Pages
?) Jan 10, 1941.

TABLE II

Disorders that cause physical unfitness (total numbers.)

	1939—40.	1938—39.	1937—38.	1936—37.	1935—36.
Heart weakness	...	24	10	12	8
Lung weakness	...	5	2	9	4
Poor physique	...	28	18	9	19
Excitable temperament	...	32	8	—	—
Defective vision	...	47.96 %	52.0 %	45.1 %	70.3 %
Dental defects	...	24.76 %	22.8 %	14.0 %	14.0 %

N. B.:—Note the increase of incidence of these physical impairments to be the same found in the Army Health reports.

TABLE III

Percentage of heights and weights of those who are above the averages for the same

	1940—41.	1938—39.	1937—38.
Height	...	52.3 %	52.3 %
Weight	...	43.5 %	47.43 %
Grip strength	...	43.4 %	48.83 %

N. B.:—While the average height has increased over the last year's percentage, the weight and the grip strength have decreased. This indicates that the physical fitness is deteriorating.

TABLE IV

'State of Nutrition': Based on the recommendations of the Board of Education,
England, and adopted in the School Health Reports.

(a) Presidency College, Madras.

	1940—41.	1938—39.	1937—38.
"Excellent"	...	13.89 %	6.4 %
"Normal"	...	49.69 %	60.1 %
"Sub-normal"	...	31.39 %	27.3 %
"Bad"	...	10.01 %	6.1 %

N. B.:—Note the reduction of incidence in the normal and the increase of percentages in the sub-normal and bad groups.

(b) Bombay University Students.*

Year.	'A' Class.	'B' Class.	'C' Class.
1939—40	...	45.7 %	53.2 %
1938—39	...	47.3 %	51.5 %
1937—38	...	46.4 %	52.9 %
1935—36	...	49.6 %	48.6 %

N. B.:—Note the decrease in 'A' Class and increase in 'B' and 'C' Classes.

APPENDIX VI

Tuberculosis†

Year.	Ratio per 1,000.		No. of rejections at recruiting centres for Indian Army.	
	British Army.	Indian Army.		
1930	...	1.2	3.5	75
1931	...	1.0	3.3	76
1932	...	1.3	2.4	51
1934	...	1.1	2.1	82
1935	...	1.3	2.4	192
1936	...	1.3	2.0	187
1937	...	1.4	2.0	179
1938	...	1.2	2.1	64
1939	...	1.3	2.2	90

Note the increase in the percentage of incidences of diseases in the college students (who come from well-to-do classes), which is the same as found in Army Health Report, especially the disordered action of heart and lungs.

I venture to express my opinion, after an investigation, that the disordered action of heart especially, is due more to excessive smoking—'tobacco-heart'—than to sexual abuse 'masturbation heart'. My Principal (Mr. H. C. Papworth, O.B.E.) remarked—"too much money is a curse, as too little money".

* Medical Inspection Report of the Bombay University, 1939—40.

† Table 81—Army Health Report, 1939.

Gleanings from Medical Press

Medicine and Therapeutics

The Early Diagnosis of Syphilitic Aortitis.—The importance of the early recognition of symptoms of syphilitic aortitis, so that adequate treatment may be instituted before the development of an aneurysm, is stressed by A. E. Parsonnet and A. Bernstein (*Urologic and Cutaneous Review*, August 1940, 44, 499), the former author having contributed a previous article on the treatment of the condition (*Ibid.*, 43, 27). The theory that syphilitic aortitis does not develop until fifteen or twenty years after the appearance of the initial chancre has been proved erroneous; it may well begin within six weeks of the initial infection, and a case is quoted in which a sacular aneurysm of the sinus of Valsalva was found at autopsy in a man who acquired his initial chancre only eighteen months before death. The earliest symptoms of cardiovascular syphilis are (1) pain of a boring, pressing, or sharp character over the precordium or base of the heart, following effort or mental excitement. The pain differs from that of coronary disease in that it does not radiate, has no associated *anor animi*, and is usually localized above the level of the third rib. (2) The occurrence of dyspnoea on exertion or mental effort. (3) Paroxysmal cough. The objective findings include:—(1) Changes in the aortic second sound—a bell-like, tambour sound, or blurred, accentuated or clanging; (2) a systolic aortic murmur over the second interspace to the right of the sternum and (3) dilatation of the aorta, demonstrable by fluoroscopy or X-ray by a widening of the shadow of the great blood vessels with downward and outward displacement of the shadow, elevation of the aortic arch and accentuation of the aortic knob, and sometimes displacement in a forward direction of the descending aorta and arch, with displacement to the left and backward of the descending aorta and oesophagus. Percussion may show parasternal dullness or paravertebral dullness in the third and fourth interspaces posteriorly. The presence of a positive Wassermann reaction, with the history of chancre and the development of the above mentioned symptoms, are conclusive for the establishment of syphilitic aortitis; it is well to bear in mind, however, that in many cases the blood Wassermann reaction may be negative.—*The Practitioner*.

New Medication for Asthma and other Allergies—Brown suggests the use of capsules containing $\frac{1}{2}$ grain (0.032 gm.) of Ephedrine Sulfate, $\frac{1}{2}$ grain of Sodium Phenobarbital and 3 grains (0.2 Gm.) of Theophylline Sodium Acetate for symptomatic or prophylactic treatment of nocturnal bronchial asthma. He has used this medication in 189 cases of bronchial asthma and also for other allergic complaints. The asthma in the cases reported was extrinsic in 80, intrinsic in 50 and mixed in 10 cases. In every

case in which the usual doses of Ephedrine and Phenobarbital were adequate, the capsule described was equally or more effective. Thirteen patients complained of side reactions to the Ephedrine. Six patients complained of nausea and indigestion. This was found to be due to the Theophylline Sodium Acetate, and they were given capsules without this component. Sensitivity to Phenobarbital was not encountered, and there was no case of a so-called "hangover" due to the phenobarbital. Two patients complained that all gelatin capsules caused pyrosis. The dosage having been stabilized, an enteric coating planned to dissolve in from four to five hours was manufactured. It contained Cetyl Alcohol, Gum Mastice, Tolu Balsam, Gelatin, Acacia and sugar. Acetone, Alcohol and water were used as solvents. The enteric coated tablets were given to 117 patients, 61 of whom also received the plain capsule as their asthma occurred during the day, during the first four hours after retiring or during both periods. The remaining 56 patients had asthma only four or more hours after retiring and were given only the enteric coated capsules. Of the 117 patients, 8 complained of waking six hours after medication. They were free of asthma but unable to fall asleep again. This was attributed to the Theophylline, and either it was omitted or additional Phenobarbital was given. The patients with asthma during both day and night showed the best improvement. The ability to sleep during the night lessened the number or intensity of their daily attacks. This was especially true of the intrinsically asthmatic patients. Not all patients got relief at all times. Those with severe attacks who were not helped formerly by Ephedrine and Phenobarbital alone were only occasionally benefited by the capsules and tablets. The new medication was definitely more effective in patients with moderate and mild symptoms.—*J.A.M.A.*

Vitamin B in the Treatment and Prevention of Delirium Tremens.—The value of the administration of Vitamin B by the intravenous or intramuscular route in cases of imminent delirium tremens is shown by the report by Fr. Scielounoff and J. Flagg (*Revue Médicale de la Suisse Romande*, July 25, 1940, 60, 715) on the results obtained in four cases of imminent delirium tremens and in three in which the condition was already established. In the first case, a man of forty-six, an alcoholic and cirrhotic, admitted in a state of intense excitation and on the verge of acute hallucinatory delirium, an immediate dose of 100 mgm. Vitamin B was given by intravenous route. After some hours the patient became calm without the use of any sedative. The treatment was continued daily for one week; on the third day, the menace of delirium

tremens had passed, and the patient returned home, cured, on the seventh day. The results in the other cases of imminent delirium were equally good. The dosage used varied according to the severity of the case. One patient received 50 mgm. Benerva intramuscularly, every day for one week; another 20 mgm. Vitamin B₁ intramuscularly daily; in this latter case the patient was calm after two days. In the cases of established delirium tremens, however, no amelioration of the condition was obtained, and the authors conclude that the indication for the use of Vitamin B₁ in delirium tremens is as a preventative of an imminent crisis rather than as a method of cure when the crisis of delirium has already developed.—*The Practitioner*.

