THE ANTISEPTIC

1935

MARCH 32-3

APRIL 32-4

REGD: No. 9 M. 429. MARCH. 1935. Vol. XXXII. No 3.

The Antiseptic

A MONTHLY MEDICAL JOURNAL

Edited by

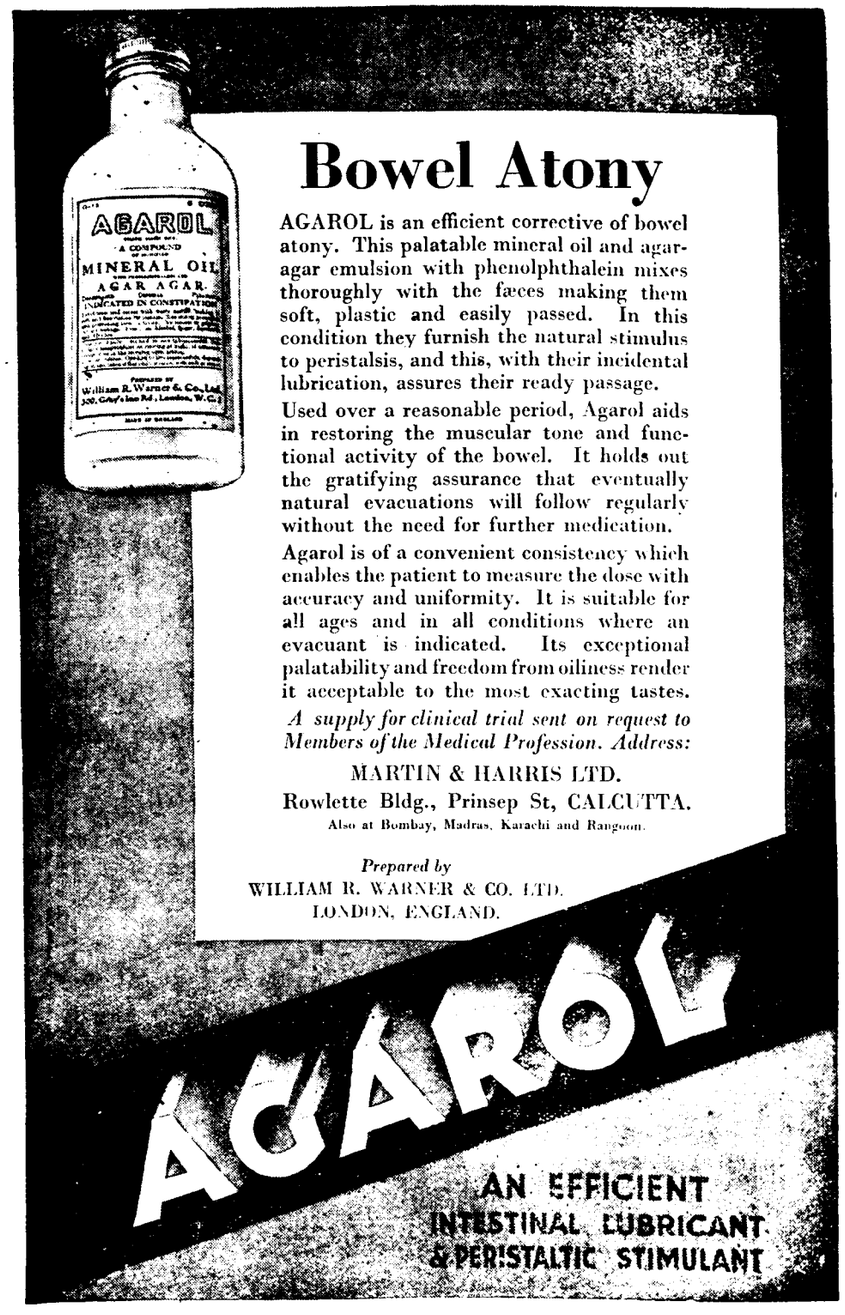
DR. U. RAMA RAU & U. KRISHNA RAU, M.B., B.S.

CONTENTS.

Editorial & Publishing Offices: 323, Thambu Chetty St., G. T., Madras.

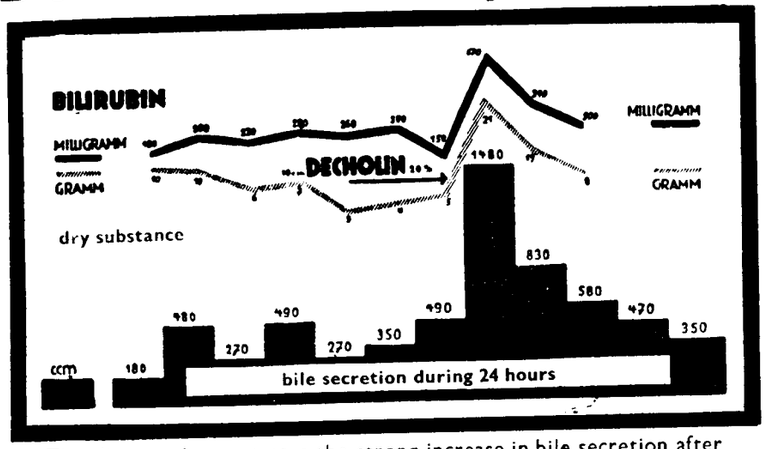
Subscription Rs. 5, Foreign 10 sh. a year. Post Paid. Single Copy Re. 1. In advance.

Index to Advertisements, see page. 57.



When writing to advertisers, please mention the "Antiseptic."

Decholin in biliary diseases



This diagram demonstrates the strong increase in bile secretion after intravenous injection of Decholin (1 amp. of 10 c.c. of 20% solution)

Decholin has a marked choleretic action and cholagogic power.

Sole Agent:—T. RAMACHANDRA RAO, 153, Broadway, Madras.

MALTO-DEXTRINS IN INFANT FEEDING

1. Supply starchless carbohydrates in the form in which they are most easily tolerated.
2. Reduce the milk curd to the finest state of subdivision.
3. Are easily digested and resist fermentation.

"The needs of an infant for carbohydrate are greater than those of an adult, and he is capable of taking much greater quantity proportionally to his weight without disturbance."

(vide W. McKim Marriott, Infant Nutrition, Ch. IV., p. 39).

Mellin's Food

The Original

Malto-Dextrin Milk Modifier

Samples & Booklet on Request.

SPENCER & CO., LTD., :: MADRAS.

When writing to advertisers please mention the "Antiseptic."

When writing to advertisers, please mention the "Antiseptic."

We beg to append herewith 2 Business Reply Post Cards for the convenience of readers ordering for the supply from us, of Drugs, Chemicals, Patent Medicines, Surgical Instruments, Dressings, Toilet, Nursery and Sick Room Requisites &c., which we deal in. No postage stamps need be affixed on the cards. We pay postage on delivery.

SRI KRISHNAN BROS., Chemists & Opticians,
(Estd. 1899.) 323, Thambu Chetty St., Madras.

Postage will be paid by Addressee

BUSINESS REPLY CARD.
PERMIT No. 5. OF 2-2-32.

No postage Stamp necessary if posted in India, or Burma.

WRITING SPACE.

To

Sri Krishnan Bros.,

Chemists & Opticians,

323, Thambu Chetty St.,

G. T., MADRAS.

A—3—35. *Station* ..... *Date* .....

Dear Sirs,

Please send the following to the address given below per V. P. Parcel / V. P. Ry. Parcel

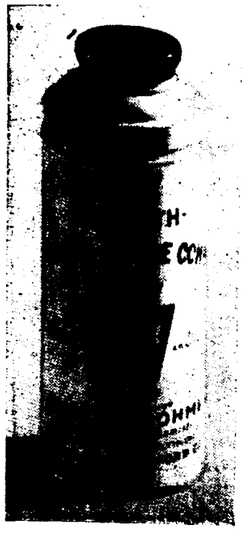
Indentor's Signature

Please write legibly { *Name of party* ..... *Designation* ..... *Address* .....

..... *Ry. Station*

When writing to advertisers, please mention the "Antiseptic."

When writing to advertisers, please mention the "Antiseptic"



BISMUTH-FORMIC-IODIDE COMPOUND
(Mulford)

AN odorless, non-irritating surgical dressing powder which does not cake nor form crusts.

B. F. I. inhibits bacterial growth, checks excessive discharges, promotes healing and absorbs secretions.

B. F. I. is indicated as a dry dressing for wounds, ulcerations and skin diseases.

Supplied in convenient sprinkler-top cans suitable for carrying in your emergency bag.

SOLE AGENTS
INDIA, BURMA, CEYLON:
VOLKART BROS.
BOMBAY, KARACHI, MADRAS, CALCUTTA, COLOMBO

SHARP & DOHME
SUCCESSORS TO H. K. MULFORD CO.
PHILADELPHIA BALTIMORE, U. S. A.

QUMARESH

Serves a variety of useful purposes in general practice as a Febrifuge, Stomachic, Alterative, Anthelmintic and Cholagogue a powerful bitter tonic. May be used in alkaline and acid mixtures.

For infants Qumaresh is a guaranteed source that stimulates healthy growth and dentition. Cures infantile liver, prevents Rickets and other deficiency diseases and reinforces the natural resistance to infantile disorders.

During Childhood and adult life Qumaresh serves a general tonic and as stimulus to the appetite in cases of Anorexia. It may be given in all cases of general debility and malnutrition and during convalescence after acute illness.

Qumaresh has always been a most economical preparation for its exceptionally high concentration dose being 5 to 10 minims for adults.

Samples to the profession on application.

SPASMYN

For the quickest and most effective treatment of Bronchial Asthma. "SPASMYN" is now recognised as the pre-eminent medicine and this has been admitted after prolonged test and numerous trials.

Taken immediately on the onset, "SPASMYN" aborts the attack and dispels the symptoms.

THE ORIENTAL RESEARCH & CHEMICAL LABORATORY,
SALKIA, HOWRAH.
Representatives :—The International Surgical Company, Sandhurst Road, Girgaum, BOMBAY.
Stockists :—Messrs Sri Krishnan Bros, 323, Thambu Chetty St., MADRAS.

When writing to advertisers, please mention the "Antiseptic."

HORLICK'S
IN PNEUMONIA

HORLICK'S Malted Milk is fresh, full-cream cow's milk combined with the nutritive extracts of wheat and malted barley.

During pneumonia and other acute fevers of short duration the amount of nourishment taken by the patient is not of primary importance, though liquid food at frequent intervals is of value.

Horlick's is an ideal form of nourishment during these illnesses. It is easily and simply prepared — requiring the addition of water only. Hence, no more than is sufficient for a meal need be made at any one time, and the patient is thus assured of receiving freshly prepared food in an appetising form.

Horlick's is easily digested and readily assimilated; it contains adequate protein and possesses marked protein-sparing qualities. It thus prevents tissue waste, and is a valuable re-builder during convalescence.

●

HORLICK'S
THE *ORIGINAL* MALTED MILK
Available Everywhere

When writing to advertisers, please mention the "Antiseptic."

When writing to advertisers, please mention the "Antiseptic."

PLEASE use these Post Cards when writing to Advertisers for Goods, Samples, Literatures, Catalogues or Information.

Date ..... 193 .

Dear Sir,

Please send .....

as advertised in the **ANTISEPTIC**

Please write legibly { Name ..... Designation ..... Address .....

Date ..... 193 .

Dear Sir,

Please send .....

as advertised in the **ANTISEPTIC**

Please write legibly { Name ..... Designation ..... Address .....

PLEASE use these Post Cards when writing to Advertisers for Goods, Samples, Literatures, Catalogues or Information.

POST CARD.

Affix Stamp here Inland ½ Anna. Foreign 2 As.

To

.....

.....

.....

POST CARD.

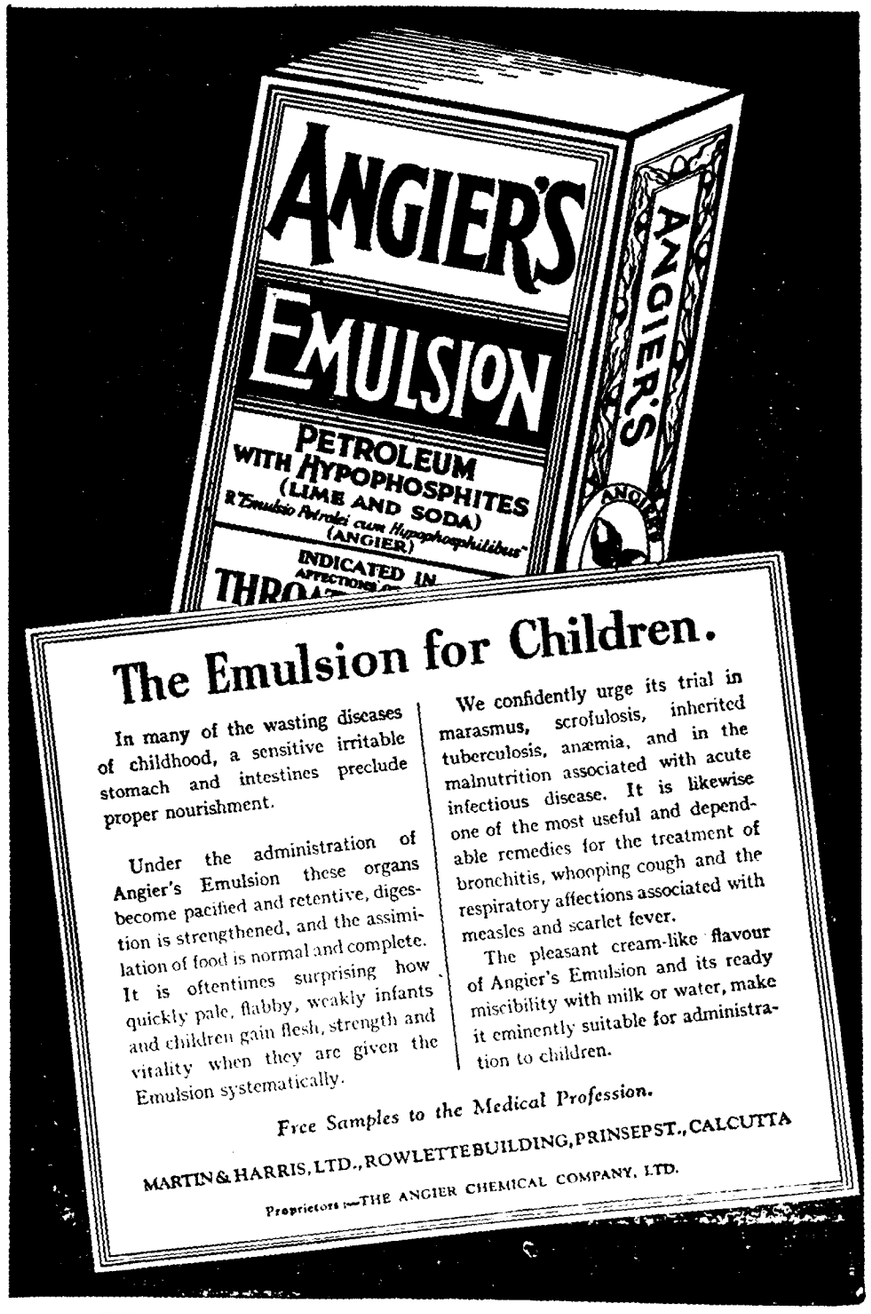
Affix Stamp here Inland ½ Anna. Foreign 2 As.

To

.....

.....

.....



. . . SLEEP
DEEP . . . UNTROUBLED . . .

The difficulty of inducing sound sleep in painful conditions, or febrile or nervous states, is adequately met by Soneryl—a powerful hypnotic, with a marked analgesic effect.

As a sedative, Soneryl will be found invaluable for allaying fear, anxiety, or other nervous or mental excitement.

SONERYL

is non-toxic in therapeutic doses, and entirely free from habit formation.

MAY & BAKER (India) LIMITED.,
11, Clive Street, Calcutta.

Bombay :
316-318, Lohar Street.

Rangoon :
117, Tseekai Maung Taulay St.

When writing to advertisers, please mention the 'Antiseptic.'

When writing to advertisers, please mention the "Antiseptic"

PREVENTION OF EPIDEMIC DIARRHŒA

FAILING breast milk, the best protection against epidemic diarrhoea is by feeding with a sterile, correctly balanced artificial food. Milk mixtures containing excess of sugar or fat frequently give rise to intestinal disturbances and diarrhoea.

The lower fat content in Sunshine Glaxo prevents the formation and accumulation in the infant's intestine of the fatty acids responsible for diarrhoea.

In most dried milks this advantage is gained at great risk, for there is no attempt to restore the vitamin D which, being fat-soluble, is withdrawn when the fat content is lowered. In Sunshine Glaxo, however, a carefully measured, prophylactic amount of vitamin D is restored in the form of the pure crystalline product Calciferol (G.L.).

Addition of the calcium-regulating vitamin acts as a further safeguard against diarrhoea, for the calcium increases the alkalinity of the intestinal contents and counteracts the acidity caused by the production of fatty acids.

ENSURING GLAXO FRESHNESS— YET ANOTHER PRECAUTION.

LOOK FOR THE DATE ON THE BOTTOM OF THE TIN

No measure is omitted to ensure that the Glaxo on sale in every part of India is as fresh as on the day it was made.