Long Survival Following Coronary Thrombosis.—Drake reports the survival of a man (a telegrapher) for nearly forty years after coronary thrombosis. He was first seen by Drake at the age of 72, seven years before death, when he had suffered from angina for five years. The patient stated that he had experienced the same pain at the age of 40, except that at this time the pain was more severe and that it had gradually increased in intensity, came at more frequent intervals and was more easily precipitated. This state continued for several weeks, but since then the pain had not returned for twenty-seven years. At an examination in 1933, hypertension and cardiac enlargement were present. In 1935 the patient suffered a coronary thrombosis from which, recovery was uneventful except for a complicating attack of arthritis. Following this he continued to have infrequent attacks of mild angina pectoris easily relieved by Glyceryl Trinitrate. At the age of 77, he retired. In 1938 another coronary thrombosis occurred. This attack was severe, was accompanied by marked pulmonary edema and was followed by frequent severe recurrences of pain and by cerebral embolism and left hemiplegia. He was confined to bed for four months. Infrequent attacks of angina pectoris continued. Prostatic hypertrophy, which caused nocturia, developed and unless he voided promptly on awakening, an attack of angina pectoris would result. Because he feared the cardiac pain, he occasionally took Glyceryl Trinitrate at these times to forestall an attack. On Oct. 2, 1939 he awakened with a desire to void and experienced an attack of angina pectoris which was not relieved by Glyceryl Trinitrate. A hypodermic injection of Morphine was ordered; a half hour later, he was unconscious and died within a few minutes. The body was embalmed before permission for necropsy was obtained and therefore the heart was considered unsuitable for injection studies. The heart weighed only 360 gm. Old obstructions, with calcification, were found in the left anterior descending branch, a large branch of the left circumflex and the right circumflex artery. There were three fair-sized areas of fibrosis in the ventricular walls; the most recent one was in

the posterior basal portion of the left ventricle. There was no fresh coronary thrombosis to explain the fatal attack. It seems certain that one of the three scars resulted from the myocardial infarction suffered at the age of 40. It seems that certain middle-aged patients may recover completely from coronary thrombosis and live out their span of life.—*J.A.M.A.*

Rhubarb in Bacillary Dysentery—Mr. R. W. Burkitt has found Turkey Rhubarb root valuable in the treatment of bacillary dysentery. It matters nothing what the bacilli present are; laboratory reports may say Shiga or Flexner, or unnamed groups. The dose is a teaspoonful (not by measure) every hour until the Rhubarb appears in the stools. Afterwards it may be given for a few days less frequently. The powder can be wetted and made into little balls or lumps and then swallowed with water. Rhubarb powder apparently acts indirectly by promoting an enormous excretion of light-yellow-coloured bile (and perhaps in addition intestinal secretions).

As soon as the Rhubarb appears in the stools, giving a reddish colour like blood, the acute signs and symptoms begin to be modified. On going into the room, one notices that the gangrenous smell has gone; the tenderness and rigidity of the abdominal wall are less; there is no pain; the hollow face, the shrunken eyes, the dry mouth and tongue, the running pulse, the temperature are all much better.

Acute bacillary dysentery can be a terrible disease. In Nairobi from 1911 to 1917 Mr. Burkitt never saved a case in any race. From 1917, when he began to use Rhubarb, to a couple of years ago, when he left East Africa, he never lost a case in either adult or child. The treatment of acute bacillary dysentery by Rhubarb was first brought to his notice by a medical officer in Salonika, who prescribed the tincture with great success. Mr. Burkitt at once began to try the powder, and soon used it in the above mentioned doses. He got the medical officers of a big native military hospital of some 1500 beds, to which he was attached for surgical work, to adopt this treatment; the death-rate from dysentery at once fell from 30 a day to 3 a day.—*Clinical Journal*.

Histamine for Neurovascular Headache.—Reid gave small repeated subcutaneous doses of Histamine to 5 patients with neurovascular type of headache. One patient experienced only partial relief, while the other 4 obtained complete relief. Each patient, after the possibility of an intracranial pathologic lesion was excluded and the patient reacted positively to an intralermal test injection of Histamine, was given graduated doses of Histamine, in the following manner: The solution used consisted of 1 mg. of Histamine dissolved in 10 c.c. of physiologic solution of Sodium Chloride. On

the first and second days 0.05 mg. of Histamine (0.5 c.c. of the solution) was injected subcutaneously twice a day; on the third and fourth days, 0.075 mg. (0.75 c.c. of the solution). Thereafter, up to the end of the third week, 0.1 mg. (1 c.c. of the solution) was given twice a day. When this course was finished, each patient was given one injection of 0.1 mg. of Histamine once a week. If the patient remained free from symptoms during the next two or three months, an attempt was made to decrease the dose by spacing the injections. If the symptoms recurred after the dose was diminished, the injections were again increased to one a week. The author applies the term "neurovascular headache" because there is fairly conclusive proof that the aura and pain in many complaints of head pain are due to a disturbance of the neurovascular mechanism controlling certain intracranial and extracranial blood vessels. Of the various patterns of this group, migraine is perhaps the best known. There are several other patterns which have a neurovascular mechanism, and some of these are as common as the classic migraine. It is emphasized that the use of Histamine must not be regarded as a cure-all for every type of headache. Each case must be thoroughly investigated and only when all possibility of a pathologic lesion has been excluded should a neurovascular mechanism be considered.—*J.A.M.A.*

The Use of the Sulphonamide Drugs.—A War Office memorandum on the Sulphonamides embodies the latest teaching; Sulphapyridine is recommended in gonorrhoea, cerebro-spinal meningitis, pneumonia and pneumococcal infections, staphylococcal septicaemia and gas gangrene. Sulphanilamide is given as the drug of choice in the prophylaxis of wound infections, and in the treatment of rhytiditis and cellulitis, meningococcal carriers, wounds known to be infected with haemolytic streptococci (acute phase), follicular tonsillitis, otitis media and *B. coli* urinary infections. Sulphanilamide is inactive against all Pneumococci, excepting Type III and has but little action on Staphylococci.

The principle of treatment is to obtain a high blood concentration as rapidly as possible and to maintain this at an effective level for a period. Because the drugs are rapidly excreted, administration 4-hourly, night and day, is necessary. The oral route is best for maintaining a steady blood concentration and should ordinarily be used. But when swallowing is impossible, when gastric upset prevents absorption, and in neglected cases, when is imperative an effective blood concentration at once, a soluble preparation for injection is valuable. A continuous course of a soluble preparation should be used only when oral therapy is impracticable. Courses for established or developing infections should seldom exceed 10 days. A further course should be prescribed only in special circumstances and with adequate precautions against agranulocytosis. As a rule, when an infection is

amenable, the result is rapid with full doses. There is, therefore, no justification for prolonged courses or excessive doses or even repeated courses when the preliminary administration has not effected improvement. Such procedures are liable to cause agranulocytosis. To avoid this danger, the total dosage given in each 24-hour period should be indicated on the temperature chart. When an infection appears to be controlled, as adjudged by the temperature, small doses should be continued for a further 2 to 4 days to prevent relapses.

Certain individuals are unduly sensitive to the drugs and toxic reactions are caused by prolonged courses, repeated courses and excessive doses. They suffer a recurrence of complications when a fresh course of the drug is instituted. When toxic symptoms are severe, the drugs may be quickly washed out of the body by inducing diuresis with water.

The serious reactions are agranulocytosis and haemolytic anaemia. Agranulocytosis occurs after 8 days or more of treatment. A leucocyte count (seventh day onward) is the only method of diagnosis. Other symptoms are headache, deterioration of condition, fever, sore or ulcerated throat. Treatment consists of abundant fluids, pentnucleotide 0.35 g. intramuscularly twice daily, transfusion of fresh defibrinated blood, preferably from donor who has had pentnucleotide 4 to 5 hours before.

Haemolytic anaemia occurs early (2.4 days). Mortality is low. Early signs are jaundice and haemoglobinuria. Treatment consists in omitting drug, inducing diuresis, and transfusing, if necessary.

Wound Infections due to Streptococci and Gas Gangrene Bacilli.—The earlier the treatment, the more likely is it to prevent or control an acute infection, but benefit may be expected even in well-established infections. A prophylactic course of Sulphanilamide should be given as early as possible to all wounded when there is reason to fear septic infection or gas gangrene (gas gangrene sometimes develops within the first 6 hours), and be continued for at least 4 days in order to protect against the risk of streptococcal infection later in hospital. Prophylactic treatment may be by oral administration or by local application to the wound. For the treatment of established infections either Sulphanilamide or Sulphapyridine may be used. For prophylaxis, the first dose should be 1.5 g. (3 tablets) of Sulphanilamide dissolved in hot citric acid or lemon in order to get rapid absorption. Subsequent doses, starting two hours later and continuing at 4-hourly intervals for 4 days, should be 0.5 g. as an uncrushed tablet in order to obtain delay in absorption. Dosage: First day 4.5 g.; subsequent days 3 g.; total 13.5 g. If treatment has been unduly delayed or if it is feared that gas gangrene is already beginning, the first two of the above doses should be doubled.

For local application, 5-15 g. of powdered Sulphanilamide incorporated into the depths

of the wound at the time of debridement has been suggested as an alternative method of prophylaxis which may prove valuable, since the drug is readily absorbed from the wound into the blood stream and will also tend to check the development of bacteria in and around the wound itself. The results must be observed clinically and bacteriologically, on a selected group of cases before any decision is reached as to its wide application in war wounds.

For the treatment of gas gangrene and severe streptococcal infections, the first dose of Sulphanilamide or Sulphapyridine should be 2 g., dissolved in hot citric acid solution or lemon. Subsequent doses, starting 2 hours later and continuing at 4 hourly intervals for 2 days, should be 1 g. uncrushed. After the first 2 days, the dosage should be gradually reduced as the condition improves, but the interval between doses should not be more than 6 hours for several days. Small doses, e.g., 3 g. per diem, should be continued for 3 or 4 days after the temperature has come to normal and the clinical condition has become satisfactory. The duration of treatment and the total dosage will vary somewhat, but the latter should seldom exceed 35 g.

For streptococcal infections of moderate severity the dosage is similar, but the total dose in the first 48 hours need not exceed 6 g. daily; sometimes 4 g. will be enough. Haemolytic streptococci (possibly also gas gangrene bacilli) sometimes persist in a wound long after the clinical condition has become satisfactory. Chemotherapeutic drugs should not be continued for this reason. It will seldom be advisable to prolong the treatment of wound infections beyond 9 or 10 days.

Meningococcal Infections.—Groups I and II Meningococci are equally susceptible to the Sulphonamide derivatives. The combination of antiserum and chemotherapeutic agents does not appear to influence the course of the disease. If serum is used, it should be given intravenously or intramuscularly and not into the theca. Successful treatment demands early diagnosis, the immediate exhibition of a concentration of 5 mg. per cent. in the cerebro-spinal fluid for the first 3 days and a slightly lower concentration for a further 5 or 6 days. When facilities are available the concentration of the drug may be checked by examination of the spinal fluid. So long as administration continues, the intake of fluids should be approximately 4 pints a day in order to maintain a reasonable balance between blood concentration and urinary excretion. Drastic purging should be avoided and the bowel emptied, if necessary, on alternate days by a simple enema.

Either Sulphanilamide or Sulphapyridine may be used, but the latter is slightly more effective and has the advantage of being active against Pneumococci as well as Streptococci and Meningococci; it is, therefore, the drug of choice for the empirical treatment of meningitis when no bacteriological diagnosis is available. Administration should

be by the oral route except in cases of vomiting, difficulty in swallowing, delay in diagnosis, or of fulminating onset.

The total dosage during 24 hours should be 8 g. and in extreme cases up to a maximum of 10 g. The spacing of the dosage is important. The compound should be given 4-hourly night and day. At the beginning half the total 24-hours dose should be given during the first two administrations. After these, the 24-hours dose should be divided so that an equal amount is administered every four hours. The procedure should be continued for 2½ to 3 days, and then the dose gradually reduced over the next 6 days to 2 or 3 g. per diem. The administration should not be interrupted. To prevent recurrence of infection administration should continue for some days after disappearance of symptoms, but normally the total period need not exceed 10 days.

Patients who are vomiting or who have difficulty in swallowing should be given a 4-hourly intramuscular injection of 3 c.c. (—1 g.) of Sulphapyridine Soluble, but a change back to the oral preparation should be made at the first opportunity. In cases of so insidious onset that they are not diagnosed until late, no time should be lost in ensuring the absorption. Whether the patient is conscious or unconscious, the first dose should be an intramuscular injection of Sulphapyridine Soluble. As soon as meningeal involvement is suspected, the injection must be given. It must not be delayed until admission to hospital or lumbar puncture is performed. Whether conscious or unconscious, the first doses should be 1 g. (—3 c.c.) Sulphapyridine Soluble by intramuscular injection. If unconscious, subsequent doses should be 4-hourly injections of 1 g. Sulphapyridine Soluble. If conscious and able to swallow, administer 1 g. of Sulphapyridine in tablet form or crushed and dissolved in 100 c.c. of hot citric acid solution (roughly 1 per cent.) or hot lemon, by the mouth 2 hours after the intramuscular injection, and then 2 g. by the mouth 4 hours later. (This represents approximately half the total 24-hours dose). Thereafter proceed with ordinary routine treatment.

In fulminating cases, the optimum blood concentration of the drug should be attained at the earliest possible moment. The first dose should consist of two injections given simultaneously: an intravenous injection of 1 g. Sulphapyridine Soluble, diluted in 3 or more volumes of saline, and an intramuscular injection of 1 g. Sulphapyridine Soluble. The second dose should be an intramuscular injection of 1 g. Sulphapyridine Soluble 4 hours later. Subsequent doses must be judged by the condition of the patient. Dosage may be continued according to the scheme given above for cases of delayed diagnosis and treatment. Three or four pints of fluid daily should be given by whatever route is practicable, either oral, rectal, subcutaneous or intravenous.

For the treatment of carriers, the following scheme has proved to be successful:

1 g. Sulphanilamide by mouth every 8 hours and continued for 6 days.