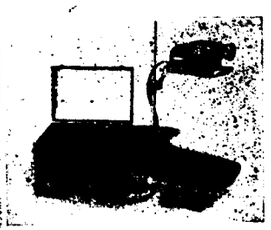
Yet another precaution has been taken to guard the interests of your patients. EVERY TIN OF GLAXO DISTINCTLY INDICATES THE LATEST DATE ON WHICH THE TIN SHOULD BE SOLD.

This system counteracts any possible inefficiencies of distribution whereby Glaxo might be held in stock longer than is desirable.

SUNSHINE GLAXO

H. J. FOSTER & Co., Ltd., P.O.B. 202, Bombay; P.O.B. 2257, Calcutta; P.O.B. 108, Madras

Model F Shock Proof Portable Unit for radiography at the bedside in the patient's home.



Model F Unit complete with Tube Stand, Automatic Timer, Foot Switch and Cradle for Tube Head.

G. E.–VICTOR

Shock Proof X-ray Apparatus in General Practice

IF you are without satisfactory radiological service or wish to extend your service beyond the consulting room — the model F Shock Proof X-ray Unit will prove a valuable addition to your practice. Ideal for routine radiographic examination and screening at the bedside or in the consulting room, for the Model F combines safety with simplicity of operation. It is the smallest practical X-ray plant ever designed, weighing only thirty pounds inclusive of carrying case.

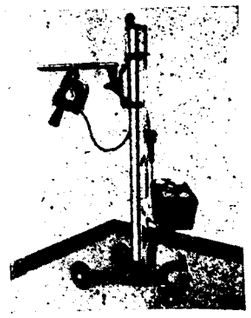
▲

An interesting new brochure tells the Model F story; may we send it to you?

▲

Where the X-ray Unit is desired for consulting room service only, the compact Model D Mobile Shock Proof Unit or one of its several combinations (DRF, DH, and D-32) offers a wide range of service. Literature gladly sent on request.

Model D converted into Model DRF—showing facilities for horizontal screening.



Model D Mobile Shock Proof Unit.

International General Electric Co. (India) Ltd.

Bombay: Ballard Estate. Calcutta: 13, Hare St., P. Box 2007. Lahore, Post Box 181. Bangalore City: Narasimharaja Road.

GENERAL ELECTRIC X-RAY CORPORATION

2012 Jackson Boulevard Chicago, Ill., U.S.A.

FORMERLY VICTOR X-RAY CORPORATION

When writing to advertisers, please mention the "Antiseptic."

When writing to advertisers, please mention the 'Antiseptic.'

When writing to advertisers, please mention the "Antiseptic."

Vol. 32. No. 3.] [March 1935.

The Antiseptic

ESTD. 1904.

A Monthly Journal of Medicine and Surgery.

Editors: Dr. U. RAMA RAU & U. KRISHNA RAU, M.B., B.S.

Editorial and Publishing Offices:—*323, Thambu Chetty St., Madras.*

Annual Subscription Rs. 5. Foreign, 10 Sh. Post Paid.

The Madras University Extension Lectures-*(Contd.)*

CHRONIC PEPTIC ULCERS AND INDICATIONS FOR OPERATIVE TREATMENT

BY

DR. N. MANGESH RAO, M.B.C.M., F.R.C.S., (E.),

Surgeon, General Hospital, Madras.

THE fact that in the Madras General Hospital, on an average, four hundred gastro-jejunostomies have been performed every year for the last several years and that a similar number or more have been performed in other hospitals of this Presidency shows that there is a large incidence of chronic peptic ulcers in this Presidency. The number is rather increasing than decreasing. It must be remembered that this number only forms a part of those that suffer from the condition, for, only a small portion of them are willing to undergo operative treatment, which, after all, is palliative and not curative.

Acute ulcers are incidental to acute gastritis or duodenitis and occur in acute infections as scarlet fever, septicaemia, pyaemia or acute irritation of stomach by chemicals etc. They are chiefly treated by the Physician. They may give rise to severe haemorrhage sometimes and rarely perforate. They usually heal with treatment. Their importance lies in the fact that some may persist and end as chronic ulcers.

Incidence.—The majority of the cases operated belong to the working class of the agricultural type. The disease appears to be fifty times more common in men than women. The age period

varies but the highest incidence is in the third, fourth and fifth decades, the maximum being in the decade 35 to 45. Most of these cases give a history of gastric trouble of three to seven years. Duodenal ulcers preponderate forming about 80 to 90 % of the cases.

Etiology.—According to Hurst, Faber and others, these ulcers follow attacks of acute gastritis or duodenitis in which some of the acute ulcers persist accompanied by a subacute gastritis. Others consider that chronic peptic ulcer is a definite entity due to some specific cause as yet unidentified.

An acute gastritis is accompanied by multiple erosions and most cases recover, but if the condition remains as a subacute gastritis, one or more ulcers unfavourably situated for healing may persist and end as chronic ulcers. But in the case of duodenum, it is difficult to concede this point. One has to conclude that other factors may be concerned in the etiology. It is known that chronic peptic ulcers are more common in people with hypersthenic stomach with hyperchlorhydria. But gastric juice cannot digest a healthy gastric mucosa, owing to the presence of anti-pepsin, and normal healthy tissue is resistant. This fact is taken advantage of in packing a perforation with omentum where closure of perforation by suture is difficult owing to friable condition of tissue round the ulcer. Von Bergmann gives a nurogenic cause for these ulcers. A vagotonic condition gives rise to hypersthenic stomach with hyperchlorhydria. Cushing has cited some cases of formation of peptic ulcers in tumours of the brain. The danger is when hydrochloric acid is present in a fasting stomach in sufficient strength. If the mucous membrane is damaged by some other cause in such a stomach an ulcer is liable to occur and persist if proper treatment is not carried out. Therefore we may at present take it that conditions that cause damage of mucosa form one factor and the presence of enough free HCl to activate the gastric juice especially in a fasting stomach, as the other factor concerned in the production of chronic peptic ulcers.

A. Damage of gastric and duodenal mucosa may be caused by:

1. Chronic sepsis of teeth, tonsils, sinuses etc. Constant swallowing of purulent or muco-purulent material would have a direct effect on the mucous lining by inducing a chronic gastritis and reducing the protective mucous secretion. Mucous prevents the digestive activity of gastric juice. The toxins (some of which may be specific) may produce an endarteritis of the terminal arterioles along the lesser curvature of stomach and first part of duodenum. This would predispose the mucosa to damage. Septic emboli into these arterioles may result in infarcts liable to digestion and ulceration.

2. Acute ulcers may persist and end in chronicity as already mentioned.

3. **Food.**—(a) Irritating foods as hot condiments, chillies, strong spirits, food either too hot or too cold, etc., would act as irritants. (b) Improper mastication from a habit of bolting food or gorging oneself sends into the stomach coarse food material that is liable to damage the mucous membrane along the lesser curvature. One can imagine the sand-paper like effects on the mucosa.

B. Factors that induce excess of free HCl:—

1. The presence of excess of the special glands and a vagotonic condition that induces them to secrete free HCl in larger quantities than necessary. Both these conditions may be acquired by heredity. This is referred to as ulcer diathesis.

2. Spices and condiments give rise to hyper-secretion and also cause local damage. Alcohol if diluted and taken with meals may not do much harm. Alcohol, on empty stomach or between meals, would induce gastric secretion and if strong cause local damage. It probably acts both locally and through the autonomic system

3. **Smoking.**—Excessive smoking is often associated with duodenal ulcers. The nicotine paralyses the sympathetic synapses and stimulates excessive secretion and hyperperistalsis by inducing a vagotonic condition.

4. **Vitamine deficiency.** This probably causes an imbalance in the autonomic system and induces a hypersthenic stomach. It may also reduce the defensive powers against the toxins of focal sepsis.

5. The alkaline bile and pancreatic fluids normally regurgitate into the stomach at the end of two to two and a half hours and neutralise the acidity of stomach or reduce it. But in hypersthenic stomach the pylorus fails to relax between the gastric peristaltic waves. Hence free HCl remains high in the stomach and also highly acid chyme is forced into the duodenum. The site of ulcer seems to occur at the meeting place of the two juices or just proximal to this. The real explanation of the occurrence of these ulcers is still not satisfactory.

6. Long hours between meals are liable to leave too much of free acid in the stomach. The habit of smoking or chewing at

this time makes the condition worse from increased gastric secretion.

Pathology.—The earliest stage of chronic ulcers is not definitely known. They probably start as acute ulcers and some persist and become chronic.

Gastric Ulcers.—A gastric ulcer may become a flat oval one or funnel-shaped deep one, the former usually on the anterior wall and the latter in the posterior. The margins are often overhanging and the surroundings show induration from fibrosis. The base of the ulcer may show some granulations and is covered with a dirty exudate of fibrin, leucocytes and some necrotic tissue. The surrounding mucosa is covered with thick mucous of chronic gastritis. In deep ulcers either the peritoneum or an adjacent organ as pancreas may form the base and granulations are often wanting.

These ulcers are liable to attacks of acute inflammations and periods of quiscence when they may show signs of healing. In the stomach the lesser curvature is the common site but in the pyloric one and a half inches, ulcers are not so common. Ulcers are more common on the posterior than on the anterior surface. Saddle ulcers riding the lesser curvature are also common. The ulcer causes infiltration of lesser omentum and the resulting fibrosis drags the posterior ulcer towards the pancreas and the anterior ulcer towards the left lobe of the liver. Finally fibrosis of pancreas occurs and pancreas forms the bed of the ulcer. These posterior ulcers are funnel-shaped. The anterior ulcer at the curvature becomes adherent to the liver which becomes its bed. These ulcers are spoon-shaped. Ulcers in other parts of stomach are not common. A saddle ulcer extending in both directions is liable to end in hour-glass contraction of stomach by dragging the greater curvature towards the ulcer by the fibrosis and contraction. A posterior ulcer obliterates the lesser sac by adhesions and may cause fibrosis of the mesocolon rendering a posterior gastro-jejunostomy a difficulty. A purely anterior ulcer cannot form adhesions on account of constant movement of the anterior abdominal wall and hence is liable to perforate when it has reached the peritoneal surface. Gastric ulcers at the lesser curvature especially in the pyloric region are liable to become malignant.

Duodenal Ulcers.—The most common site is from ¾" to 1½" from pylorus. They are either rounded or triangular in shape and about 1 cm. in diameter but the surrounding fibrosis and scarring is three to four times as wide. They are more common

on the posterior surface and penetrate into the head of pancreas. Those near the upper curvature become adherent to liver from fibrosis and contraction of hepatic omentum. The surrounding fibrosis is liable to drag the common bile duct and hepatic artery into close proximity to it and are liable to damage during duodenectomy. Anterior ulcers often form no adhesions but in some cases gall bladder, hepatic flexure and omentum may all become adherent to the duodenum. This is probably due to a subacute perforation of the ulcer.

Duodenal ulcers close to the pylorus may extend to the pylorus and look like pyloric ulcers. Primary pyloric ulcers are rare. On the proximal side of pylorus only 3% or less may occur, up to a distance of one and a half inches (Moynihan). Early duodenal ulcers may show very little scarring. The peritoneum appears white with radiating lines and the area becomes stippled with red dots on handling. Lymphatic glands along the lower curvature of duodenum and pylorus may be found enlarged.

The anterior ulcers are very liable to perforate and the posterior ones may penetrate into blood vessels and give rise to hæmorrhage.

Symptoms and Signs.—A peptic ulcer may give rise to only vague symptoms or be even latent till a perforation or hæmorrhage draws one's attention. But the majority of ulcers in the early stages exhibit a periodicity in their syndrome which often occurs only during spring or autumn and sometimes after an illness or heavy work or an indiscretion in diet. When the syndrome sets in, it lasts for a few weeks and then subsides to appear after some months. These attacks probably coincide with acute attacks of inflammation of ulcer already mentioned. In course of time with penetration of ulcer deeper into other tissues the attacks recur more frequently and finally become constant owing to adhesions to pancreas etc.

Pain.—In gastric ulcers the pain shows a quadruple rythm with relation to food—"Food, Comfort, Pain, Comfort till another meal is taken" and the cycle repeats. The period of comfort just after food is short, half to one hour. Once the stomach is empty the pain subsides till the next meal. The rythm of duodenal ulcer may occur in ulcers nearer the pylorus in about 20%. The pain is less after sloppy diets and greater with a large and solid meal. The patient soon learns to relieve himself by induced vomiting. His appetite is good, but he is afraid to eat owing to fear of pain. He appears ill-nourished unlike the early duodenal ulcer case. Tenderness may be present in the epigastrium just

below ensiform cartilage or a little to its left. As the ulcer penetrates into pancreas with onset of perigastric adhesions pain becomes more constant and appears in the back also. Later still it may be radiating to the back and left shoulder. The earlier pain may be mild or severe, and may be stabbing, gnawing, burning, grinding, or a feeling of sinking in the lower part of stomach.

Vomiting is at first induced but later may be spontaneous and is present in about 60—70% of cases.

Hæmorrhage.—Gross hæmorrhage mostly as hæmatemesis is present in 20% and occult blood in about 60% and malæna in 10%. Hæmorrhage is twice as common in women as men.

Appetite is always good but patient is afraid to eat. But in the later stages appetite may be poor owing to adhesions, fibrosis or onset of malignancy.

Duodenal ulcer.—Most patients are robust with very good appetite. Their chief complaint is that of hunger pains—a sort of gnawing and burning or sinking feeling relieved by food. These hunger pains show a triple rythm-Food, Comfort, Pain which lasts till another meal. They are often woken up by pain at midnight and early in the morning. They soon get into the habit of quenching the pain by eating a biscuit or by a glass of milk or some alkaline powders. Their appetite at first is voracious. Seasonal periodicity of pain-syndrome is more evident in this than in gastric ulcer. The pain sets in usually an hour and a half to two hours after a meal. Tenderness is usually present in the right hypochondrium. As the ulcer becomes adherent to pancreas the pain becomes more constant and may also be referred to the back. With onset of duodenal stenosis the pain changes into a distension and a feeling of a ball-rolling from left to right is complained of, due to-peristalsis of stomach against obstruction. Now the pain is not relieved by food but by induced vomiting Later he complains of acid eructations and visible peristalsis is evident. Now the stomach has dilated and food is not digested readily and undigested particles are present in the vomit. Vomiting becomes spontaneous next and gives some relief from pain. Patient at this stage loses weight and becomes dehydrated as well. He appears thin with loose skin from loss of subcutaneous fat.

Haemorrhage.—Malaena is more common and 70% show occult blood in the motions. Some of the early cases may have no pain and ulcers may remain latent till a perforation or malaena draws one's attention. The patients we see in the surgical side are

usually emaciated and dehydrated. As many of these also suffer from ankylostomiasis, they also suffer from secondary anaemias.

Diagnosis.—The clinical signs, the periodicity in occurrence of symptoms and the previous history of these cases are so typical in the majority of cases that diagnosis is fairly easy. But there are cases especially in the early stages that give vague symptoms and require special investigations for a definite diagnosis.

A fractional test meal is often necessary. An abundant highly acid fasting gastric juice containing little or no mucus indicates hyperchlorhydria. After an initial fall, a steady rise to a high level of active HCl, followed by a steep fall with rapid emptying of the stomach and an absence of bile is mostly seen in duodenal ulcers. Sometimes a sustained acidity with a rapid or delayed emptying and a continuous after-secretion may be present. About 20% of gastric cases may show a hyperacidity curve, others may give a normal one.

X-ray Examination.—Absolute proof of a gastric ulcer is the filling of the crater of the ulcer with barium and persistence of the fleck of barium in that part after the rest of the stomach is empty. Under a screen one may see the peristaltic waves stooping short at the ulcer and the rugae tending to radiate away in a stellate manner from the lesion. The tender point to pressure would correspond with the filled crater. In the case of early duodenal ulcers the stomach shows rapid emptying, the presence of more than two peristaltic waves in a picture and the presence of a deformity of duodenal bulb in lateral view. This deformity may be due to spasm, adhesions or fibrosis. In the presence of penetrating ulcers flecks of barium would persist after stomach has emptied. In the presence of duodenal stenosis the stomach shows dilatation and delay in emptying beyond five hours.

Differential diagnosis.—Sometimes several conditions in the upper right quadrant resemble one another. Chronic cholecystitis, neurogenic gall-bladder syndrome or spasm of duodenum due to chronic appendicitis may resemble duodenal ulcer. Some cases of chronic pancreatitis and pancreatic lithiasis may give rise to symptoms suggestive of gastric ulcer. In this country tubercular strictures of small intestines, chronic duodenal ileus from tubercular glands at the root mesentery or pressure of a duodenal diverticulum may resemble a duodenal ulcer with stenosis. These cases to some extent may be distinguished by roentgenograms. Often an exploratory laparotomy has to be done. But gastro-jejunostomy should never be done until one has demonstrated the presence of ulcer by the surface-scarring or by the presence of a

demonstrable mass of adhesions in the case of posterior ulcers. The stenosis of duodenum is often evident to sight and feel.

Treatment :—Peptic ulcers in their early stages should be treated medically. Uncomplicated ulcers heal under proper medical treatment—60 % of gastric and 80 % of duodenal ulcers—but some of them may relapse.