In chronic meningococcal septicaemia without meningitis, Sulphapyridine 1 g. should be given 4-hourly until the temperature returns to normal. Thereafter 1 g. thrice daily for a further period of 4 to 7 days.

Pneumococcal Infections.—Sulphapyridine must be used for all pneumococcal infections. Sulphanilamide is inactive against all Pneumococci excepting Type III. For lobar pneumonia, the following dosage of Sulphapyridine is suitable in the average case, 5 g. should be administered in the first 12 hours in lots of 2 g., 2 g., 1 g., 4-hourly. This is followed by 1 g. 4-hourly, 6-hourly, or 8-hourly, according to the response. The total dosage would be from 26-35 g. Treatment should not cease immediately a crisis occurs, but should continue for at least 48 hours after the temperature becomes normal. There is less nausea and vomiting when the tablets are powdered and suspended in cold milk. Alternatively the doses may be split and administered at shorter intervals, e.g. 0.5 g. 2-hourly instead of 1 g. 4-hourly. Treatment should be continued even though vomiting is troublesome, for this symptom frequently subsides after the first 24 hours of treatment have reduced the toxæmia and fever. When vomiting is so marked that absorption of the drug is inadequate, 4-hourly intramuscular injections of 3 c.c. (1 g.) Sulphapyridine Soluble should be given. Three to 4 pints of fluid a day should be taken and chemotherapy should under no circumstances lead to the neglect of other procedures known to be beneficial, e.g. oxygen. Should an empyema arise, it cannot be controlled or dispersed with Sulphapyridine, though the drug may be used as an adjuvant to surgery.

In pneumococcal meningitis the procedures and dosage as recommended for meningococcal meningitis are suitable. Remember that the drug is inactive with a frankly purulent focus, and that the common primary causes of pneumococcal meningitis—otitis and mastoiditis—must be looked for and drained.

Gonococcal Infection.—Chemotherapy should be used in all cases in which there is no contraindication, such as previous intolerance, certain dermatoses and blood diseases, renal disease, jaundice and neuritis. For cases of less than 10 days' duration Sulphapyridine is the most efficient preparation.

The tablets should be powdered and given in milk or water.

On the first day 2 g. are given at once and thereafter 0.5 g. every 4 hours during the day, and 2 g. at bedtime. On the second day 1 g. on rising, 0.5 g. after breakfast, dinner, tea and supper, and 1 g. at bedtime. On the third to seventh day 1 g. after breakfast, 0.5 g. after dinner and tea, 1 g. at bedtime. If signs of urethritis persist longer than 3 days, continue the treatment at the rate of 3 g. a day for a further 3 days. Sulphapyridine should not be administered continuously for more than 10 days at a time. If, at the end of 10 days, active signs are still present, the case should be specially investigated by a venereal expert. During the above treatment a milk diet is advisable for the first 3 days, and thereafter a light diet with avoidance of sulphur-containing foodstuffs.

For cases of more than 10 days' duration when first seen, Sulphanilamide appears to be as effective as Sulphapyridine, and is much cheaper. The dosage may be on lines similar to those suggested above, but 25-50 per cent. higher. Irrigation of the urethra with 1-10,000 Potassium Permanganate or 1-8000 Mercury Oxycyanide may be used with Sulphonamide therapy.

Other Infections.—For erysipelas and other localized streptococcal infections, the treatment is similar to that outlined for streptococcal infections of moderate severity.

For staphylococcal septicaemia, Sulphapyridine is the most effective drug. The course required is similar to that described for lobar pneumonia. The drug has but little effect when the septicaemia arises from an intractable purulent primary focus such as osteomyelitis. The recently introduced Sulphathiazole seems to be superior to Sulphapyridine in staphylococcal infections. The doses are up to 6 g. per 24 hours.

Staphylococcal pneumonia arises usually as a sequel to influenza. The mortality is high. Sulphapyridine appears to influence the infection in a proportion of cases and should be prescribed in the higher dosage recommended for pneumococcal pneumonia.

In *B. coli* urinary infection, Sulphanilamide should be used—1 gr. 4-hourly for 4 to 5 days.

For soft sore Sulphanilamide should be prescribed in doses similar to that recommended for gonorrhoea. This course should not exceed 10 consecutive days.—*Clinical Journal*.

Surgery

Septicaemia and Bacteraemia.—Septicaemia, as Whitby points out in a comprehensive review, is a clinical state characterised by bacteria in the blood, sustained fever and other evidence of systemic infection, and carrying with it a grave prognosis. Under this generic term should probably be included pyæmia, which has more often an obvious primary focus and is accompanied by metastatic abscesses, the sequel usually of a septic

thrombo-phlebitis extending from the site of the primary lesion. Septicaemia must be sharply differentiated from bacteraemia, which, as Ryle has explained, implies nothing more nor less than the presence of bacteria in the blood; it is a pathological finding rather than a clinical condition, but it may too readily be accepted as a septicaemia by the clinician who pays more attention to the bacteriologist's report than to the patient's

clinical state. Bacteraemia is a well-recognised feature in the early stages of the enteric fevers, lobar pneumonia and cerebrospinal fever, but is less widely known as a temporary occurrence after removal of septic teeth and tonsils, as the cause of catheter fever and a preliminary stage in coliform pyelitis, or as a transient phenomenon in many locally infected tissues. Although the bacteraemia is probably related to the early shivering attacks that are common to most of these conditions it apparently precedes the clinical symptoms by several hours, so that the best time for blood-culture is not, as is often thought, during the rigor but before it. However, the important point is that the clinician in his assessment of the case should not be unduly influenced by the report of a positive blood-culture. This is not to say that blood-culture should be discouraged. On the contrary, it should be carried out more often and particularly in cases of pyrexia of uncertain origin. If this were done many infections—typhoid fever, the pyogenic septicaemias, ulcerative and subacute bacterial endocarditis, meningococcal septicaemia, undulant fever—would be diagnosed and appropriate treatment begun much earlier than is now usual.

The success of blood-culture depends to some extent on the thoroughness with which the bacteriologist does his job. Anaerobic (1-2 c.c.m. of blood into a tube of Robertson's meat-broth) as well as aerobic culture should be a routine procedure, as should a quantitative count of the bacteria in the blood (1 c.c.m. of blood into 12 c.c.m. of melted nutrient agar or the blood may be added to "Liquoid" and plated later). Saponin broth and incubation of the culture in 5-10% CO₂ have advantages when certain infections are suspected. Although some idea of the severity of the infection will usually be gained from the number of bacteria per c.c.m. of blood—e.g., 20 or more Pneumococci in 1 c.c.m. carries a grave prognosis for a patient with lobar pneumonia—no hard and fast rule can be laid down about the numbers required to constitute a septicaemia. A more useful differentiating test is a repeat blood-culture one or two days after the first positive finding. Why and when an innocent bacteraemia becomes converted to a grave septicaemia, why *Streptococcus pyogenes* remains localised to the uterus of one puerperal patient and invades the blood-stream of another, are still unsolved problems, dependent as much on the resistance of the host as on the virulence of the invader.