The chief indications in medical treatment would be :—

(1) Reduction of the amount of active HCl secreted.

(2) Prevention of delayed secretion of active HCl.

(3) Elimination of all factors that may cause damage of gastric mucosa.

(4) Elimination of spasm of pylorus so that alkaline juice may regurgitate into the stomach and neutralise the gastric juice.

(5) Artificial neutralisation of gastric juice where its acidity is too high.

Avoid alcohol, condiments, pickles and smoking. Food given should be soft, free of coarse fibrous residue and should be well masticated. Search for and remove all focal sepsis. Neutralisation is done by alkalies. These should be such that the Cl-ions are not lost to the body and they should not cause a delayed secretion of HCl. Belladonna in some form is necessary to relieve pyloric spasm.

Protein foods stimulate gastric secretion and should be reduced to the minimum. Mucin is not affected by gastric juice and protects the gastric mucosa. A combination of calcium carbonate, magnesium carbonate and bismuth oxycarbonate with Tr. Belladonna and mucin taken between feeds and a double dose at bed time gives relief. Feeds in the early stages of treatment have to be small, soft and given every two hours. The feeds are slowly increased in quantity with longer time intervals so that in the fourth week feeds are given at four hourly intervals. At the end of second week, solid food should be gradually added Milk should be citrated at the beginning. X-ray examinations should be done to confirm the healing of ulcers. Patient may return to work now but should have four-hourly feeds and should never remain on empty stomach. If obliged he should carry a packet of biscuits with him. Three doses of alkaline powders during the day and a double dose at night before going to bed should be taken. He should avoid course food that leaves heavy residue, condiments, pickles, etc. Alcohol in any form on empty stomach, smoking and chewing should be stopped. Relapses can be avoided by regulated habits and co-operation of patient in this is essential.

As this kind of treatment is a great strain both to hospitals and the patients especially of working classes an ambulatory type of treatment has been introduced by Aron and others. This consists of intramuscular injections of Histadine Hydrochloride—5 c.c. of 4% solution given daily. Histadine is an amino-acid essential for growth and weight preservation of body and is a precursor of carnorine and histamine. These injections give a rapid relief of pain, improve health, stop hæmorrhage but produce no change in the gastric juice neither any rapidity in healing. 56% of cases have shown symptomatic cure with disappearance of radiological findings, 19% show symptomatic cure only, 23% show failures. Gastric ulcers are more amenable to this treatment than duodenal ulcers. Cases with short history do well. The treatment should be combined with alkalies and diet but hospitalization is not necessary.

But long standing cases with complications and cases that have relapsed in spite of treatment or have proved resistant should be dealt with surgically. The indications for surgical treatment are :—

(1) All cases showing pyloric or duodenal stenosis as evidenced by dilatation of stomach, visible peristalsis or splashing on empty stomach.

(2) All cases of hour-glass contraction of stomach.

(3) All cases of deep ulceration involving adherence to or excavation of neighbouring structures as pancreas or liver.

(4) All cases that have failed to improve under proper medical treatment.

(5) Cases that have had recurrent attacks of severe hæmorrhage during medical treatment and before.

(6) Where X-ray picture show evidence of a large gastric ulcer, it is far better to perform a partial gastrectomy with gastro-jejunal anastamosis than wait for medical treatment. These large ulcers are not likely to heal and are liable to become malignant. But in the case of duodenal ulcers especially in younger individuals or those showing an ascending active HCl curve or delayed secretion, medical treatment should be given a further trial. These are very liable to get anastamotic

ulcers subsequent to their operation owing to the persistance of high HCl content. But if the stomach is found dilated in these, one usually finds that gastric acidity is normal or low and a gastrojejunostomy proves a success.

(7) Acute perforations of peptic ulcers are always a surgical emergency. But hæmorrhages are usually treated by expectant methods and after hæmorrhage has stopped an operation is done when his condition has improved. If necessary a blood transfusion should be done.

Types of operations.—For duodenal ulcer in people under 35 a gastro-duodenostomy is advocated with or without exision of ulcer. The former is better. Others advocate resection of duodenal bulb and part or whole of pylorus. The operations are Haberer-Finney or Pean's modified Billroth I, operation. Resection of ulcer bearing area with establishment of normal course for gastric contents—Schœmacker's operation.

Gastro-jejunostomy.—The posterior should be a no loop one, the anterior should be of short loop type brought across the splenic flexure. For people over 35 with duodenal ulcers or in cases with dilatation of stomach this operation gives satisfactory results in 87 to 90% of cases and mortality is low—1%.

Gastric-ulcers.—Partial gastrectomy with gastrojejunostomy of Polya-Lake type is the best. Lake's modification avoids a dumping stomach. This operation is also advocated for duodenal ulcers on the continent of Europe, but it is attended with a higher mortality and very few of our cases can stand this operation.

Even in gastric ulcers some cases are so poor that they cannot stand a gastrectomy and a posterior gastro-jejunostomy proximal to the ulcer if possible is to be tried.

Post-operative treatment should be carried out for a couple of months to improve their anæmia, etc. It should be remembered that these operations are really palliative and not curative. The idea is to relieve obstruction and aid in the free regurgitation of pancreatic fluid and bile into stomach and so bring a neutralisation of gastric juice or reduce its activity. In the case of younger men with high acidity curve or a delayed acidity, it is essential that they should be advised to take a four-hourly meal, use alkaline powders and carry out the instructions mentioned under medical treatment; otherwise a small number among them will return with recurrence of symptoms usually due to anastamotic ulcer and sometimes combined with jejunal ulceration.

When writing to advertisers, please mention the 'Antiseptic.'

Bibliography :—

(1) Nelson Loose-leaf Surgery, Vol. V.
(2) System of Surgery, edited by C. C. Choyce, Vol. II.
(3) The Practice of Medicine, edited by Fredrick, W. Price.
(4) Indications for Surgical treatment in Peptic Ulcers, D. P. D. Wickie, B. M. G. 6th May, 1933.
(5) Stomach and deodenum after operations, S. Chochrane Shanks, B. M. J., 8th Dec. 1934.

"ULCERATION OF RECTUM"

BY

DR. N. S. NARASIMHAM, M.R.C.S., L.R.C.P., F.R.C.S. (I.)

Tutor in Operative Surgery, Medical College, Madras.

THESE types of cases are common enough to merit your attention; they are not often diagnosed at all and cases come at a stage for which one is not able to offer any radical method of treatment.

The patient comes to his doctor for the following symptoms:

Blood in stools.—The haemorrhage of piles usually follows the motion and is due to the contraction of the sphincter squeezing blood out of the pile.

Sensation of a foreign body in the rectum:—the feeling that after defrecation something remains: increasing frequency with the passage of little or no fæcal matter or the passage of slime. Alteration in the form of the motion have little value.—pipe-stein; ribbon-like. They are seldom present in cancer of the rectum and in cases where they are found may often be due to other causes. Spasm of sphincter.

Pain is a late symptom:—Pain is of two kinds—

(1) Abdominal pain due to obstruction and therefore much more likely to be present and early in recto-sigmoid growths than in those of more bulky types of growth of ampulla. Pain may be felt in the left iliac fossa, hypogastrium or caecum. It is in the caecum that the brunt of large intestine obstruction is most felt and is often the most dilated and may be the part that gives way. This may lead to the diagnosis of appendicitis.

(2) Local and referred pain due to pressure on the nerves of the sacral plexus and occurs when the growth has penetrated the fascia propria recti and is fixed.

Alternating dirrrhoea and constipation is a very late symptom in rectal cancer.

Forms of non-malignant ulcer met with here:—

A. (1) Foreign bodies,

(2) Impacted foetal masses.

(3) Pressure of the fostul head during parturition.

(4) Sequel to various forms of proctitis;

(*a*) Dysenteric

(*b*) Tuberculous,

(*c*) Gonorrhoea and

(*d*) Syphilitic varieties

(5) After operation for ano-rectal imperforations in new-born baby.

(6) Infective granuloma

(7) Lympho-granuloma (climatic bubo. Genito-ano-rectal syndrome).

B. (1) Benign, growths

(2) Malignant growths.

Physiology of defaecation—Normally the faeces reach the splenic flexure, then the descending colon, and finally the pelvic colon where they accumulate the faeces do not normally pass beyond the pelvi-rectal flexure. Normal rectum is quite empty, except immediately prior to defaecation.

The gastro-colic reflex relaxes the pelvirectal flexure and faeces enter the rectum. Distension of the rectum by the sudden entry of faeces gives rise to a perineal sensation and the desire to defaecate. If this desire is not suppressed there is not only emptying of the rectum but also a large movement of every part of the bowel between the transverse colon and anus.

What are the normal habits of the patient: find out what variations in those habits are present now.

Spastic colon.

N. Supply.—Sympathetic inhibition. Parasympathetic supply less certain.

Anatomy.—The rectum begins not at a fixed bony point, but where the appendicis epiploicae cease, the tenea coli spread out and form a uniform sheath and the superior haemorrhoidal artery divides into its two branches. The point usually corresponds to the interval between the 2nd and 3rd sacral vertebrae. And on its inner aspect is the 1st valve of Houston. In the surgery of cancer of the rectum, one of the most important points is that the rectum is divided into two chambers an upper and a lower, the point of demarcation being the bottom of Douglas' pouch, marked on the interior of the bowel by the 3rd valve of Houston. The upper is an abdominal organ and the lower a pelvi-perineal. The lymphatic drainage of the two is distinct as is seen in the diagram.

Analysis of the Symptoms.—

(1) A change in the normal bowel habits.

(2) Spurious diarrhoea. Complaint of an almost constant desire to go to stool feeling as if the rectum was never empty but passing only a small motion and getting no relief. Yet distension and obstruction may be present.

Sign of obstruction:—General distension of abdomen and frequent small liquid stools.

(3) Immediate desire to go to stool on immediately getting up in the morning.

(4) Bright blood in the stool.

Patients easily satisfy themselves with the explanation that it is due to piles and it is most important to make a careful examination of all cases of anal bleeding to see the piles and to exclude lesions higher in the bowels before accepting the piles as being the source of the bleeding.

(5) Physiological defaecation is discovered supra: In growths of Rectum—spurious diarrhoea. In Right half colon—True diarrhoea and of Left half—Progressive constipation are met with.

The following from "Chalier and Mondov" may be quoted: "whilst hæmorrhage is not always the first symptom, it is most often that which disquiets the patient and takes him to the physician. The latter, less alarmed sometimes by this symptom than by the idea of a digital examination, diagnosis hæmorrhoids and with a kindly optimism tells his patient "Be reassured; for this hæmorrhage, truly opportune, has certainly saved you from an attack of apoplexy". One of them has operated on a patient whose innocent urethra had been dilated frequently by a specialist who never had troubled to feel with his finger a largely ulcerated cancer of the ampulla.

Clinical features or various forms differ little apart from history.

Symptoms depend more upon the situation of the ulcer than upon its size and nature. Small ulcer over the sphincter will bring the patient to his doctor for pain.

Cicatricial stricture may follow on any form of ulceration which implicates the submucous content of the bowel.

Methods of Examination :—

(1) History of the case
(2) Examination of the abdomen
(3) Examination of stools both chemically and in bed pan
(4) Digital rectal
(5) Proctoscopic examination and
(6) Sigmoidoscopic examination of rectum.
(Women—Vaginal examination).
(7) Barium enema under the eye of expert Radiologist.
(8) Very seldom will an exploratory laparotomy be required other than to make certain of the operability of the case.

Abdominal palpation:—

(1) Distension.
(2) Attacks of abdominal pain with Borborygomi obvious to patients in the adjacent beds.
(3) Palpation during an attack of abdominal pain a hard peristalting coil of intestine can be felt in the upper left hypochondrium. This is further evidence of an intestinal obstruction. As the pain subsides the coil of intestine become softer until it was no longer appreciable.

Barium meal and Barium enema.—Barium enema is of more value generally. Unfortunately a Barium enema may give no certain information for the material filled in the rectum and the lower pelvic colon and may then be returned. Thus an abnormality may not be depicted.

In woman vaginal examination should never be omitted as a high growth can often be better felt.

A retroverted uterus may be mistaken for a growth but far more serious is an error to mistake a growth prolapsed into Douglas' pouch for the retroverted uterus.

Sigmoidoscopy:—

(1) Case of bleeding occasionally for the past 6 months:—
Examination shows an ulcer 5" from anus an area on the anterior and right lateral wall from which bleeding occurred very readily from slight trauma due to the passage of the instrument and whose mucous membrane was more rigid than normal. The instrument can be passed beyond this area thus demonstrating that there was no narrowing of the bowel. A small piece was removed for pathological examination and it proved to be columnar celled carcinoma; thus the disease is of limited extent for the disease has not produced any narrowing of bowel.

(2) Encircling of the bowel.

The Best way of preparing the patient for a sigmoidscopic examination is to give a dose of oil the day previous to the examination and to bind the bowels the previous night. No bowel wash must be given on the day of the examination.

The best position of the patient is the knee-elbow position and no anaesthetic is required.

Until a sigmoidoscopy been done no negative diagnosis should be made and no examination is complete.

Fallacies in X-ray :—

(1) Faeces or gas in the bowel or air in the enema may give an apparent filling defect.
(2) Delay at the recto-sigmoidal junction or at the junction of pelvic and descending colon may be non-pathological.
(3) Spasticity may occasionally simulate the filling defect due to a tumour, especially in the distal half; in such instances a further examination is made after injecting atropine to relieve spasm.
(4) An over-hanging pelvic colon may entirely conceal a growth in the rectum unless a lateral view is taken as well.

Barium meal and Barium enema.—Both have their values. A meal requires repeated observation to visualise a filling defect; whereas an enema visualizes the contour of the colon throughout or up to the point of obstruction, at one inspection in a much shorter time. The enema, by expanding the colon beyond the normal emphasizes any irregularity in contour. A limited stenosis, which permits a meal to pass without check, may show a complete block, when an enema given rapidly in the reverse direction excites spasm.

Some are of opinion that Barium enema is a futile waste of time. Sigmoidoscope gives a direct view—right up to the sigmoid.

Differential Diagnosis :—

Villous growths
Perforating rectitis
Syphilitic and tuberculous ulceration.
Piles
Cystitis
Colitis
Gynaecological conditions.

Proctologists are all agreed on one point—the high percentage of inoperable cases they see and the very few early ones.

Recto-vesical fistulae are more often met with after prostatic abscess, genito-urinary tubercle than in malignant disease.

Differentiation from the *right side colon growths* :—

(1) True diarrhoea—and not spurious as in carcinoma of rectum.

(2) Dyspepsia—a constant symptom.

(3) Anaemia—due to loss of blood and constant toxic absorption.

From Sigmoid Growths :—

(1) Progressive constipation — good deal of abdominal discomfort—purgatives are often being taken by the patient.

(2) Evidence of chronic obstruction, *i.e.*, abdominal distension and colicky abdominal pain.

Pathology of malignant varieties of ulceration :—

Histological character:

Relation between adenoma and adeno-carcinoma. Adeno-carcinoma develops in an adenoma. Multiple adenomatosis runs in families. An adenoma must be removed by diathemy snare. Large proliferative types are less malignant and the small Scirrhus types, are inclined to invade glands in the mesentery.

Pathology.—The growth is an adeno-carcinoma of varying grades of malignancy, the grading depending chiefly on how closely the structures resembling the Lieberknt's follicles. The high grades of malignancy show no resemblance to this, the cells

retaining their columnar shape, showing mitosis and the nuclelii being hyperchromatic. The pure adeno-carcinoma is radio-resistant and there is little difference in this respect between the tumour cells and the normal follicles of the mucosa whilst the highly anaplastic cell is radio-sensitive and theoretically at least might be better treated by radium than by operation but generally speaking the results are bad.

Duke has investigated the frequency of coincident papillomata in a series of 75 specimens of cancer of the rectum dividing the cases into 3 classes

(1) Submucosa only infiltrated.
(2) Muscular content infiltrated,
(3) Perirectal tissues infiltrated.

1. Class (*a*) contained one case which was associated with papillomata,
2. Class (*b*) contained 18 cases, nine of which were associated with papillomata;
3. Class (*c*) contained 56 cases of which 17 were associated with papillomata. For the early, intermediate and late cases the respective percentages were 100, 50 and 30. Thus papillomata are commoner in the early than in the late stages of rectal cancer and are not a secondary product of the irritant discharges of the growth. Duke has clearly shown that carcinomatous degeneration may appear in very small polyp.

Centres in the Rectum having a pre-dilation for cancer :—

(1) Anal margin small,

(2) The ampulla between the pelvi-rectum and anal canal and you get the great majority of cases,

(3) Very end of the pelvic colon quite a fair proportion. The origin, course, and symptoms are quite different in each group.

Anal margin.—Severe pain and haemorrhage are characteristic.

Amupulla.—In early stages looks a polypus. There is an overgrowth at one point which develops and becomes a sort of pendulous mass hanging down into the ampulla and giving rise to no symptoms at all for a long time. Later on as this growth is knocked out by hardened faeces there is a certain amount of bleeding when this polypus has ulcerated and sloughed away and left an excavating ulcer in the wall of the ampulla we get the

symptom of discharge of mucus and pus. It is this discharge which causes the spurious diarrhoea. In the case of growth in the ampulla, you will not get the symptom until the growth has gone through 3 stages:—A papilloma, irritation and destruction of papilloma by ulceration and finally an open sore in the ampulla.