Having diagnosed a particular infection as a septicaemia, the clinician is faced with the prognosis and treatment of the case. Prognosis, if variable, is usually grave despite the new chemotherapy, and requires a careful assessment of all aspects of the case. Acute staphylococcal septicaemia has a higher mortality than streptococcal infection, although cases with a subacute staphylococcal pyæmia often recover after a long illness. Of clinical signs, a low temperature, a rapid pulse and a poor leucocyte response carry a worse prognosis than a high temperature

with leucocytosis. Treatment demands all the help which surgery, specific antisera and chemotherapy can give, but good nursing is as important as any of these. The patient must have absolute rest and sleep and adequate fluids to supply nourishment, prevent dehydration and eliminate toxins. For this purpose, the intravenous drip is most convenient, for by it food, fluids, drugs, antisera and blood can be given with little discomfort to him. Repeated small transfusions of fresh blood counteract the progressive anaemia and supply fresh complement. Fever should be controlled by sponging, not by antipyretic drugs. If there is an obvious local focus such as cellulitis the adjacent tissues must be immobilised, and there should be no attempt at surgical intervention until "laudable" pus is present. Indeed, if there is no local focus, animal experiment indicates that the production of a "fixation" abscess by the subcutaneous injection of 1 drachm of turpentine may be a useful therapeutic measure. Antisera have gone out of fashion but the antitoxins to both *Staphylococcus aureus* and *Strep. pyogenes* should be used in full doses along with chemotherapy in any fulminating septicaemia due to these organisms. The Sulphonamides have their greatest sphere of usefulness in the prophylaxis of septicaemia, by localising an infection already established in the tissues or by preventing infection where there is a strong likelihood of its occurrence. In the treatment of the established case, large doses (say 12 g. daily of Sulphanilamide or 9 g. of Sulphapyridine) must be given four-hourly day and night. Since many ill patients seem to absorb these drugs poorly and others develop nausea and vomiting, the blood-level of the drug should be estimated after 24 hours' treatment: if a concentration of 10 mg. per 100 c.c.m. has not been reached, or cannot be maintained, parenteral, preferably intravenous, medication must be used. Response to treatment is usually obvious within two or three days, and if there is none, the drug should not be continued beyond ten days. If on the other hand, the infection is being controlled, the dosage is gradually reduced, but the drug must be continued for some days after the temperature has reached normal in order to avoid relapses. As regards choice of drug, Sulphanilamide should be used for streptococcal and coliform infections, for staphylococcal septicaemia the new Sulphathiazole (M. & B. 760) is recommended (12-15 g. daily), while in pneumococcal and meningococcal septicaemia, and in infections with the gas-forming anaerobes Sulphapyridine is the drug of choice. Much has been expected of the Sulphonamides and much has been attained, but many patients with staphylococcal and streptococcal septicaemia still die despite the new chemotherapy, and if progress is to be made our failures as well as our successes should be recorded.—*Lancet*.

Sciatica Treated by Caudal Injection of Novocain.—A study of 100 cases of sciatica treated within the last 10 years by caudal injection with 100 c.c. of 1 per cent. Novocain,

is given by J. C. Diamond in the *Canadian Medical Association Journal* (May 1940).

Seventy-six were males and 24 were females, so that sex is a factor.

Age, too, seems a factor, as the youngest in the series was 24 and the oldest 55 years. The greatest number were under forty. The average was 36.7. The ages were as follows: 16 were between 24-30 years old; 78 were between 30-40; 8 were between 40-50; and 4 were between 50-55.

Ninety per cent. of the male patients were miners, bush workers, or other labourers, and 50 per cent. gave a history of having worked hard and got overheated, or that their clothes got wet and the next day or so they felt their legs sore, and got worse until they had to give up work and take to bed. The disability ranged in time from several days to 9 weeks before caudal injection was given. In every case, the sciatica was confined to one leg. In 11 cases, however, definite lumbago was associated with the sciatica, so he injected under the lumbar fascia 20 c.c. of 2 per cent. Novocain on each side at the time of the caudal injection.

In 18 cases, the tonsils were definitely diseased, so he removed them under local anesthesia at the same time that the caudal injection was given. The results obtained were as follows.

In 96 cases immediate relief of pain was obtained and a return to occupation within 2 or 3 days; 64 patients who sent replies to questionnaires as to whether they were still free of pain replied in the affirmative; 36 did not reply, some because they could not be traced, and some did not take the trouble to reply.

In the 4 cases classed as failures one was a female, who, after being free of symptoms for two years, caught a bad cold and her sciatica recurred. He gave her another caudal injection, and 9 months have passed during which she has been free of symptoms. The second case was a male who received a caudal injection elsewhere and it did not relieve him of his symptoms. He insisted, however, on getting another trial, but it too failed. The remaining two received no benefit from the injection. One of them, a female, after the injection of 20 c.c. of the solution, could not talk, in spite of the fact that the pulse and respiration remained perfectly normal. He stopped the injection for several minutes when she began to talk. She stated that she could hear us talk but could not reply. He injected 10 c.c. more, and the same thing happened. So he discontinued the injection, but she received no benefit from the injection, probably because she did not get the full dose of 100 c.c.

The fourth case, a man, did not derive any benefit from the injection but was incapacitated for the next 10 weeks, when he gradually got better.

The patient is placed on his stomach with a pillow under the hips, or the table can be slightly arched. The skin is painted with an antiseptic solution of Iodine or Dettol, and

if the lumbar region is to be injected also that area is painted as well. With the tip of the index finger on the tip of the coccyx the thumb is slid up along the coccyx until one reaches the sacral hiatus, which is identified by the cornua on each side. A little wheal with a hypodermic needle is raised between these cornua, and then a spinal puncture needle of small lumen with a stylet in it is inserted. The needle-point is directed at right angles to the skin, and when the resistance of the fascia giving under the point of the needle is felt, the direction of the needle is changed so that it now lies parallel to the spinal column. The needle is then pushed in for about one inch and should meet with no undue resistance. The stylet is then withdrawn and a Luer lock 20 c.c. syringe loaded with 1 per cent. Novocain is attached to the needle. As a precaution, always aspirate first to see if there is any spinal fluid in the canal. Should such be the case, the injection should not be proceeded with. The solution is slowly injected and should meet with no resistance. The last syringe-full of the 100 c.c. dose usually injected sometimes meets with a little resistance, and frequently the patient will complain of a sharp pain down his leg. This is usually a good sign from a prognostic point of view. After the full dose is injected, the needle is disconnected from the syringe and some of the fluid will return clear. The stylet is then re-inserted and the needle is withdrawn. Should the needle be dorsal to the sacrum, the solution will flow under great force and one can see a swelling gathering over the sacral region, and we know, therefore, that the needle is not in the canal. Should one see blood in the needle on aspiration, the injection should immediately cease. If the sublumbar fascia is to be injected, a wheal is raised over the lumbar area on each side of the vertebral column, one inch above the posterior pelvic rim and one inch lateral to the vertebral column. With a 2-inch needle inserted until one feels the point meeting with the resisting lumbar fascia the needle is pushed through another fraction of an inch and about 20 c.c. of 2 per cent. Novocain are injected on each side under the fascia. Here, too, if the needle is external to the fascia one can feel a hardening mass gathering at the site of injection. Again, if the needle is disconnected from the syringe and the point of the needle is still *in situ*, the fluid will flow out of the needle freely. Most of these points, of course, can hardly be described, but can only be learned through practice and the sensation of the operator's fingers.

Post-operative care for these patients consists of keeping the patient in bed for 4 or 5 hours on his stomach, when he is allowed up and out of bed.—(*General Practitioner*).

Nasal Furuncles—According to Mayer, conservative therapy, valuable in certain stages of nasal furuncles, should promptly yield to surgical intervention when bacterial invasion has spread from the nose to the

inner orbital region and threatens to evolve into thrombosis of the cavernous sinus. A description of the operation, for which no originality is claimed, is given. Experience with 4 desperate delayed cases in which death was due to sinus thrombosis led the author to intervene surgically in 3 other cases with successful issue. His case material covers 91 patients, 64 of whom were men, treated during the course of ten years. The greatest incidence of nasal furuncles occurred during the third and fourth decades, with the seasonal trend highest during July and August. The ala nasi was affected thirty-four times, the tip of the nose twenty-nine and the nasal opening twenty-eight times. Among facial furuncles, nasal furuncles, especially the ala nasi, are the most dangerous because of their medial position and the relation in anatomic structure between the nasal membrane and the cartilage. Complications

ending fatally are due principally to generalized bacterial infection or to cavernous thrombosis. Hence prognosis is doubtful. Thrombosis in the cavernous sinus travels by way of the vena angularis and the vena ophthalmica to the sinus cavernosus, from which general infection as well as local invasion of the meninges may occur. The author discusses the relative merits and suitability of conservative and surgical procedures. When tissue destruction and abscess formation have already set in, short wave therapy was found effective. In somewhat more advanced cases with no tissue destruction, alcohol applications or Burrow's solution were beneficial, especially when lips, cheek and eyelid were collaterally involved. Vitamin C was used only in cases of serious vitamin C impairment. Early diagnosis and prevention of complications controlled the author's therapeutic purpose.—(*J.A.M.A.*)

Diseases of Children

Stomatitis in Childhood.—Stomatitis is a common complaint. In the Casualty Department of the Children's Hospital, Birmingham, C. G. Parsons had no difficulty in collecting 115 cases; 67 of the patients were under the age of 2 years. They had been ill on the average over a week, and the mothers complained that their children had sore mouths in 24 instances, malaise in 14, vomiting in 13, anorexia in 10, diarrhoea in 9, earache in 2, swollen glands in 2, and fever in 1. When the children were first seen at hospital, 55 mothers had noticed the stomatitis. Anorexia was almost invariable; 36 had vomited before treatment was sought.

Various kinds of stomatitis were encountered: Pure thrush, in which exudate without ulceration was found, especially on the cheeks but also on the tongue and palate. This was fairly easily removed with a swab. Aphthous stomatitis was characterized by small vesicles and shallow ulcers, which were very tender and often associated with enlarged glands. A combination of these two forms was very common in children under 2. "On one or two occasions, the tongue was literally covered with small aphthous ulcers, which gave the mouth a peculiarly dusky cyanotic appearance; mycelium was present on the cheeks; gastro-enteritis was the rule, and in these cases the prognosis was hopeless." Vincent's type was rare in those under 2, but was common among the older children; the gums were swollen, furred, and teeth inclined to be loose and separated by yellow debris. The breath was foul; the tongue grossly furred, and the glands enlarged and tender.

Severe gastro-enteritis was present in 24 cases and was fatal in 9. All of these had typical mycotic stomatitis and thrush was cultured from the mouth. The mycelium was also found in the stools in 2 cases and oesophagitis was demonstrated at autopsy. Seven were complicated by otitis media. Bacteriological examination showed the mycelium present in 41 of 60 swabbed, usually

associated with a motley of bacteria; but the most striking feature of the special investigation was a monocyctosis, often 10 per cent. in a white count average of 14,000. This persisted after the thrush disappeared, although controls showed no comparable changes.

Parsons emphasizes that the traditional treatment with Borax and Glycerin is unsatisfactory and that only one child improved under this treatment, whereas others did not start to improve until other therapy was substituted. Symptoms disappeared before local signs. Local treatment was the chief. The whole mouth was painted with one of four different applications on a cotton swab. The applications were a 1 per cent. aqueous solution of Gentian Violet; Nov-arsenobillon, 0.6 gm. in 6 c.c. of Glycerin and 12 water; 10 per cent. aqueous solution of Sodium Perborate; and solution or tincture of Merthiolate (Lilly). Excluding cases fatal from gastro-enteritis before treatment was effective, the average duration of treatment in 50 cases was 6.7 days for Gentian Violet and Merthiolate, and 7 days for N.A.B. and 10 days for perborate. There was one failure each with Gentian Violet and N.A.B. Appetite reappeared and restlessness and peevishness disappeared often within 24 hours. Only one-fifth of the cases were over 3. The disease in older children bore many resemblances to that in the younger. Monocyctosis was common. There was little to choose between N.A.B., Gentian Violet and Merthiolate in treatment.

Stomatitis probably affects 5 per cent. of children passing through a children's department, and in 9 out of the 115 investigated proved fatal; its importance cannot be overestimated. Parsons fully confirms observations made by Ebbs, who studied 28 cases of oesophagitis in 1938, 22 of which were caused by thrush. He also found Gentian Violet efficient. His final words are: "Thrush is not the benign condition which it is thought to be."—(*Clinical Journal*).

Book Reviews

Lectures on Diseases of Children—By Sir Robert Hutchison, Bart., M.D., LL.D., F.R.C.P., and Alan Moncrieff, M.D., F.R.C.P. London: Messrs. Edward Arnold & Co., 8th Edition. Pp. 471. Price: sh. 2/1/- net.

Since its first appearance in 1901, this well-known and popular book on "Diseases of Children" has passed through seven editions and has won a growing popularity. It originated in a series of lectures delivered by Sir Robert Hutchison in a systematic course at the London Hospital and published serially in the *Clinical Journal*. Dr. Alan Moncrieff who is responsible for the present edition which is the 8th, has done his work very well. He has thoroughly revised the previous edition. New features and new forms of diagnosis have been brought out in this book. Lectures II, III and V are completely new. Lecture VII includes portions of the lectures on Infant Feeding in the previous editions. New matter has been introduced as regards Tuberculosis and the Treatment of Pneumonia and of Meningitis.

The present book has nearly 40 new illustrations, some original and some replacing older pictures. The book has been neatly brought out and the printing is very good. The illustrations are very useful. It keeps up the good reputation of the previous editions and will remain as one of the best books on Diseases of Children, for medical students and general practitioners. We commend it to all our readers.

Modern Drugs in General Practice—By Ethel Browning, M.D., Ch. B. London: Messrs. Edward Arnold & Co., pages 231. Price: sh. 10/6 net.

All practitioners of medicine will welcome this book. It is supplying a long-felt want for a book which presents in a compact form the necessary information about the value, availability, correct application and potential danger of the many new drugs which have been flooding the market during the last four or five years and of which every general practitioner is bound to take advantage. The author has done well in including in the list of Proprietary Preparations in this book, only those whose claims and experiences have been substantiated in medical literature. The names of British remedies which are equivalent or alternative to many drugs of foreign origin used widely by the Medical Profession before the war have been incorporated wherever necessary in the description of each separate drug. This is especially necessary in view of the present difficulties in getting drugs of foreign origin. We commend this to every medical practitioner.

The 1940 Year Book of Public Health—Edited by J. C. Geiger, M.D. Published by The Year Book Publishers, Chicago. Pp. 560.

We congratulate the publishers on their first publication of The Year Book of Public Health on the occasion marking the 40th anniversary of the famous series of Year Books. It is a compilation of 121 best articles appeared during the course of the year in the medical literature of the entire world and the editor had to go through 3,000 articles to select these. On many articles, the editor gives his commentary on the new ideas brought forward, which is original and instructive. The book includes a wide field in Public Health, namely Preventive Medicine, Food and Nutrition, Public Health, Statistics, Personal Hygiene, etc. Many of have neither the time nor the opportunity to go through all the medical literature appearing during the course of a year, and as such, the year book of this kind like the other year books, is a welcome addition to the library of our profession. It serves as a quick guide and permanent reference. It is a useful book for the busy practitioners, public health officers and specialists, and this new venture deserves all the encouragement from the profession.—K. L. N. R.