End of pelvic colon.--Just like a growth in the descending colon, a type of scirrhus growth which leads to obstruction rather than to ulceration. The whole course may be seen without bleeding or mucous discharge. But the typical symptom is gradually increasing constipation and in late cases gradual abdominal distension as the lumen of the bowel becomes narrower and narrower. In pelvi-rectal cases constipation is the only sign and it goes on a long time until ulceration supervenes.

Out of 399 cases of malignant disease admitted from October 1929 to October 1931, there were 13 cases of cancer of rectum. All the 13 cases were males. There were 15 cases in 1934 ; one case was operated in 1929, two in 1933 and one in 1934.

I draw your attention to a series cases of ulceration of rectum sigmoidoscoped and commented on in our College Magazine 2 years ago by me, and to the work done in our Hospital Special Department on the genito-ano-rectal syndrome cases.

I show you on screen a diagram of case due to injury during enema administration. In a pulmonary tubercle case this injury was the starting point of tubercle. The prophylaxis is obvious. The enemata should be administered only with well-oiled rubber catheters and never with vulcanite nozzles.

This is a diagram of lympho-granuloma with ano-genital syndrome with a positive Fry' test.

The following are the series of diagrams of anal canal and rectum from the foetal stage onwards : the formation of anal canal is obvious, from early fœtal life. The operation for ano-rectal imperforation is done in a very perfunctory way at present so that ulceration and stricture is common. The muco-cutaneous lining should be made very definitely.

These diagrams illustrate the lymphatics of the lower portion and the upper portion of the rectum.

Treatment

Epithelimoa of the anus are treated with radium as per the method shown in the screen. They are satisfactory. Two cases have been traced by me with recurrence after two years and six months. I advise that they be treated with radium first and then they must come for repeated observations.

In all cases of carcinoma of rectum.—A preliminary colostomy is very essential. Radium application by Gorrton Watson. Technique as shown on the screen with a colostomy would be good, in rendering an inoperable growth an operable one. Even with a colostomy cavitary method of application of radium is useless : interstitial method without colostomy will render the patient's life a misery.

Excision of rectum with previous colostomy. St. Mark Technique has been practised by us with very good results.

Radium

1. As an adjunct to excision, thereby enabling a less serious operation to be performed.
2. To treat cases that are surgically inoperable,
3. As a substitute for the operation of excision, but a colostomy is essential.

Non-Malignant cases

Adenoma.- are better excised by cautery and not by knife.

Other types of ulceration.—We advise always a colostomy and the patients are quite happy after it; but ulcers do not always heal ; one case come back with recrudescence of symptoms.

Tuberculous ulceration are beyond any surgical relief as they are generally secondary to advanced tuberculosis of lungs.

Prophylaxis.—Increased co-operation between medical and surgical side in now common and signoidoscopy is commonly practised.

Conclusions

1. Any alteration in the bowel habit of an adult whether it is in the direction of frequent stools but more particularly in the direction of increasing constipation must receive careful attention ; in the middle-aged and elderly individuals it must be regarded with the greatest suspicion.

2. It is more important to make careful examination of all cases of anal bleeding, to see the piles and to exclude lesions higher in the bowels before accepting the piles as being the source of the bleeding.

The following cases are typical of what one sees and are illustrative :

Mr. I, age 63 years, admitted into Hospital on 12—2—34. "Present illness started 1 year ago. Frequent defacation every 2 or 3 hours in small quantities was the first complaint. There was no blood in the motion at that time. He took purgative now

and then, and there was no trouble for him. About six months ago, blood appeared sometimes in the motions and so consulted a surgeon in a Hospital and he was advised enemas and liquid paraffin. A few days ago patient complained of pain and hence was examined by another surgeon. Rectal examination was done and there was profuse bleeding. Rectal examination :—A hard nodular mass on the posterior and anterior aspect of rectum 2" above anal margin extending beyond the reach of the finger.

16—2—1934. Left inguinal colostomy.

19—3—1934. Perineal excision of rectum—diathermy knife—

Pathological report :—

Adeno-carcinoma: lymph glands not malignant.

Case B. S. H. H., 29 years, Anglo-Indian. Admitted 19—6—'34. Discharged 21—6—'34.

Patient had an attack of dysentery 7 years ago; it continued for about 3 years in spite of various methods of treatment. His present complaint began 3 years ago. He used to get griping pain the middle line of abdomen twice a week. The pain used to continue for about 5 to 6 hours. He also gets motion 5 or 6 times a day and he gets a dull pain in the abdomen just before evacuation. The motions are mixed with blood and also with slime. The motions are thin and elongated in shape. He gives a history of constipation coming now and then when his motions become hard. He has not yet had an independant discharge of blood from anus. He has been having prolapsed internal piles since the last 4 or 5 years, but there had not been any bleeding. He has been loosing weight. He has had 150 injections of emetine. He refused operative treatment.

22—6—'34. Proctoscopy—Growths in the anterior wall rectum. Patient refused operation.

Case C. G. Hindu, male, admitted 10—8—'34, for inflamed scrotum. During routine examination, it was found he had abdominal distension. Sigmoidoscopy showed a growth on the posterior and left lateral half of the rectum, 5½" above anal margin; it is hard and granular looking: Sigmoidoscopic examination enabled an early diagnosis to be formed but patient refused treatment.

Case D.—A member of the police force was being treated off and on for the past two years. Then it was discovered he had carcinoma of the rectum. I did a colostomy and subsequently

When writing to advertisers, please mention the "Antiseptic."

When writing to advertisers, please mention the 'Antiseptic."

an excision of the rectum and he is improving satisfactorily. His history sheets shows how often he has been treated for dysentery.

Case E. A case of adenoma :—S. 22 years, male, Hindu, admitted on 15—6—'34. Operation 18—6—'34. He is having the present complaint for the last two years. He passes frequent motions 6 times a day ; the blood is mixed with stools ; on some days he passes more blood than on other days. Sometimes he feels a growth coming out the anus while he strains ; polypus is felt ; and it was removed ; pathological report is "adenoma".

SUBACUTE INFECTIONS OF THE HIP AND KNEE JOINTS

BY

DR. N. S. NARASIMHAM, M.R.C.S., L.R.C.P., F.R.C.S., (L.),

Tutor in Operative Surgery, Medical College, Madras.

CASES are not described under this heading in books. I have purposely named them as such, by which the very acute emergencies as acute arthritis and the neglected chronic types are excluded from consideration.

"I am not speaking of cases of advanced disease about the joint nor cases of dislocation from disease." These symptoms as indicating symptoms of Hip joint disease are not the early symptoms. When we see such symptoms we may be sure that the disease has made considerable progress. It seems to me, therefore, that we should search for the local symptoms which precede the period referred to, for when the symptoms stand out so prominently and distinctly as to be recognisable by anybody, the local mischief must be great and there can be but little professional credit in making out the cause of the symptoms. It is highly important that the Surgeon should recognise the diseased condition of the joint previous to that period for that is the time when the most beneficial effects will follow a steady and long pursued plan of treatment by rest' John Hilton 1860.

The all-important point is the early recognition of the 1st duration from a healthy state. I now show a section of articular cartilage and a synovial villus.

Articular cartilage is hyaline, is 3 mm. in thickness, is smooth, hard and highly polished; cartilage grows from its cells on the deeper aspect; surface layers continuously undergo arthritis. The degenerated cells and matrix may be liquified and take part in the formation of synovial fluid.

Nutrition of Cartilage: In the bone deep to the cartilage there is a rich plexus of blood vessels and it seems likely that this forms the chief source of nourishment which reaches the cartilage by a process of imbibition. Since the blood supply is most copious near the margins of the cartilage, this part when irritated frequently proliferates, *e.g.*, in osteo-arthritis ; whereas the central part of the cartilage is less adequately nourished and is more liable to degeneration.

If a small fragment of cartilage is set free in a joint, it may live and actually grow. In health the synovial fluid has a very low protein content, its nutritive value is very small.

Repair in cartilage is a very slow process : cartilage cells have very little proliferative power. A wound of the cartilage is always repaired by fibrous tissue and for this reason may lead to serious interference with joint function and often to fibrous ankylosis.

Synovial membrane is a highly specialised structure, secretes synovia, has end bulbs and subserves a most useful protective mechanism.

Hip Joint

The head of the femur is an epiphysis having a separate circulation and joined to the neck of the femur by temporary cartilage. This might necrose completely.

I am showing you now a specimen of innominate bone and you see the acetabulum of a child. It is very shallow compared with that of an adult. It thus offers great facility for displacement.

Pain

The muscles that surround the hip joint perform their functions in groups and each group has a trunk nerve of its own and each nerve contributes a branch to the Hip joint itself. See the figures 1 and 2 :—No. 1. A branch of the anterior crural nerve passes to the Hip joint and a branch of the obturator goes to the capsular ligament and to the ligamentum teres.

No. 2. A branch proceeding to the posterior aspect of the Hip joint from the sacral plexus which supplies the gemelli, quadratus femoris and the obturator internus. This nerve distribution is necessary as very often the patient complains of pain within the knee or in the inner side of the knee joint. The obturator nerve which contributes a branch to the ligamentum teres sends a branch to the interior of the knee joint, to the inner side of it and sometimes even lower down. The frequency of this knee pain,

whether within the knee joint or on its inner side, indicates that the ligamentum teres is the most common seat of early disease. The same pain may be complained of by old people with slight injury to the Hip ; in them the ligamentum teres softens down and disappears. If the anterior part of the capsular ligament (which receives a branch from the anterior crural) is inflamed applying the same a patient with a diseased Hip joint may have pain on the front of the knee or on the inner side of the ankle because the anterior crural nerve sends branches to these particular spots. If the inflammation or injury begins at the posterior part of the capsular ligament which receives a branch or branches from the sacral plexus then the patient may have pain at the heal or in the foot.

Local Heat

The hip joint lies very deeply and therefore one of the earliest symptoms of an inflammatory condition—a sense of heat in the part—is not likely to be recognised early in the disease except by careful manipulation. The importance of local heat as an early symptom of inflammation of joint was brought to notice by Sir J. Pagot and Howard Marsh. Local increase of temperature is usually and more especially manifested towards evening and after walking excercise. But by the rest of a few hours in the night, it may disappear in the morning.

Systematic examination of Hip joint :—Gently grasp above the knee.

(1) Roll the limb in all directions.

(2) Note any limp or lameness in walking.

(3) Ascertain if there is difference in local heat : compare both sides.

(4) Flexion at hip. When a joint is inflamed the movable part of it is obedient to the more powerful muscular action. Do the Thomas's test.

(5) Look for pain on pressure over or upon the trochanter major.

(6) Pain on pressure upon the front of the hip joint and nerve pain in and near the hip joint when the foot is struck upon its sole may be present.

(7) Watch for any slight degree of febrile excitement during night, a little restlessness at night, with occasional starting of the limb, the suspected limb being

more flexed and more adducted during sleep (an almost constant occurrence).

Differential Diagnosis of early Hip Joint conditions :—

(1) Knee joint disease.

(2) Sacro-iliac joint disease.

(3) Neuroinninctie.

(4) Spinal disease.

(5) Fixation of hip joint by psoas spasm or from fixation of spasm due to arthritis.

(6) Transient arthritis of Hip is the most difficult differential diagnosis of T. B. Arthritis Hip in childhood. We have had several cases of transitory arthritis in our wards, two cases of which have been followed by me for several years.

Transitory Arthritis of Hip joint in Childhood : — Was studied in St. Thomas Hospital 1933. All the patients were admitted and observed ; of 25 cases 3 were definitely tuberculous, 1 sub-acute pyogenic arthritis, 1 pseudo coxalgia, 1 chondroma of acetabular roof and 19 finally settling with a return of normal function, *i.e.*, some form of transitory arthritis. I think it is the inclusion of these cases that makes the prognosis so hopeful and is so much at variance with the results obtained by others. These cases were followed up for $3\frac{1}{2}$ years. One case proved to be congenital syphilis, 2 were hysterical (thought by some to be encephalitis lethargica).

All the children had limitation of movement at the hip joint by spasm and a limp ; seven had pain in the hip, six had pyrexia, the average time during which muscular spasm persisted varied from 6 weeks to 11 months. There is no X-ray abnormality. There has been some wasting of the muscles.

What was the cause ?

(1) (*a*) Trauma (as traumatic synovitis)

(*b*) Traumatic osteo-chondritis.

(2) (*a*) Low grade infection entering the blood stream and localizing primarily in some part of the joint.

(*b*) Metastatic infection from some other focus. Any primary infection must have been a low grade one as no destruction took place and recovery was complete.

Distinguish Transitory Arthritis from Pseudo Coxalgia

By X-Ray and clinical examination-early tuberculous arthritis of Hip for the last 10 years "by the same author showed some bone atrophy about the affected joint, most of them with loss of joint space as well and many with bone destruction already progressing."

Compare both hip joints. Do not put the patient to bed and rest till diagnosis is settled as some rare faction of bone will be noted if the patient rests.

Knee Joint Conditions

A chronically inflamed knee may exhibit 5 essentially different conditions each one of which possesses its own problem of diagnosis :—

(1) Joint crepitus.

(2) Chronic articular effusion.

(3) Thickening of the capsule including the synovial membrane and fibrous capsule.

(4) Rigidity of the joint.

(5) Bony changes.

(i) Creaking is present in chronic articular rheumatism and not in tubercle.

(ii) Effusion—Differential Diagnosis.

(*a*) Acute rheumatism

(*b*) Congenital syphilis. Wassermann test of blood and of effusion is required.

(*c*) Haemorrhagic effusion.

(*d*) Chronic traumatic effusion.

(*e*) F. B. and dislocation of semilunar cartilages.

(*f*) Gonorrhoea.

(*g*) Proximity of focus of osteo-myelitis.

(*h*) Tertiary syphilis.

(*i*) Neuropathic joint.

(*j*) New growths of synovial membrane and bruise around the knee.

(*k*) Chronic hypertrophic papillary synovitis.

(*d*) Has no evident thickening of capsule and this constitutes the distinction from tubercle supervening after an injury.

(*e*) Is Intermittent.

Local heat.—Effusions due to gonorrhoea, osteo-myelitis, recent injury show some local elevation of temperature but this vanishes much more rapidly than tubercle wherein the same amount of heat can be detected for many months at each examination.

Early limitation of movement:—The excursion of the knee may remain perfectly normal even in tubercular synovitis of many years standing so long as the joint is not overdistended by the effusion. In such cases muscular atrophy does not supervene so soon as it does in tubercle with early ankylosis.

"Every mono-articular chronic serous inflammation of the knee, wherein there is definite thickening of the reflected folds of the capsule and wherein there is a persistent definite local elevation or temperature must be regarded as tubercular, even if mobility still remains free and pronounced muscular atrophy is absent. Nothing but any clear evidence to the contrary warrants us in departing from this rule of diagnosis". "Dequervuen."

Degeneration

Foreign bodies moving in a small circle may be felt in polypoid form of tubercular knee. The polypi consist of hard connective tissue more or less abundantly permeated by tubercles.

I am projecting a diagramatic representation of various forms of tuberculous disease of the knee :—

(A) Serous inflammation :—Synovial membrane slightly thickened, invaded by tubercles; serous effusion is present.

(B) Polypoid inflammation :—Synovial membrane has large fibrous polypi with tubercles.

(C) Fungating inflammation :—Slight exudation; much thickening of synovial membrane.

(D) Fungating and caseating inflammation :—Caseous thickening of fungating masses, purulent exudation, abscess behind bend of knee.

(E) The same as D but cartilage removed and destroyed by tubercular proliferation.

(F) Primary disease of bone in the form of a wedge shaped area with sequestrum.

The four signs of impaired mobility in joints:—

(1) Rigidity—Fixation of joint by involuntary contraction of muscle, a sign of disease in deep seated joints as hip disappears under anaesthesia.

(2) Contracture—Fixation due to permanent contraction of soft parts around a joint—muscles, tendons, ligaments, fascia, skin.

(3) Ankylosis results from changes involving articular surfaces—fibrous, cartilagenous and bony.

The occurrence of ankylosis in a joint before the skeleton has attained maturity does not appear to impair the growth in the length of the bones affected. When there is arrest of growth accompanying ankylosis it usually depends on changes in the ossifying junctions caused by the original disease.

If the capsule is greatly thickened in a diffuse manner the case is tubercle or a rare condition of gummatous arthritis whether there be effusion present or not.

Localised fungating degeneration of capsule to be distinguished from Sarcoma of the articular capsule if the joint is movable. The bone lesion is often secondary as shown by the existence of numerous similar foci on the articular surface of bone especially where the capsule is reflected. We should only assume that the disease in the bone is primary if an extra-articular lesion is clinically demonstrable in a case where the joint is but slightly affected or if the skiagram reveals a large localised lesion. Cases which we think clinically have serous effusion and thickening of capsule but on exploration becomes lipoma arbirescens neither effusion nor thickening being present.

I show you to-day a specimen of chronic hypertrophic papillary synovitis of knee, the only specimen available in our College Museum. This was removed by me in 1929 and the case was reported in our College Magazine. This would be a difficult case to diagnose unless an exploratory operation was done.

CHRONIC GONOCOCCAL ARTHRITIS

(a)
Dry type
Polyarticular
Low Virulence
Peri-articular and fibrosis occurs.
Actual fibrous ankylosis—small and large joints.

(b)
Hydropic form knees
Movements of joints are relatively painless and comparatively unrestricted.

All chronic affections of joints for which no cause is known:—

(1) Rheumatoid arthritis (Synovial or proliferative type —chronic infective arthritis).

(2) Osteo-arthritis—(Chondro osseous or degenerative type.)

Clinical: Types of Gonorrhoeal infection :—

(1) An acute synovitis with peri-articular phlegmon may end in fibrous ankylosis.

(2) Suppurative arthritis ending in bony ankylosis.

(3) Acute polyarthritis.

(4) Chronic synovitis or hydrops. Often the knee joint is affected. There are no reactive changes in the synovial membrane, cellular tissue or skin nor is there any fever or disturbance of health. The movements are free except in so far as they are restricted by the amount of fluid in the joint.

(5) Subacute arthritis with peri-articular changes. The peri-articular tissues become thickened, the cartilage becomes eroded and adhesions lead to deformity. Muscular atrophy is a marked feature of all chronic types.

In Gonorrhoea the peri-articular tissues and especially the tendon sheaths are involved.

I am showing you a picture of new growth of synovial membrane. This is a difficult type to be diagnosed. I had a case of endothelioma of bursa around the knee joint with effusion into left knee with complete mobility of joint. She was operated in 1929 and I removed the bursae again in June 1933. She has now come back : she has thickened synovial membrane with a large effusion but freely movable and there is no wasting of muscles. All tests are negative.

Arthropsy : –

(1) For diagnosis.—To see the joint, to get the material for the bacteriologist before deciding on years of treatment or serious operations. Fluid for smears, for cultures and for guinea-pigs, and synovial membrane for instological and bacteriological examination or in the absence of fluid for transferring to the guinea-pig either by injection after masking up or perhaps intact as a graft.

(2) In adults whenever the diagnosis is uncertain

(3) In Children there is no hurry

(4) For hip-Smith Peterson approach

(5) The pathologist wants all the tissue we can safely give him.

This was practised in our wards by Col. Anderson, I.M.S., and by me several times and of course ought to be done in a theatre with all care. We are satisfied that this is a safe diagnostic measure.

Treatment.—You are all familiar with the proper conservative treatment in children for two years and a radical treatment in adults. I am giving you a few details of treatment for your consideration. Arthrodeisis of hip, shoulder and knee are as a rule practised by me for tubercle in its various stages and for ankle arthrodeisis combined with astragulctomy.

Children.—Under efficient conservative treatment, they heal with good mobility too. But there is a great risk of relapse. Extra-articular arthrodeisis in children too is indicated when at the end of the period in hospital necessary for general treatment X-ray shows a badly damaged joint.

In adults,—Is extra-articular arthrodeisis enough or is excision also to be combined? It is better to combine excision because

(1) the extensive granulomatous tissue is removed,

(2) the great trochanter is brought close to the ilium, (This shortens the span of any bridging graft which is therefore less likely to be absorbed), and

(3) the strain of preventing movement between the femur and ilium is shortened between the raw surfaces of bone which result from excision.

If the disease is still active and the hip is already fixed in bad position, both correction of deformity and arthrodeisis are necessary and one can stabilize by an athrodeisis and do an osteotomy later or begin by correcting the deformity either by osteotomy or excision and postpone the arthrodeisis to a later stage.

Grumbling disease.—The disease has been fully arrested and the chief complaint is that there is persistent aching in the region of the hip. X-ray shows an unsound ankylosis, for the strains imposed through the long femoral lever have kept up persistent low grade inflammation. Relief can be afforded either by extra-articular arthrodeisis or by pseudo-arthrosis without excision of the joint. When the hip is unsoundly fixed in bad position 3 methods are applicable :—

(1) Distant pseudo-arthrosis

(2) Osteotomy and extra-articular arthrodeisis

(3) Excision and extra-articular arthrodeisis.

Deformity with disease soundly healed.—Never do an arthroplasty. When the hip is fixed the choice lies between osteotomy and distant pseudo-arthrosis.

Intra-articular arthrodeisis is probably never successful in producing bony union in the neighbourhood of active tubercle bacilli or in the years closely following active tuberculosis of the hip, for tuberculous toxins depress the osteoblasts in the neighbourhood and that depression apparently lasts some years.

Yet extra-articular arthrodeisis by a single short wide graft (Hibbs method) may be useful in uniting femur and ilium.

It is noteworthy that in a series of cases of Hip fusion published by Hibbs, the average length of history of successful cases was more than nine years and that in the only two cases with less than a year's history fusion failed.

Toxic and infective synovitis and chronic arthritis.—This leads in many cases to a certain amount of painful limitation of movement due to intra and peri-articular adhesions. The symptoms are usually mistaken for some progenic disease. When such a joint is fixed it is physiologically placed at a great disadvantage to combat any smouldering infection that may be present for the circulation of not only blood but lymph and sēcretion and absorption of the synovial fluid depends upon regular movement. When complete rest is enjoined, the formation of synovial fluid is very markedly diminished and the amount of fresh blood having phagocytes and antibodies is reduced to a minimum.

One of the principal complaints in this disease is of stiffness and discomfort of the joint after the night's rest or after sitting still for some time, but which disappears after exercise. Do not completely immobilise the joint in this type.

When to move a joint? Prevent a joint from becoming stiff and if stiffness has occurred try to indicate whether rest or movement is necessary.

A joint stiffened by simple adhesions, whether intra or extra-articular, should be moved actively or passively or even forcibly if necessary. A joint stiffened by arthritis should be kept at rest until heat and pain have subsided, when movements of a special kind may be allowed. A joint whose movement is limited in all directions is or has been subject to arthritis, while a joint which is limited in certain directions only, movement being normal in others, is not arthritic.

Definite localised pain is experienced when adhesions are put on stretch and the tenderness can be generally localised on pressure. It is more diffuse in arthritis. An adhesion is most painful when a joint is moved and least so when the joint surfaces are pressed together. In arthritis pain is more pronounced when pain is brought to bear on the bone surfaces. Temperature of an arthritic joint is increased over the whole articulation while adhesions may produce localized surface temperature. Usually there is none. In arthritis the stiffness is progressive; in adhesions it is stationary or retrogressive.

Gonorrhœal joint.—Passive hyperæmia will prevent adhesions. When the acute pain has subsided, passive and active movements of the limb should be encouraged with a view to prevent the formation of adhesions.

Vaccines.—Protein—shock therapy and local urethral treatment are always done. In the special Department of our hospital encouragement of active movements is the rule. I am showing these two cases to show you what active movement can do.

Active movements are to be preferred to passive ones. Active movements being voluntary are sure to be gentle, being limited by pain, while the muscle is truly exercised. If passive movement is adopted, it should be confined to one single movement in each direction once a day.

ACUTE PERFORATION OF THE STOMACH AND SMALL INTESTINE

BY

DR. B. M. SUNDARAVADANAM, B.A., M.B., F.R.C.S., (ENG.),

Hony. Surgeon, Government Royapettah Hospital, Madras.

CASES of acute perforations of the stomach and small intestine are generally diagnosed very late and the surgeon sees these cases only after marked general peritonitis has set in. Early and correct diagnosis is very important in these cases and morphia should not be given in these cases before a proper diagnosis is arrived at. Prognosis is good in early cases—hence the need for an early correct diagnosis. Immediate operation is the only course to be adopted and no conservative or palliative methods should be encouraged.

In this lecture, I am considering only the commoner types of perforations met with and mostly the pathological varieties, only touching upon the traumatic conditions here and there.

The commonest cause of pathological perforation of the stomach, and with this is included the first part of the duodenum for all practical purposes, is a chronic ulcer. Perforation is the most serious complication of gastric ulcer. It is very difficult to estimate the incidence of perforation in these cases, but some give it as even 5%. It is most commonly due to a chronic ulcer, but rarely, may be due to an acute ulcer. Males are more often affected and perforation occurs at an earlier age in women, when compared to men.

Perforation occurs more often in ulcers situated on the anterior wall of the stomach, nearer the lesser than the greater curvature and nearer the pylorus than the cardia. An ulcer on the posterior surface of the stomach perforates into the lesser sac. Very rarely, two or more perforations are found and this must be borne in mind.

Immediate cause of perforation is the separation of a slough or the spread of the ulceration. The ulcer which till now was chronic and indolent rapidly spreads for some unknown reason. There is a history of a sudden strain or some mechanical violence as the cause in some cases.

Perforation is *acute* when the giving way of the ulcer leads to the contents of the stomach being poured forth into the general peritoneal cavity.

In *subacute* perforation either the stomach is empty or the extravasation is limited by adhesions to the abdominal wall, under surface of the liver or the omentum. In this type of case recovery without operation may occur if the patient is kept starved and at rest. Chronic perforations lead to perigastric and sub-phrenic abscesses.

The *size* of the actual perforation varies from a pin-point to an opening of the size of a four anna piece—it is usually about the size of a pea. The tissues for half an inch all around are usually oedematous, swollen and covered with flakes of lymph, while the amount of surrounding induration and hardness will depend upon the condition of the ulcer previously. In acute ulcers very little induration is present.

Immediately after perforation, gastric juice and food matter escape into the peritoneal cavity and run down into the pelvis, usually in front of the great omentum and give rise to intense irritation. As a result of this irritation, fluid is poured out into the peritoneum, at first clear in character, but soon containing flakes of lymph, which make it yellowish, while recognisable food materials may be seen in it. Rarely the peritoneal cavity is found to contain castor oil which had been administered to the patient, the perforation having been mistaken for intestinal colic.

For some hours, the peritoneum is in an acute stage of irritation—it being a chemical peritonitis to start with, but after 8 or 10 hours, infection sets in and peritonitis gradually supervenes with its classical pathological appearances.

Clinical signs and symptoms of acute perforation.—In most cases, there is previous history, at any rate for some months, usually for much longer, characteristic of a gastric ulcer though only in a few instances has perforation occurred without any previous warning. Sometimes there is exacerbation of the previous symptoms for a few days before the perforation.

There is a sudden onset of intense, stabbing pain, "an indescribable agony", as Moynihan puts it, situated first of all over the site of the ulcer, but soon radiating all over the abdomen and down whichever side of the abdomen the ulcer lies. The patient may fall down or cry out with it and nearly always lies still, flat on his back and is not restless. He does not writhe about as in a case of colic. He may vomit once or twice but often experiences only nausea. The pain may have come on immediately after a meal or might have followed some exertion. The most important thing to note is that the pulse is normal. The rate is 80 and the blood pressure is within normal

limits. This is a very important practical point to bear in mind in diagnosing a case of perforation. There are no signs of shock. The temperature may be subnormal at first. On examination, the abdomen is acutely tender, especially in the epigastrium, it does not move freely with respiration, the abdominal muscles are rigid and hard, like a board, their tight contraction often causing the abdomen to retract and present a scaphoid appearance. The liver dullness is lost only in a small percentage of cases and is an inconstant sign.

The initial severe pain passes off usually in less than one hour. The patient feels better, he thinks he has got over the attack, is able to walk about often and goes about his usual work or at least tries to. This is termed "the stage of Delusion". However, if the abdomen is examined at this stage, the local rigidity and tenderness persist and this should prevent any errors in diagnosis.

The third stage is that of peritonitis.—From about a few hours after the perforation, the pulse gradually rises, becoming weak and thready, the temperature is elevated one or two degrees above normal, and the blood pressure falls. Rigidity and tenderness become widespread and vomiting becomes more insistent. Distension occurs from ileus, the respiration becomes thoracic, and the patient's face becomes haggard with sunken eyes and an anxious appearance. If untreated, death occurs within three days.

Diagnosis.—There is not much difficulty in the diagnosis of the majority of cases of acute peritonitis. Sometimes no definite diagnosis can be made in a catastrophe of the upper abdomen but these are cases in which the correct treatment is operative, *e.g.*, perforation of the gall bladder or acute pancreatitis. These may be indistinguishable from a perforation of the stomach.

There is one definite syndrome in which the perforation of a duodenal ulcer resembles an acute appendicitis. In these cases the extravasated fluid runs down on the outer side of the ascending colon to the right iliac fossa and then to the pelvis. The rigidity and tenderness are most marked in the right iliac fossa, but nevertheless the rest of the abdomen is also rigid and tender, though to a less extent. On opening the abdomen in these cases, suspecting them to be cases of acute appendicitis, the appendix is found to be red and inflamed on the outside, probably with few flakes of lymph round about but there are no dense adhesions about the appendix which one expects to find if the appendix is primarily the seat of inflammation. On exploring a little further, yellowish fluid is seen welling from the right iliac fossa and pelvis.

There are many more adhesions above, the omentum trying to wall off the infection in the upper abdomen. On extending the incision above, the perforation becomes evident. Biliary colic and acute intestinal obstruction have sometimes to be differentiated.

Prognosis entirely depends on the time that elapses between the perforation and the time of operation. Within six hours the prognosis is fairly good, but every hour afterwards adds to the mortality. I have operated on 8 cases of perforation of the stomach and duodenum and of these only 2 recovered,—(a mortality of 75 %) one of 6 hours' duration and another of 10 hours'. All the others were of more than 12 hours' duration, some even of 48 hours' duration. Once marked general peritonitis sets in, the mortality is practically 100 %.

Hence the value of early and correct diagnosis and speedy treatment.

Treatment.—Abdominal section should be done immediately; no time should be lost in waiting for the shock to pass off, as the condition becomes worse as the peritonitis is spreading. The abdomen is opened by a right para median incision. On opening the abdomen, a little hissing sound due to gas escaping, may be heard; an yellowish fluid slightly bile-stained, oily in appearance, as if there are a number of fat globules floating in it, is typical of gastric perforation. In duodenal perforation, it is more greenish, due to a greater amount of bile. The peritoneum is acutely inflamed and flakes of lymph may be found floating in the fluid. There are adhesions in the region of the ulcer, the great omentum trying to wall off the site of the perforation from the general peritoneal cavity. The stomach in these cases is generally markedly distended, with more of gas than of liquid. On palpating the stomach, the indurated region of the ulcer can be made out and on gently drawing the stomach down, the site of perforation is easily found, fluid and gas welling out of the stomach through the perforation, sometimes in such enormous quantities that it is a job to keep the site of perforation clear of this fluid.

If the ulcer is not seen on the anterior surface, an opening should be made in the gastro-colic omentum, and the posterior surface of the stomach examined. If there is a perforation here, the lesser sac will be filled with gastric fluid. Rarely there is a perforation in the 2nd part of the duodenum.

Method of closure of the Perforation.—The perforation is brought into the best possible view by means of traction upon the stomach aided by retractors at the edges of the wound.

The closure can be effected by a continuous or interrupted suture. The first suture is placed at a little distance from the perforation on either side and this is tied and acts as a very efficient retractor. The next suture is passed and tied in the same way. If the perforation is of a very small size, a purse string suture can be applied. The area around the perforation is œdematous and there is a great liability for the sutures to cut out. A second inverting layer of stiches is usually employed. After the perforation is closed, a tag of neighbouring omentum can be brought to reinforce it. This is easily done in the case of a duodenal perforation. Very rarely when the perforation is large and closure is unsatisfactory, a free omental graft can be patched over the perforation. After the perforation is closed it is worth spending a few seconds looking for a second perforation.

Posterior gastro-jejunostomy.—Some advocate it as a routine. It is best not to do it. The patient is already in a state of shock and a gastro-jejunostomy certainly adds to the shock and length of the operation. Closure of the perforation is quite enough and in the case of an acute abdomen, nothing more than what is necessary to save the life of the patient should be done.

Drainage.—Within six hours it is not necessary. After that it depends on the individual case. The abdomen is drained suprapubically. For late cases of perforated duodenal ulcer, a second tube in the right flank to drain Rutherford Morrison's pouch is necessary.

In the *Stockholm surgical clinic*, gastrostomy as a routine is done in all these cases. The advantage is that it does away with the discomfort of thirst; the patient drinks any amount of fluid and this is let out of the stomach by unfastening the clip on the gastrostomy tube. Vomiting also can be prevented by evacuating the contents of the stomach through the gastrostomy tube.

After history.—The patients are free from symptoms for 6 months to 2 years but then they get the pain. Often a gastro-jejunostomy can be done afterwards.

Acute perforation of the Small Intestine

The two common causes of perforation of small intestine as we see it here are (1) traumatic and (2) perforation of a typhoid ulcer.

I shall consider the first one briefly and only those cases without any external wound on the abdomen.

Traumatic perforations may be one or more in number. It is very difficult in these cases to diagnose a traumatic perforation

in the very early stage; one should not wait for definite signs of peritonitis to set in before performing laparotomy in these cases. It is far safer to look and see than wait and see in these cases. All cases of injury to the abdomen should be closely watched and repeated examinations at short intervals, say every 5 or 6 hours should be made. There should be an hourly pulse chart in these cases. Cases of injuries to the abdomen should not be treated as out-patients. Even if there is the slightest suspicion of injury to the abdominal organs, the patients should be admitted and kept under close observation. Even in a case of contusion only to the abdominal wall, there is rigidity and tenderness all over the abdomen and it is difficult to be sure that there is no injury to any of the internal organs. The single sign of a need for a laparotomy in these cases is a rising pulse rate. That is why an hourly pulse chart is very helpful. If the pulse rate has risen by about 20 in about 3 or 4 hours, then a laparotomy is immediately indicated. Auscultation of the abdomen reveals no peristaltic waves and the heart sounds are heard all over the abdomen. The demonstration of free gas by the loss of liver dullness is possible only in certain cases.