An Introduction to Biochemistry—By William Robert Fearon, M.A., Sc.D., M.R.F.I.C. Published by Messrs. William Heinemann, Ltd., London. Second edition. Pp. 475. Price: 17/6.

In this second edition, three-fourth of the entire book is re-written to bring it up-to-date. New chapters are introduced to deal with Solutions and Colloidal Systems, Steroids, Pigments, Tissue Respiration, and Internal Environment. The book is exhaustive, well arranged and nicely got-up. It is a good text-book for medical and other students of Bio-chemistry, and will be of use to analytical and other practising chemists.—K. L. N. R.

Clinical Experiences With Urea-Sulphazide—Published by Union Drug Co., Ltd 285, Bowbazar Street, Calcutta.

This booklet contains articles published in various Indian medical journals on the effects of and clinical experience with Urea Sulphazide, manufactured by The Union Drug Co., Ltd. It consists of seven articles running to 61 pages. The brochure is nicely got up and will be sent free to members of the Medical Profession on request.

Proceedings of Societies, Associations, Etc.

The Nuzvid Medical Practitioners' Association.

An ordinary meeting of the above association took place on Sunday, 26-1-41 at 4 p.m. in the Government Hospital, Nuzvid, when Dr. C. Applachari of the Government Hospital, presided.

During the clinical part of the meeting, Dr. C. Applachari took the members round his Hospital wards and demonstrated many cases among which were the following:—

1. A case of paratyphoid fever that commenced with a chill and an evening rise of temperature and was treated for malaria for over a month and ultimately blood examination proved Widal positive and it was successfully treated therefor.

2. A case of apparent filarial scrotum and penis with a urethral fistula in a young boy of 8 years. The latter condition was never noticed by the parents until the boy was prepared and got ready for operation.

3. A case of a female that was actually starving without any food for the last 14 years and never manifested any bodily emaciation or nervous fatigue. She takes only water and any ingestion by force of even milk upsets her. This case was kept under observation for a week or 10 days for any sign of malingering but finally proved to be not malingering at all.

4. A case of sudden loss of vision in both eyes due to leprotic nodules in the eyes in a leper with early signs.

The members had a lively discussion on these as well as other cases and the meeting terminated at 8-30 p.m.

The Kistna District Medical Association, Masulipatam.

The monthly meeting was held on Saturday, the 29th March 1941, at the Government Headquarters Hospital, Masulipatam. 30 doctors including one Lady doctor were present.

The following resolutions were passed.

1. This meeting of the Kistna District Branch of the Indian Medical Association is of opinion that the proposal to style those students of the Stanley Medical School, who have undergone the five years course as D.M.S. does not confer upon them the status of a graduate but it does push the Licentiates who had undergone the four years course further down the degraded scale against which they have been agitating for the last thirty-six years. If, however, the Government considers the change necessary, this Association thinks that justice and fair play required that all Licentiates, irrespective of the number of years course they had undergone, should be allowed to style themselves as D.M.S., following the former precedent when all the medical men who had undergone the three years course in Medical Schools and styled as Hospital Assistants were allowed to style themselves L.M.Ps.

along with those who had undergone the four years course.

2. This Association disapproves the action of the District Board, Kistna, on the sudden abolition of a large number of rural dispensaries in the district notwithstanding the fact that medical relief in rural parts even before their abolition was inadequate and as such requests the Government to continue them as before in the interests of the poor in rural parts of the district.

Then the medical meeting began and Dr. P. Seshagiri Rao, L.M.P., read a very interesting paper on artificial fever.

Dr. K. V. Subba Rao, demonstrated a very interesting case of popliteal aneurysm.

The Kistna District Subsidised Rural Medical Practitioners' Association.

A meeting of the above association was held at Masulipatam on Saturday, 29-3-41 in the D.M.O's. office premises, during which the following resolutions were passed unanimously.

1. "This Association strongly protests against the action of the Kistna District Board, in the sudden abolition of a large number of dispensaries in this district notwithstanding the fact that medical relief even before their abolition was inadequate and as such resolves to request the special officer, Kistna District Board and the Government to continue them as before in the interests of the poor villagers."

2. "This Association is of definite opinion that the abolition, by the Kistna District Board of compounders, ward boys and contingencies hitherto allowed to the deserving rural dispensaries as a mark of economy this year, removes the usefulness and easy running of the rural dispensaries and resolves to request the special officer, Kistna District Board, to restore the same."

The Independent Medical Practitioners' Association, Tinnevely.

The fourth anniversary of the above association was held on the 15th March 1941, at Vannarpet, Tinnevely, under the Presidency of Dr. R. Sundaram, M.D.

The President welcomed the guests and in a few choice words, introduced Dr. K. S. Sanjivi, M.D., of Erskine Hospital, Madurai. The Secretary read the Annual Report of the Association for the year 1940-41.

Then Dr. K. S. Sanjivi, delivered an interesting lecture on "A Medical Retrospect." He dwelt on the subject of the Diagnosis of Obscure Fevers, Action of Sulphonamides, Anemias, Helminthiasis, Nervous Diseases and Pulmonary Tuberculosis and Value of Rest in Bed in Disease.

Then, Dr. Miss. E. Kantayya, L.M. (Rotunda), narrated her experiences of medical studies in America and England.

The proceedings terminated with the President's concluding remarks and the vote of thanks proposed.

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malariae, plasmodium falciparum and in all the stages of benign, quartan and tertian, (2) black water fever, (3) in Quinine idiosyncrasy as a Quinine substitute.

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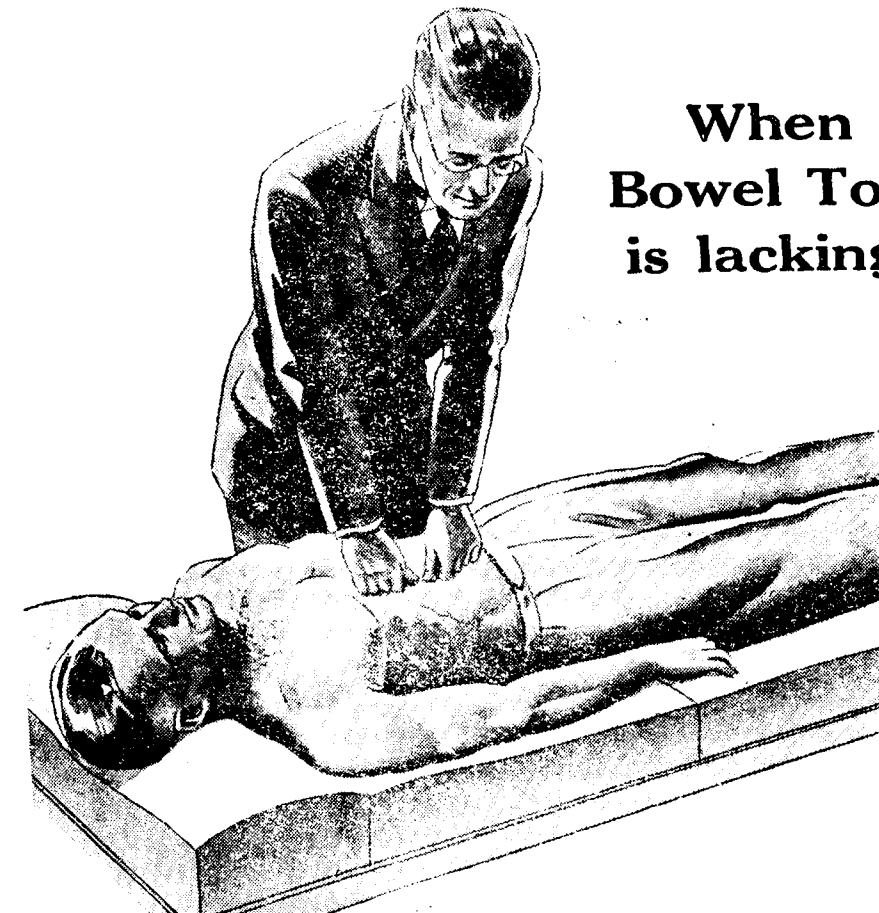
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Further particulars can be had from the Principal, Medical College, Madras. Applications should reach him before 31st July 1941."