Often on opening the abdomen in these cases, the perforation presents itself in the wound; otherwise the portion of the intestine lying underneath the part of the abdomen injured should be examined. As there is a great likelihood of multiple perforation, the gut above and below the site of perforation should be examined for some length. Systematic examination of the whole gut, a few inches at a time should be done in cases where the perforation is not evident.

The appearance of a traumatic perforation is very characteristic. The perforation has a pouting appearance with the mucous membrane everted and protruding well beyond the perforation in the serous coat.

Traumatic perforation occurred only once out of 8 cases that I have operated on for acute perforation of the small intestine during the last 2 years. This case was that of a small boy who came to the O. P. department with a history of having fallen on some object, but was sent home. Next day he came in with symptoms of general peritonitis. There were two perforations in this case.

In all the cases, the abdomen should be explored to see if the other viscera have also been injured.

Treatment.—If a single tear is found, it is closed by a double row of sutures—an inner through and through and an outer

seromuscular—the suture line running at right angles to the long axis of the bowel so as to avoid narrowing of the lumen of the gut. More extensive lesions may necessitate the resection of the bowel with lateral anastomosis.

2. **Typhoid perforation.**—This is said to occur in 3% of cases of typhoid fever. Perforation generally occurs in the third week of the fever. Two of the cases that I operated on were those of patients who were admitted into the Hospital on the 16th and 17th days of the fever, and curiously both developed perforation, on the night of the admission—the patients belonging to the very poorest class. My own impression is that perforation occurs more often in those cases of typhoid fever which have not had proper treatment and good nursing in the early stages, and also possibly in other cases where indiscretion in diet may lead to distention of the gut bringing about perforation of the already softened and inflamed Peyer's patches. Still in a good number of cases no definite cause can be adduced. Occasionally perforation is the first indication of the disease—ambulatory typhoid.

The perforation is usually quite small—it may be multiple, but situated close together. It is found in the lowest 3 feet of the ileum. There is no zone of induration around the perforation while the Peyer's patches are found to be very much inflamed and thickened. Perforation generally occurs on the anti-mesenteric border where the blood supply is poorest. The size of the perforation varies—it may be just a pin-point; in one case it was nearly ¾ inch long—just like a tear.

Symptoms.—The patient is in a typhoid state at the end of the 3rd week, desperately ill. Early cases of perforation can be diagnosed only by keeping a close watch on the abdomen in all cases of typhoid, especially in the 3rd week. Any distension of the abdomen or pain in the right lower quadrant should at once be attended to.

There is a fall of temperature and rise in pulse rate and collapse. There may be abdominal pain and tenderness but the patient may be too toxic to call attention to it in the early stages. Local pain and dullness on the right side of the abdomen, with tenderness and rigidity most marked in the right lower quadrant of the abdomen are always suggestive of perforation. A rising W. B. C. count strongly suggests perforation.

Treatment.—The only treatment is immediate operation which is best done under local anaesthesia. The caecum and the lower ileum are examined. The perforation may be difficult to find but adherent flakes of lymph will point it out. The coil of gut containing the perforation is held between clamps while the perforation is closed by a Lembert suture and an omental graft is stiched over it. If the perforation is a very small one, a purse string suture is the best. Often one meets with suspicious areas which appear to be threatening to perforate and these should also be treated similarly. The peritoneal cavity is drained if necessary. The mortality with operation is 75% and without operation 95 %.

"EXTRAVASATION OF URINE"

BY

DR. N. S. NARASIMHAM, M.R.C.S., L.R.C.P., F.R.C.S., (I.),

Tutor in Operative Surgery, Medical College, Madras.

THE most recent case of extravasation of urine that was admitted into the wards was treated outside the hospital for fever for a week, the extravasation not being recognized by his doctor; he died in half an hour after admission.

Looking up all the text books on the treatment of this condition, Choyce's 'System of Surgery', Vol. II, p. 848 has the following: "Immediate multiple incisions should be made where the infection has spread in the perineum, scrotum and abdominal wall and washed through several times in the 24 hours with hydrogen peroxide or "biniodide solution". Later I will show under treatment what the important procedure is.

I am showing the following diagrams just to revise the anatomy of the part. It is important to realise the relation of the male urethra to the true pelvis. The anterior urethra lies outside the pelvis, while the posterior urethra is a pelvic organ.

You are familiar with the attachments of the colles fascia and its continuity to the abdominal wall and here is a case where the infection had extended right upto the nipple.

It is better to have a correct mental picture of the 'Cave of Retzius'.

Cave of Retzius.—Extraperitoneal fat has very little attachment either to the peritoneum or to the pelvic fascia and therefore it is very easily displaced. The area extends from the hypogastric artery of one side round the front of the bladder to the hypogastric artery of the opposite side, downwards to the visceral layer of the pelvic fascia between the bladder and the pelvis displacing the soft fat until the level of the ureter, and

upwards between the obliterated hypogastric arteries to the umbilicus. The anterior border of the bladder and parts of the infero-lateral surfaces of the bladder form the posterior boundary of the lower part of the cavity of the space of Retzius.

For what clinical symptoms does a patient seek aid ? :—

(1) Retention due to stricture instrumentution—Haemorrhage.
(2) Periurethral abscess.
(3) Laccunar abscess and strictnre.
(4) Injury :—

Types of injury in this country :—

(*a*) Fall from

(1) Lift well.
(2) Mason falling astride on his perineum.
(3) Children falling on taps and iron pipes.
(4) Kick on the perineum.
(5) Horsekick.

(*b*) Fall from a height

(1) Pelvic injury.
(2) Caught between boats.
(3) Buffer accidents.
(4) Cart wheel accidents.
(5) Central acetabular fracture.

The patient's history of long-standing stricture and frequent retention of urine or a recent gonorrhoea infection and a painful swelling in the perineum or history of injury may be obtained.

The common type of mistake that happens is that in a recent gonorrhoeal infection a periurethral abscess may open into the urethra and an infiltration may take place.

Have a definite method of examining these cases :—

(1) The male perineum being hidden by the scrotum is liable to escape scrutiny.

Lift the scrotum and try to fold it on the abdominal wall. This can be done without any pain or discomfort even with very large elephantoid scrotum. If there is a catch in the perineum or pain felt by the patient or inability to do so by the Surgeon, then there is surely an inflammatory condition in the perineum. Several

instances have happened where a urinary extravasation has been mistaken for lymphangitis of the scrotum and valuable time lost ; look for any phimosis and tight prepuce.

(2) Notice any blood is trickling from the meatus and see if the external meatus is stenosed.
(3) Examine the perineum for any echymosis, swelling or deep seated tenderness.
(4) Examine the pelvis by gripping the two iliac bones together. Palpate the ischiopubic rami on either side for any fracture.
(5) Make a rectal examination in males and vaginal examination in females if a pelvic injury is suspected.
(6) *N.B.* Note if the bladder is distended or not.

The following clinical types may occur :—

Diffuse phlegmonous urethritis or due to solution of continuity of urethral walls, allowing the urine to find its way into the perineal and scrotal tissues.

A. Sudden onset.

Cases :—

(1) Overdistension of the urethra behind a neglected stricture—violent effort during micturition—
(2) Traumatic laceration of the urethra.

B. Gradual onset.

(1) Preceded by a peri-urethral abscess which bursts into the urethra.

To classify again :—

(1) Infiltration on the { inferior / superficial } perineal compartment.
(2) Infiltration in the superior perineal compartment.

There were 2 cases of this type in 1934.

(3) Extravasation is by no means always confined to the definite areas described by anatomists ; a diffuse deep-seated peri-vesical cellulitis may succeed or may be confined with perineal infiltration.

Both forms may be of prostatic origin ; if the patient's condition is progressively becoming worse after a perineal operation

for perineal urinary infiltration of the upper region should be explored by hypogastrium.

What are the signs of ruptured bulbous urethra :—

They are four in number : Urethral haemorrhage, perineal haematoma, retention of urine and pain.

How to judge the severity of the mucosal tear ?

By a posterior urethroscope.

This is not available always.

How to distinguish between a complete and incomplete lesion ?—By a sound or coude catheter. This is done only in the theatre with all precautions and must be followed by operation.

Catheterization is fallacious in distinguishing between extra-peritoneal rupture of bladder and intrapelvic lesion of the urethra. Intrapelvic rupture occurs at the apex of the prostate, *i.e.*, the prostatic urethra is severed from the membranous portion. In addition the pubo-prostatic ligaments are torn. The loss of these ligaments aided no doubt by the pressure of the extravasated products in the cave of Retzius causes the neck of the bladder with the prostate to become displaced backwards. It is this which makes this type of case extremely difficult and the continuity of the urethra must be restored.

I have had one case of this type and it requires great care in managing this type of case.

A catheter may draw some blood-stained fluid from the prevesical space. One may not be able even to make out if the bladder is distended or not.

Only on opening the suprapubic space and examining the space of Retzius it is possible to make out if there is an extraperitoneal tear of the bladder or there is an intrapelvic rupture of the urethra, and even then it may not be easy to determine the exact site of the lesion.

How to treat retension of urine on board the ship or in a village in a case of rupture ?—Do repeated suprapubic aspiration.

What are the sequelæ of incomplete rupture ?

Tied in Catheter and infection lead to stricture.

How to treat incomplete rupture ?—Perineal section and drainage by catheter (Reginald Harrison 1880), behind the point of rupture for 48 hours.

Treatment of Complete rupture.—Methods of finding the posterior end of divided urethra. The 1st step in a complete rupture of the urethra is suprapubic cystostomy.

Retrograde catheterization : Retrograde catheterization is in use by the French School from 1757 and is a very satisfactory procedure.

Incomplete rupture.—No catheterization at first. Only when there is retention, do catheterisation with a large catheter— not small.

Interstitial rupture.— Catheterization may be done, but the danger is that it may injure the urethra and open into intra-parietal hæmatoma. Do a hypogastric puncture if catheter fails and an ext. urethrotomy if a perineal swelling develops.

The following are the methods of dealing with the complete rupture of the urethra :

(1) *End to end anastomosis* :—For many years this was used but the end results are poor.

(2) Suprapubic cystotomy, perineal section and no suturing. Gives good results. No sutures are to be used, when extravasation has taken place.

In complete ruptures the roof has to be stiched, (Rutherford Monison).

Mobilise the ends before suturing. After-treatment : Raise the foot of the bed : Confine bowels for 3 to 4 days : Keep the wound clean.

Urethroscopic control (Frank Kidd) in the following up of cases is very essential.

Heitz-Boyer: Operation.—Excision of lacerated ends, suture, and suprapubic cystotomy, may be done.

How do you diagnose intrapelvic rupture of the urethra and extra-peritoneal rupture of the bladder ?—Difficult unless one can make out a distended bladder. In this variety of rupture of urethra there is no perineal swelling, but echymosis may be present.

How to treat intra-pelvic rupture :—Opening space of Retzius, supra-pubic cystotomy and drain; restore continuity of urethra before too late.

Method of correcting backward displacement of the neck of the bladder :—

(1) Direct suture of the urethra-Retrograde catheter.

(2) Correction by an indwelling catheter. The only indication for an indwelling catheter in intraurethral injuries is in complete intrapelvic rupture. The membranous urethra unlike the bulbous shows very little tendency to stricture formation.

Rupture of the penile urethra.—The following is the procedure

to be adopted except in recent cases:—Go at once to the hypogastrium, open the bladder above the pubes, provide siphon drainage and relieve the infiltrated tissues by free incisions made with thermo-cautery. This is the best method of cutting short the threatening local and general conditions and of arresting the progress of gangrene of the penis.

In recent cases.—If micturition is possible, frequently irrigate the urethra with sterile water. Make a long incision on the under-surface of the penis, should any swelling develop.

When the patient cannot pass urine or only with difficulty a gentle attempt should be made to pass a catheter into the bladder, but if any difficulty is experienced do an external urethrotomy behind the ruptured segment or a supra-pubic cystotomy. A supra-pubic cystotomy is preferable.

In cases of Impacted calculus with retention of urine.—Try to push it into the bladder; if not, do an external urethrotomy.

Meatotomy.—For a pinhole meatus is often required and has to be done with proper technique to prevent strictures.

Urinary Extravasation in Perineum.—Make no attempt to pass a catheter. Waste no time in making superficial inadequate incisions in the most œdematous areas. Go to the perineum at once. Make an incision in the median raphe, and steadily deepen it always keeping to the middle line until a jet of urine and pus escapes.

Enlarge the deep part of the channel so that the drainage may be as free as possible. Make drainage incisions in the scrotum, on the sides of the penis and on the pubic region always parallel to the long axis of the body.

If the swelling is not great two or three long pubo-scrotal incisions and a number of scattered punctures will provide the necessary ways of escape for the extravasated fluid. On the penis punctures are to be preferred as they do not give rise to subsequent troublesome contractions. This is a very satisfactory method.

Urinary infiltration in the superior perineal compartment.—It is very much less obvious in the initial stages and invades the cellular tissue of the pelvis and shows itself in the ischio-rectal fossae or in the hypogastric region. If it occurs in the ischiorectal fossae it may be mistaken as ischiorectal cellulitis and periprocitis. There were two cases, of extravasation with swelling in the hypogastric region in 1934. The visible lesions are really deceptive. A guarded prognosis has to be given.

The peculiar gravity depends on the difficulty which is

experienced in recognizing it at an early stage and on the diffuse gangrenous pelvic cellulitis which is already in existence when the first external signs appear. If the leak is small and if the patient is able to pass water the difficulty is really very great.

The suprapubic space must be opened up and drained with drainage in the perineum.

Treatment of urinary abscess.—Incise the swelling at once. Do not wait till superficial fluctuation appears. Incise in the middle line of the perineum until the cavity is reached. Laterally the pus sometimes trucks into the ischiorectal fossae. Make a free counter-opening and drain.

The greatest extension is most frequently found above and externally along the ischio-pubic rami and over the corpora-cavernosa and these extensions give rise to most obstinate sinuses and fistulae. Always drain them by making counter incisions.

Subsidiary measures of treatment and examination:—

Sub-cutaneous salines.

I. V. glucose and salines are often administered.

Examination of blood urea is required.

Continuous bladder drainage is adopted.

Hiccough is often a sign of infection and not uraemia.

Blood urea is often normal and the presence of hiccough should make you examine the case on the table for pocketing of pus or infiltration in the superior compartments.

The following prophylactic measures are valuable:—

(1) Immediate treatment of urinary abscess.

(2) Systematic treatment of stricture of the urethra.

(*a*) Cases of stricture without urgent symptoms—Gradual temporary dilatation. Dilate the stricture upto 22 F as quickly, as reasonably as possible and keep it dilated to this size. Internal urethrotomy and subsequent dilatation is the practice in our wards.

(*b*) If the urethra will not admit an instrument and the patient has retention, he will have to be admitted as an in patient.

(3) Never tie catheters in urethra for more than 24—48 hours.

(4) Careful after-treatment of traumatic rupture with urethroscopic examination control is required.

I would conclude with the following passage from Rutherford Morrison: "Ruptured urethra is one of the most serious accidents and unless your skill can prevent the development of stricture, you are presiding at the opening of a life-long tragedy. Every rupture of the urethra even the slightest is a potential stricture."

SPRUE

BY

MAJOR G. R. McROBERT, M.D., M.R.C.P., I.M.S.,

Professor of Medicine, Madras Medical College, and Physician, Government General Hospital, Madras.

IN selecting a subject for my contribution to the 1935 series of Madras University Extension Lectures in Medicine, I decided upon sprue because it is one of the tropical diseases in the accurate diagnosis and satisfactory management of which considerable advances have recently been made and because most of the modern work has been recorded in research journals which are not much read by the busy Indian general practitioner for whom these lectures are primarily intended.

Since I announced the subject, however, Dr. Hamilton Fairley of the Hospital for Tropical Diseases in London (and late of Bombay) has published in popular form in the British Medical Journal of December 29th, 1934, his comprehensive paper on sprue which was read at the annual conference of the British Medical Association at Bournemouth last year, and I advise anyone seeking further information to consult that paper and also Dr. Fairley's original contributions in the Journal of the Royal Society of Tropical Medicine and Hygiene (2 and 3) of which I have made free use in the preparation of this lecture.

Most of Dr. Fairley's work on sprue breaks entirely new ground and to one point in particular I will draw attention at once.

Working in London on a small series of fatal cases of sprue examined immediately after death, Fairley and Mackie failed to find, on microscopic examination, the specific "withering of the villi" and other inflammatory and degenerative changes in the mucous membrane of the gastro-intestinal tract generally alleged to be characteristic of the disease.

Like other workers in the tropics, Fairley and Mackie had found such changes in sprue autopsies in India and their recent experiences with post mortem material obtained immediately after death in a cold climate clearly shows the difficulty with which the research worker in gastrointestinal pathology is faced in the tropics, as it is generally some hours after death before he can obtain his material for fixation.

Sprue has been recognised as a clinical entity for over 150 years. It was originally described in Barbadoes by Hillary as "diarrhoea alba" or the white flux.

From time to time doubt has been cast on the existence of sprue as a separate disease as it is of slow development and every gradation of symptom can be noted between the commencement of the initial diarrhœa and the appearance of the characteristic and never to be forgotten clinical picture of fully developed sprue; but the constancy of the laboratory findings justifies the majority of clinicians in regarding it as a definite disease.

Even if it eventually turns out to be a condition of exhaustion and dysfunction of the gastro intestinal tract—particularly of the stomach and small intestine—caused by weakening of these organs by unsuitable foods and by pathogenic organisms and toxins of various kinds, it will still have as much right to be regarded as a distinct disease as, for example, myxœdema in which we have exhaustion and dysfunction of the thyroid gland probably brought about by more than one cause.

In its fully developed form, sprue is characterised by the passage of bulky, frothy, white stools, chiefly in the early morning, by soreness of the tongue, flatulent dyspepsia, much wasting, muscular weakness and by anæmia of the megalocytic type.

The skin often shows pigmented patches and discolouration especially on the forehead and cheeks.

Pyrexia is absent, a subnormal temperature being the rule, and the involvement of the spinal cord sometimes found in the true megalocytic anæmia of Addison does not occur.

Cramps and tetany have been noted by a number of observers and œdema of the feet may be found, as indeed it may in all profound disorders of nutrition.

The disease however is not always found in this typical form and in cases where sprue is known to occur, recurrent apyrexial diarrhœa should always be treated with suspicion.

Sometimes it happens that a case shows symptoms mainly of a gastric type suggesting a diagnosis of carcinoma of the stomach: or a suspicion of pernicious anæmia may on occasion be aroused, but the evening intestinal flatulence and morning diarrhœa are

generally in evidence, though perhaps not prominently so, even in mild cases.

I shall not weary you with a recitation of the theories concerning the origin of sprue, for these, as Fairley says, are almost as numerous as the mathematical possibilities will allow, but to those who state that sprue never occurs without previous attacks of dysentery, bacillary or amœbic, it is necessary to point out that " no one has yet suggested why a dysenteric process essentially involving the large bowel should be followed by a disease which principally affects the small intestine ".

The more recently discarded theories were concerned with vitamin deficiencies, parathyroid deficiency and specific infection with a yeast.

Although we are without accurate knowledge of the specific cause of sprue, recent clinical, pathological and biochemical studies have thrown much light on the essential mechanism concerned in the production of the sprue syndrome and have helped to evolve a rational and satisfactory therapeusis which bids fair to wipe sprue off the list of fatal diseases.

Originally described in the West Indies, sprue has been found widely distributed throughout the tropics. It has been reported from China and Indo China. It is rife in Ceylon and is frequently found in Burma. Its occurrence is well-known in the humid coast towns of India, in the Southern United States, in Queensland, Australia and in many other places with hot damp debilitating climates.

A very puzzling feature which if properly investigated may help in elucidating the aetiology is the absence of sprue from tropical Africa where all the generally accepted causal factors are apparently present.

Sprue particularly affects Europeans who have lived for some years in an endemic area. It is also frequently met with in persons of mixed descent and is quite common amongst Anglo-Indians. Sir Leonard Rogers states that whilst Europeans suffer most, the indigenous races of India are not exempt. He calls attention to the prevalence of sprue amongst persons whose work involves irregular meal hours, particularly railway guards, and I can confirm this from my own experience.

The occurrence of sprue amongst members of the indigenous population of the well-known endemic areas is however a matter of some doubt.

Cases have been reported in natives of Porto Rico in the West Indies.

At the Bournemouth meeting of the British Medical Association, speakers from Ceylon stated that sprue was prevalent amongst the native population there.

I feel however that a number of clinicians tend to use the word sprue as a label for chronic diarrhœa and obstinate dysentery and a reference to case records of Madras General Hospital does not afford evidence that the characteristic changes in blood picture and biochemistry have been used to any extent to confirm the diagnosis in the case of Indians.

By applying the methods used by Fairley in London, however, we should soon be able to determine whether sprue does or does not attack the native of India.

The view is put forward by Fairley that " sprue arises as a functional breakdown in the gastrointestine and that any factor or factors depressing its secretory or absorptive function will predispose to it ".

In tropical medicine particularly, " non-gastric affections such as malaria may depress gastric secretion, whilst residence in a humid climate involves an increased distribution of blood to the skin at the expense of the splanchnic vessels—a state of affairs which if unduly prolonged, appears likely to depress alimentary function ".

Our present knowledge of the physiology of the gastro-intestinal tract is deplorably deficient especially in so far as it relates to the mode of secretion of the various juices and the degree of acid and alkaline reaction of its contents at different levels.

The acidity of the stomach contents-due to the secretion of HCl plays an important part, we believe, in killing noxious micro-organisms such as the cholera vibrio.

We are however not fully aware of what factors produce the decrease in acidity of the stomach contents found in various conditions of disordered gastro-intestinal function.

Our knowledge of the normal reaction of the contents of the small intestine is particularly lacking.

Some years ago in McCarrison's laboratory in Coonoor, I showed that in the albino rat whose diet and alimentary canal arrangements closely resemble those of man, the intestinal contents are acid from the cardia to just above the ileo-caecal junction.

Does this acidity of the gastro-intestinal canal contents exist to such an extent in man, if so, does partial depression of the normal HCl secretion in the stomach render alkaline (and therefore more liable to attack by noxious bacteria) areas of the intestine which are normally acid ?

The key to the causation of sprue may be found when a really scientific investigation is made of hill diarrhoea which is antecedent to it in so many cases.

Why is it that so many persons develop severe morning diarrhœa in the hills of India; a diarrhœa which is absolutely characteristic, which resists all forms of treatment, which is apparently not primarily due to bacterial infection and which clears up at once when the patients go down to the plains? No alteration of temperature or of diet can account for the change and the condition is one which is crying out for adequate investigation by biochemists and pathologists.

Until further work reveals the effect of changes in external environment such as moist and damp atmosphere and alterations in altitude on gastro-intestinal function, one must, I think, accept Fairley's view in regarding sprue as a functional breakdown and note particularly that "a diet rich in fat and carbohydrate and poor in first class protein, which is the main source of the extrinsic factor, is the one known to precipitate relapses in sprue and is probably the most potent single factor in the initiation of the disease".

So far as the morbid anatomy is concerned the recent post mortem work in London must, as I have already said, lead to a revision of the description generally given in books, of congestion, hæmorrhages, ecchymoses, superficial erosion of epithelium and specific withering of the villi with infiltration with small round cells and degeneration and disappearance of the epithelial covering.

Microscopic examination of the gut reveals no abnormality except entire absence of fat and general wasting on account of lack of nutrition.

The tongue which in the early stages shows patchy areas of inflammation, is generally fissured with thinning and atrophy of the mucous membrane, with destruction and disappearance of the fungiform and filiform papillæ at post mortem.

In the viscera no changes of importance occur except those due to wasting. The pancreas and liver show no specific pathological changes nor do the parathyroids. The heart however is greatly diminished in size, and, as Mackie and Fairley have pointed out, this feature may help in the post mortem differential diagnosis from pernicious anæmia in which disease the heart is generally increased in weight.

The bone marrow shows characteristic megaloblastic change followed by aplasia.

Fairley's laboratory investigations have revealed a very characteristic biochemical picture.

In many cases of sprue achlorhydria exists in the gastric juice but in the majority of these a definite secretory response is found after the injection of 1/4 mg. histamine hydrochloride—a valuable method of distinguishing the condition from the true achylia of Addisonian anæmia.

The fæces show a very high total fat content (as much as 70% of the dried fæces may be fat) and most of the fat is adequately split fat.

As the hæmolytic anæmias give a high indirect van den Bergh reaction and as pernicious anæmia is associated during exacerbation with hyperbilirubinæmia, the van den Bergh reaction should be investigated in all cases when a suspicion of the true pernicious anæmia exists.

The physiological content of bilirubin in normal serum varies from 0.6 to 2 van den Bergh units. In sprue the serum bilirubin content is about 0.74. In pernicious anæmia readings over 1.2 units are the rule.

A glucose tolerance curve with a delayed and low maximal rise, decreased serum calcium with normal serum phosphorus and a blood cholesterol content of under 100 mg per 100 c.c. are generally found.

The R.B.C. count may be as low as 1,000,000 and in advanced cases the blood picture may be indistinguishable from that of a true pernicious anæmia.

In a series of 90 cases Mackey and Fairley found an average count of 3,000,000 R.B.Cs., with a colour index of 1—taking the normal C. I as 0.9.

The average diameter of the corpuscles by Eve's halometer is 8.16 m, clinical improvement being generally accompanied by progressive decrease in the average diameter of the red cells.

There is anisocytosis, poikilocytosis and polychromatophilia. Reticulocytes occur within normal limits.

In well-established cases there is little difficulty in diagnosing sprue but in early cases, especially if not quite typical, a certain amount of doubt may be experienced.

We must beware of using the term sprue as a convenient label for gastro-intestinal affections which do not respond to anti-dysentery treatment.

Tuberculous diarrhœa may be mistaken for it but in this country where tuberculous diarrhœa is caused by the human type of bacillus, there is generally co-existing lung affection.

For a final establishment of the diagnosis, certain laboratory tests are essential—these include the ordinary blood film, R.B.C. count and pH estimation.

Examination of the stomach contents will exclude carcinoma and the presence of large amounts of split fat in the fæces excludes pancreatic disease.

In South India where gastro-enterostomy is so frequently performed, we must be on the look out for gastrocolic fistula which very closely resembles sprue in its clinical features.

The number of alleged causes of sprue is equalled by the multiplicity of alleged cures. Vaccines made from monilia and other fungi, santonin which has become yellow by prolonged exposure to the sun, cuttle fish eyes ground to a fine powder and parathyroid extract have all had their day.

The fruit treatment was much used in Java and strawberries have had a considerable vogue.

Cantlie's raw red meat was successful in many cases and closely approximated to the modern high protein therapy.

Milk has however formed the basis of most sprue treatments.

It was difficult to find a common factor in all these forms of therapeusis and when himself attacked by sprue in Bombay, Fairley started to work out a diet based on the known deficiencies of the secretions of the intestine and of its defective absorptive powers.

He knew that starch was adequately dealt with by the salivary and pancreatic amylolytic ferments but that there was defective splitting of the disaccharides which instead of dividing into monosaccharides by hydrolysis under the influence of succus entericus, underwent acid fermentation with resulting abdominal distention, intestinal flatulence and gaseous stools—which are essentially related to the carbohydrate and especially the disaccharide moiety of the diet.

There was therefore every indication to cut down starch and cane sugar.

Analysis of the fæces had shown that although fat could be adequately split, the fatty acids were not absorbed in any quantity.

Milk, which contains large quantities of fat and considerable amounts of disaccharide therefore seemed to be quite unsuitable as a basis of rational dietary in a disease in which fat absorption and disaccharide splitting are defective.

Fairley was therefore driven to the conclusion that he must depend chiefly on protein for his diet. We now know that in addition to containing the essentials required for body building, protein is intimately associated with the extrinsic factor of Castle, so essential in the treatment of the megaloblastic anæmia.

He therefore based his treatment on the following principles:—

(1) The gastro-intestinal tract must be rested as much as possible, all unusable residues and irritating substances being omitted from the diet.

(2) A high protein, low fat, low carbohydrate diet must be given.

(3) Demonstrable deficiencies must be made up, by the administration of irradiated ergosterol, calcium, and hydrochloric acid.

(4) Active treatment of the anaemia must be undertaken.

The details of treatment are as follows :—

In order that the food given may be reduced to a minimum, the patient must remain at absolute rest in bed during the early weeks of the treatment.

Great precautions should be taken to render the patient free from danger of chill, as, on account of the lack of fat in the abdominal walls and mesenteries, the internal organs are poorly insulated.

On admission to hospital, clear out the bowel with castor oil and treat any demonstrable helminthic infections. Carry out as many pathological, haematological and biochemical analyses as the means at your disposal will permit during the first day.

Diarrhoea is to be controlled. Fairley recommends pulv. bataviae co. but I have found collosal kaolin to be most effective —combined with small doses of camphorodyne if necessary.

Overloading of the stomach is to be avoided especially in the early stages and non-bulky feeds should be given at frequent intervals.

A high protein, low fat, low carbohydrate diet is then administered, the fat chiefly junket and custard and the carbohydrate in monosaccharide form—as glucose, fruit and fruit juice.

Protein is largely supplied in the form of lean beef steak of first quality, prepared by cutting away all skin, fat and gristle, mincing and lightly cooking in a dry pan for 2—3 minutes without the addition of any grease or water.

Continually stir with a fork till exterior is grey but interior is practically raw.

Rusks—ordinary bread with crusts removed, baked thoroughly in an oven.

Fairley has devised five graded diets with a calorific value progressing from 770 to over 3000. (1)

The commencing diet consists of three ounces of underdone beef at 8 a. m., noon and 6 p. m. with 3/4 oz. rusk and a little soup, and a total of 4 oz. of glucose in the day Orange juice (or papaya), liver extract and calcium are also given. The amount of food given is gradually increased chiefly by increasing the amount of underdone beef and taking care to limit the carbohydrate and fat. Full particulars of these diets may be found in the reference already given. (2)

During convalescence a more liberal dietary is allowed including certain vegetables like cauliflower, celery, marrow, tomatoes and fruits but where carbohydrate intolerance has been marked, rice, potatoes and milk puddings should be introduced very gradually.

The rapidity with which diets are changed with such a regime is determined by the general condition of the patient, the disappearance of abdominal distention and intestinal flatulence and the character of the stools which decrease in size and number and become brownish in colour.

It takes on an average 3 weeks to work up to a diet of 3000 calories. The diet must suffice for a steady increase of weight without a return of intestinal flatulence.

It is more important to get rid of the flatulence than to secure rapid increase in weight.

The most satisfactory result of adequate treatment is a disappearance of the profound asthenia commonly met with. Patients whose disease becomes quiescent but not cured on account of inadequate treatment do not lose this asthenia. We may take it therefore that an increased sense of well-being and of fitness to do things on the part of the patient is a very good sign.

If however the weight does not increase after a time, insulin may be given twice daily with an increased ration of glucose.

Careful daily inspection of the stools by the physician is necessary.

In order to combat the anaemia, liver should be administered in some form.

My own experience leads me to advise intramuscular injection of one of the products of a firm of repute, but all liver preparations are liable to become ineffective at times and if the response is inadequate try another preparation checking the

results by blood counts, halometer readings and Hb estimations. In favourable cases we expect a prompt reticulocyte response better seen when the anaemia was severe to begin with, a steady rise in the reds and a diminution in the average diameter of the corpuscles. Liver extract by mouth will however in many cases suffice to produce the required effect.

Liver soup: I would especially warn you against the employment of liver soup as a haemopoietic stimulant. The prolonged cooking to which it is subjected renders it valueless as a source of the intrinsic factor and its calorific content is negligible.

If HCl is deficient in the fractional testmeal, give ½ to 1 dram of acid Hydrochlor dil in a wineglassful of water t. d. s. Irradiated ergosterol and calcium should also be given daily.

If constipation should develop during the course of treatment, liquid paraffin should be employed—not purgatives, nor irritating suppositories.

Although the treatment just outlined is the best at present in existence, it presents obvious disadvantages.

Meat protein is by no means always obtainable in a satisfactory condition in hot climates and on ship board and many have religious objections to taking it.

At Dr. Fairley's instance however, Messrs. Cow and Gate have put on the market a modified milk powder called Sprulac with a protein : fat : carbohydrate content of 1.0 : 0.3:1.3. Whilst the dramatic improvement obtained with the meat diet is not seen in so many cases, the sprulac treatment is the one which I would recommend to you in practice.

Five diets have been worked out to suit all stages of the illness; of course liver, vitamin D. and calcium have to be administered as in the case of the meat regime. Dr. Fairley's sprulac course of diets is appended (3).

No fool can be treated for diabetic mellitus—The same holds good in the treatment of sprue. The doctor must have the willing and intelligent co-operation of the patient in carrying out this long, detailed and rather expensive treatment.

Even after the patient has been apparently cured, he must take no liberties with himself so far as the table is concerned—a vitamin rich, fat poor diet should be maintained. The evening meal should be very light. Vegetables must be well boiled, not fried. Meat should be underdone. Rice and other starchy foods should be taken in great moderation. All obvious meat fat should be cut off.

It is necessary to avoid overdone and twice cooked meat and articles fried or cooked in fat.

Condiments like pepper, mustard, chillies, sauces, chutneys, curries and spiced food, fatty fish, oils, raisins and pastries must be cut out and oversmoking must be avoided.

A monthly blood examination should be carried out and vigorous measures taken in the event of a diminution in reds or an increase in their diameter.

Practically all authorities recommend the invaliding of the patient to Europe from whence it is said he should never return.

I have known several sprue patients who have been put on a boat for a four weeks journey to Europe immediately after diagnosis of sprue. They arrived in cold, chilly and foggy London without having had any treatment on the way home.