Errata

"THE ANTISEPTIC", VOL. 38, NO. 4, MARCH 1941 ISSUE.

Page 250	Line 27	For 'Aqua add ... 3 xii'	Substitute 'Aqua a l ... 3 xl (40),
" 250	" 38	" 'Aqua Menth Pip add 3 xii'	" 'Aqua Menth Pip add 3 xl (40)'
" 253	" 47	" 'Potassium Citras,' Sodium Citras	" 'Potassium Citras,' Or Sodium Citras
" 264	" 18	" 'die'	" diet,
" 255	" 35	" 'Acid Hydrochlor dil'	" Acid Nitro-hydrochlor dil'
" 256	" 2	" '100'	" 1000
" 256	" 40	" 'Syrup of Lemon ... 3 ii'	" 'Syrup of Lemon ... 3 ii'
" 256	" 41	" 'One, 4 times'	" Aqua add ... 3 vi
			" 'One ounce 4 times'



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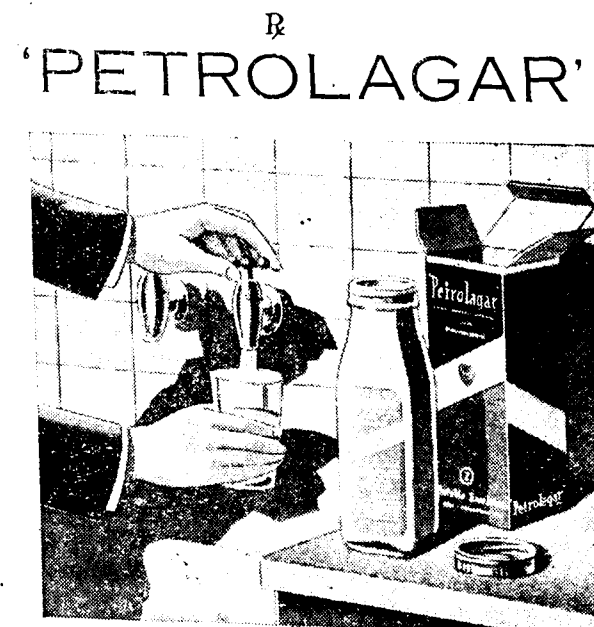
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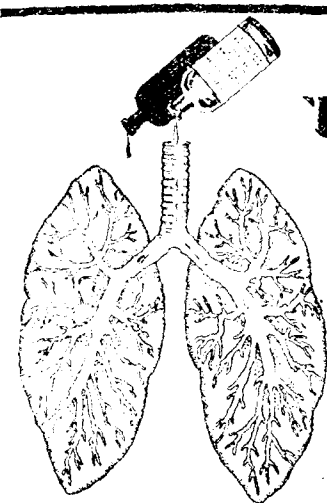
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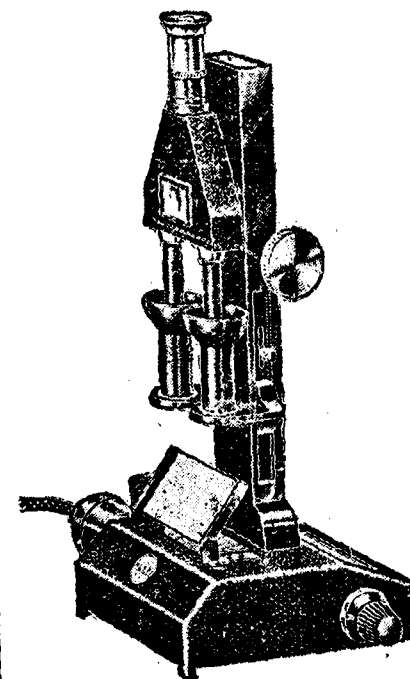
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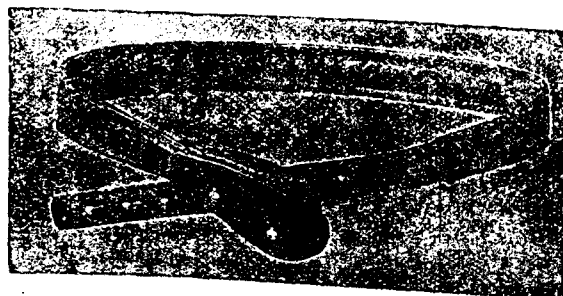
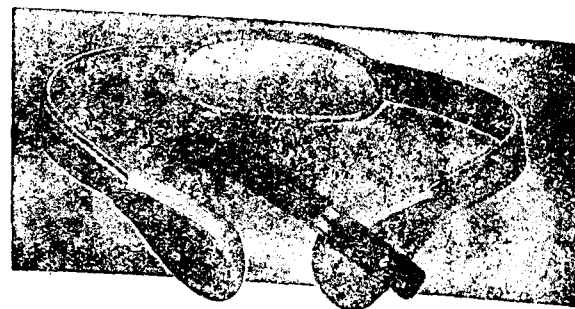
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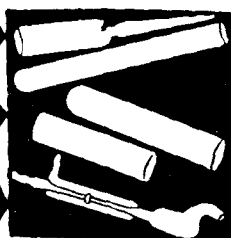
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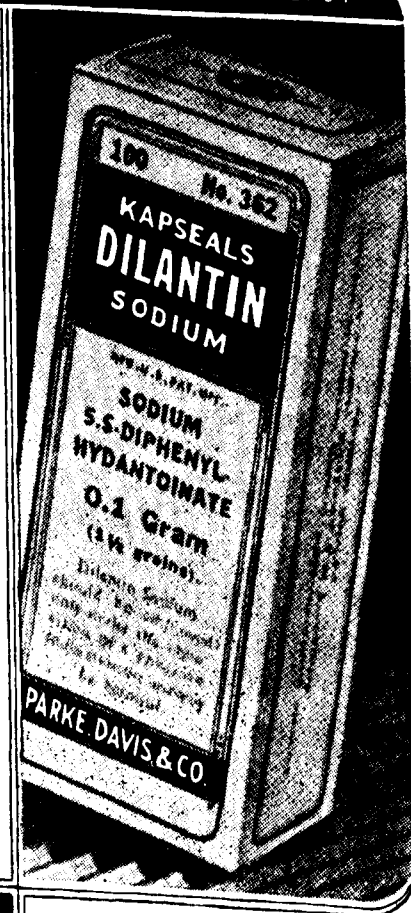
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The name "Dilantin Sodium" designates the sodium salt of diphenyl hydantoin. Dilantin Sodium is available as 0.1 gram (1½ grains) capsules in bottles of 100.



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புவனைத்தாள்.

சே எண் :

ப. எண் :

[illegible]

F. 259A-6-1,00,000-30-1-84.