I have on various occasions both at home and in the East protested against this absurdity, as the response to treatment here is just as prompt as it is in England, and there is no danger of cold and fog which exert such an adverse influence on sprue patients.

It has been shown that sprue patients are particularly liable to relapse after attacks of bronchitis, influenzal colds and other respiratory affections.

Do not therefore be in a hurry to shift your responsibilities by advocating a change of climate. If however the case occurs in the hills, it is preferable to have the disease treated on the plains.

With Anglo-Indians and Indians it is in most cases impossible to procure a change of climate but as I have already said it is not necessary with the modern treatment.

References :—

(1) *B. M. J., 29th Decem. 1934.*

(2) *Transaction of the Royal Society of Tropical Medicine, Hygiene xxiv, No. 2, Aug. 1930.*

(3) *Transaction of the Royal Society of Tropical Medicine, Hygiene xxv, No. 4, Jan. 1932.*

Diet No. 1. (Calorie value—697)

1 oz. of sprulac made up to 8 oz. with water every 2½ hours for six feeds (7-30 a.m. to 7-30 p.m.)

Protein 1.0; Fat 0.3; Carbohydrate 1.4.

Diet No. 2. (Calorie value—1,117)

1½ oz. of sprulac made up to 12 oz. with water every 2½ hours for six feeds (7-30 a.m. to 7-30 p.m.) The juice of one orange; jelly (1 oz.)

Protein 1.0; Fat 0.3; Carbohydrate 1.4.

Diet No. 3. (Calorie value—1,536)

2 oz. of sprulac made up with 16 oz. of water are given every 2½ hours for six feeds (7-30 a.m. to 7-30 p.m.). The juice of 2 oranges; jelly (2 oz.)

Protein 1.0; Fat 0.3; Carbohydrate 1.5.

Diet No. 4. (Calorie value—2,004)

Sprulac—ditto diet No 3.

Juice of two oranges; jelly (3 oz.): two baked apples; custard (2 oz.); underdone beef 4 oz.; 1 rusk (¾ oz.)

Protein 1.0; Fat 0.2; Carbohydrate 1.5.

Diet No. 5. (Calorie value—2,516)

Sprulac—ditto diet No. 3.

Juice of two oranges; jelly (3 oz.); two baked apples; custard (2 oz.); two rusks (3 oz.); underdone beef (10 oz.).

Protein 1.0; Fat 0.3; Carbohydrate 1.4.

Book Reviews

Diseases of Children.—*Edited by Hugh Thursfield*, D.M., F.R.C.P. and *Donald Paterson*, M.D., F.R.C.P. 1934. 3rd edition with contributions from 36 authors. Pp. 1152; 277 figures. [Edward Arnold & Co. London]. Price 50 sh. net.

The third edition of Garrod, Batten, and Thursfield's diseases of children has been edited by Dr. Thursfield and Dr. Paterson. The second edition was published in 1929. Since that time so much important and new work has appeared that the Editors have wisely decided to carry out a complete revision of the contents.

Among the chapters that are entirely new are those on Blood transfusion, on Heredity, on orthodontic treatment, on the Newly born infant, on diseases of the accessory nasal sinuses and the Ear, on the dipoidoses, on Acetonaemia, on Cystoscopy and Pyelegraphy, on Rheumatism, Allergy and Tuberculosis. Among the older chapters those deserving of special mention are those on Immunity, feeding of infants, diseases of nutrition, diseases of the Haemopoitetic system, diseases of the nervous system and infectious diseases.

The illustrations have been carefully revised and more than seventy have been added. The printing and get-up of the book is excellent. The work is one which every medical practitioner must possess.

The Treatment of Common Female Ailments.—*By Frederick John Mc Conn*, M.D., F.R.C.S., F.C.O.G., consulting surgeon, Samaritan Hospital for Women, London, 1934. Third edition. [Edward Arnold & Co., London] 12 sh. 6 d. net

This book deals with those female ailments most frequently seen in general practice. In this edition there has been a

complete revision of the text. New chapters have been added on methods of examination, the relation of the endocrine glands to the genital organs, the climacteric, injuries to the Perineum and vaginal walls, gastro-intestinal complications of female ailments, fertility and sterility, treatment before and after Pelvic operations, and on the prevention of female ailments.

The book is essentially practical and is the result of the observations and experience of the writer. It is full of sound commonsense and is sure to be of great help to the practitioner who looks up its pages when in difficulties. The author always stresses, and in our opinion rightly too, the importance of prophylaxis in female ailments. We congratulate the author on his production.

"Clinical Methods".—*By Robert Hutchison*, M.D., EDIN., F.R.C.P., (LOND.), and *Donald Hunter*, M.D., F.R.C.P., (LOND.), 10th edition. [616 pages+lxvi : 21 Plates and 142 Text-figures.] Price 12s. 6d. net. Cassell & Co., Ltd., La Belle Sauvage, London, E. C. 4.

First published in 1897, this Manual has been reprinted thirty-four times, and has now attained its 95th thousand.

It has again been thoroughly revised; the chief changes will be found in the chapter on the Urine, which has been partly rewritten. The revision of the chapter on the Nervous System has involved considerable alteration, as has the chapter on the Clinical Examination of the Blood. A new colour Plate has been introduced and several new illustrations have been added in the text. By the elimination of a certain amount of matter which has become out of date it has fortunately been possible to avoid expansion of the book.

Quarterly Bulletin of the Health Organisation of the League of Nations.—Vol. III, No. 3, September, 1934.

The September number of the Quarterly Bulletin that has just appeared indicates the range of subjects which come within the purview of the Health Organisation of the League of Nations.

The malariologist and the public-health worker in countries in which malaria is an important cause of morbidity, will find considerable interest in a report on the efficiency of Totaquina in the treatment of malaria. Totaquina is the name given to a standarized mixture of the total alkaloids of cinchona bark, and can be produced at a much lower cost than the salts of quinine, which have been used almost exclusively in the past. The report,

which has been prepared by William Fletcher and E. Pampana, deals with observations made in several countries; these observations indicate that there is little to choose between Totaquina and the salts of quinine in so far as their efficiency in the treatment of malaria is concerned. A second article of interest to the malariologist is written by Swellengrebel and Nykamp, and contains some further observations on the bionomics of *Anopheles maculipennis* in Holland.

Senator Lindhagen, a former Mayor of Stockholm, contributes an illustrated account of the Stockholm Garden Settlements, which cannot fail to interest the many people concerned in town planning, building schemes and the question of housing generally.

A report entitled "Investigations on Heavy Muscular Work" sets forth the results of observations carried out by Christensen, Krogh and Lindhard in the laboratories of Theoretical Gymnastics and Zoophysiology at the University of Copenhagen. This article is an important contribution to the physiology of physical training, and merits the attention of all concerned with physical training and the training of athletes in particular.

A report on the Standardisation of vitamins gives the results of the second Expert Conference which was held in London in June of this year. The Conference was held under the auspices of the Permanent Commission for Biological Standardisation of the League's Health Organisation. The question of Vitamin Standardisation is one of considerable practical importance at the present time.

Nutrition workers will find useful material in an article entitled 'The Effects of the Economic Depression on the Population of Vienna", ba Gotzl, Kornfeld and Nobel. Prolonged unemployment appears to have had deleterious effects on the physical condition of the unemployed and their families in Vienna, but the great practical difficulties, inherent in investigations of this kind, in obtaining unequivocal data are fully recognised. They are in fact well described in the report.

"Sexual Dis-abilities and their Treatment".—*By Col. Bhola Nath*, I.M.S., (Retd), in Urdu, pp. 308, Price Rs. 3/-.

This small book is a notable contribution on the subject, from the well-known pen of Col. Bhola Nath and is in every way admirable. The author deserves the thanks of the profession, because it furnishes the general practitioner and patients (without whose co-operation the success in the treatment of Sex diseases is

nil) certain useful information regarding the modern treatment of Impotency. The author gives a brief introduction, after which he deals with the anatomical and physiological consideration of the sex organs and clearly explains the etiology, pathology, incidence, diagnosis and treatment of the sex diseases. The subject of Sex relationship of men and women is treated in a clear and inoffensive style and can be confidently recommended to the public. The book has been divided into three parts with two appendices. Part I deals with the allopathic treatment and contains methods of the specialists employed in the treatment of these affections. The chapter on Organo-therapy is well written. The second part deals with the Unani and Vedic formulæ, along with the methods adopted by eminent hakims of the east in the treatment of Sex diseases. The subject of birth control is dealt with in the last section, with a brief historic resume, its importance along with a scientific investigation into the mode of action and the relative efficacy of various methods and appliances used to prevent conception and is written in simple way for the direct instruction of the public.

The language is plain with a sufficiency of technical details. Illustrations are clear and instructive.

We wish it success and have no doubt that the book will prove helpful to both doctors and public.—*M. A. K.*

Proceedings of Societies, etc.,

THE TINNEVELLY DISTRICT MEDICAL ASSOCIATION, PALAMCOTTAH

Annual Reunion at Tinnevelly

The Sixth Annual gathering organised by the Tinnevelly District Medical Association commenced at 4-30 p.m. on 23rd February 35 in the premises of the Hindu College, Tinnevelly, under the presidency of Dr. T. N. Govinda Ayyar, M.B., & C.M., Independent Medical Practitioner. Besides 88 members, some ladies and local officials and citizens also attended the function including Mrs. Ponnuswami and Mr. Sadhu Ganapathi Pantulu. Four members of the Travancore Medical Association including Dr. Taliat, F.R.C.S., & Dr. Dasannachar, M.B. & C.M., and Dr. Saiyid Gulam Hussain Sahib, the new Civil Surgeon of Tuticorin, also graced the occasion.

The guests were entertained to tea and light refreshments by Messrs. Havero Trading Co., Ltd. After Photo the gathering were entertained with melodious music by (1) Dr. J. Sankarasubba Raju, (Vocal); (2) Dr. L. Mahadevan, M.B., B.S., (Mad.), D.O.M.S. (Lond.),

(Gottuvadyam). The dancing in costume of Dr. N. Lakshmanan was simply charming.

Then the business proper of the gathering commenced. Lieut. Col. T. S. Shastry, I.M.S., welcomed the guests. The Secretary Dr. V. Sankarasubban, M.B., B.S., read the new Rules of the Association which were unanimously passed. Lieut. Col. T. S. Shastry's ...dendum that Ex-members whose work deserves recognition and distinguished members of the Profession who are working outside the District may be made Hony. Members of the Association was unanimously accepted.

Office-bearers for 1935: Lieut. Col. T. S. Shastry, I.M.S., and Dr. N. Isaac of the Head Qrs. Hospital, Palamcottah were unanimously elected as President, and Secretary and Treasurer respectively.

Dr. T. N. Govinda Ayyar, M.B. & C.M., of Tinnevelly, was installed as the President of the Annual Reunion. The Annual Report of the Association was read by the Secretary and adopted. Lieut. Col. T. S. Shastry, I.M.S., delivered an interesting and instructive lecture on Menstruation and Menopause.

Reading of Papers

A woman with out-turned feet on undeveloped legs, and hands like the cloven feet of a cow, but otherwise very sturdy and well-nourished, and aged 30 years, was exhibited by Dr. Mrs. A. Brown. Then interesting notes of the following cases operated on at the Head Quarters Hospital were read out:—

(1) Cæsarean Section
(2) Fracture of leg owing to the spread of Epithelioma of skin
(3) Tubercular Testes
(4) Dermoid of scalp and
(5) Glioma of Eyeball.

The President brought the meeting to a close by his eloquent address on the subject spoken by Lieut. Col. T. S. Shastry, I.M.S.

With a vote of thanks proposed by Dr. V. Sankarasubban, M.B., B.S., to the guests and members the meeting terminated. Thereafter an excellent dinner prepared by the "Chandra Vilas" brought the happy gathering to a close late at night.

N. ISAAC, *Secretary & Treasurer.*

THE TRICHINOPOLY DISTRICT MEDICAL ASSOCIATION

(Registered.)

(Proceedings of the Conference held on 20th and 21st Dec... in the National College, Trichinopoly.)

An extraordinary General Body Meeting of the above Association was held on Thursday the 20th December 1934, at ...0 a.m., in the National College, Trichinopoly, when Dr. C. E. R. Norma... F.R.F.P.S., D.P.H., L.A.H., P.M.O., S.I.R.Y., and President of the Association, presided.

Dr. R. Sambasivan, M.B., B.S., moved that Rule I under section III (Managing Committee) of the bye-laws be amended so as to read as :

"The Managing Committee shall consist of seven members, that is, (1) President, (2) Secretary, (3) Treasurer and (4) Four other Members".

This was seconded by Dr. P. A. S. Raghavan and carried unanimously. The meeting then dissolved.

The fifth annual gathering of the above Association was held at 10-30 a. m., with Dr. C. E. R. Norman in the chair. The Secretary presented the Annual Report which showed general progress all round during the year under review. Dr. T. N. Subramanya Iyer in moving its adoption, suggested that a Sub-committee be formed to consider the question of Journals. Dr. L. K. Neelakantan seconded the proposition and the Report was adopted unanimously.

A Sub-committee consisting of Dr. P. A. S. Raghavan, Dr. R. Sambasivan, Dr. T. N. Subramanyan and Dr. V. Iravatham of Thirukattupally was formed to cons der the question of Journals.

The election of Office Bearers for the year 1935 was then proceeded with. Dr. T. S. S. Rajan proposed that in view of the efficient way in which the association was conducted and as a vote of confidence in the Executive the same set of office-bearers be re-elected; that is :—

President: Dr. C. E. R. Norman, F.R.F.P.S., D.P.H., L.A.H., Chief Medical Officer, S. I. Ry. *Secretary*: Dr. P. A. S. Raghavan. *Treasurer*: Dr. R. Sambasivan, M.B., B.S. *Members*: Dr. M. Balammal, M.B., B.S., and Capt. Sanghamlal, I.M.S., F.R.C.S., D.O.M.S, District Medical Officer, Trichy.

This was seconded by Dr. K. R. N. Chary, M.B., B.S., and carried unanimously. Dr. R. Kalamegham and Dr. M. R. Bhat of Pulivalam were elected to the new seats in the Executive Committee.

Dr. C. E. R. Norman in welcoming the guests compared the power of medical associations in the west and laid stress on the need of a central association in India consisting of representatives from district associations, and called upon Dr. T. S. S. Rajan to open the conference. After thanking the organisers for doing him the honour of requesting him to open the conference, Dr. Rajan reviewed Medical education and service and practice obtaining in this country and after congratulating the executive on the useful work turned out during the last year he declared the conference open.

Dr. T. S. S. Rajan then demonstrated an interesting case of Heart disease in a girl pregnant 5 months and there was a discussion whether it is safe to allow pregnancy to go to full term or terminate it. The session broke up at 12 noon for breakfast.

The Annual Conference commenced at 2 p.m., Dr. N. C. Appayya, presided over the Obstetrics section. Dr. N. Balammal read an interesting paper on "Eclampsia" and there was a keen discussion on the various methods of treatment.

Dr. N. C. Appayya read an instructive paper on "Sterility", describing the Anatomy, Physiology and various pathological causes of sterility and its treatment.

Lt. Col. Shastry, in presiding over the surgery section of the Conference thanked the organisers for giving him the opportunity of meeting his old friends and paid a handsome tribute to the Secretary on the efficient way in which the association has been conducted since his departure two and half years ago.

It was a happy augury that private practitioners, Service-people and Railway staff, were all co-operating for the success of the Conference. He hoped for the success of a conference of all the adjoining districts to be soon organised. Then Dr. K. V. B. Pillay of Salem read a paper on "Throat affections in children" and Dr. T. S. Shetty of Kannadukathan read a paper on "Surgery of the Tonsils. After each paper there was interesting discussion.

Dr. T. S. S. Rajan demonstrated a rare specimen of a pedunculated Malignant tumour of the cervix. Capt. Sanghamalal, I. M. S., delivered an interesting lecture on Appendicitis, explaining the anatomy, pathology and differential diagnosis and impressed the need of early diagnosis and treatment. Dr. M. R. Chander of Mylapore read a paper on "Prevention and cure of Pyorrhœa Alveolaris" after which the session ended at 7 P.M., and adjourned for Dinner given by the Bengal Chemical and Pharmaceutical Works Ltd.

The second day's session commenced at 10 A.M., on the 21st, when Dr. E. V. Srinivasan of Madras presided at the Ophthalmic section and Dr. T. S. Doraswamy of Madras read a paper on "Head Aches" and Dr. L. R. Fernandez of Trichy read a paper on "Trachoma." The session of the afternoon commenced at 2 P.M., and Dr. T. Krishna Menon presided at the Medicine section and delivered an interesting lecture on "Heart Diseases" and their treatment. Dr. R. Visvanathan of Madras read an interesting paper on "Recent advances in Medicine surveying the whole field of Medicine. Dr. T. S. Balasubramanyam, of Trichy read a paper on the problem of "Birth control". After this there was an interesting discussion and the general trend was that economic depression, deteriorating physic, infant and maternal mortality were the determining factors and India's position at present was such that Birth control was an urgent necessity.

In concluding the session Dr. Norman, the President thanked all those that attended and contributed to the success of the Conference at great personal inconvenience. He also thanked the Brahmachary Research Institute for getting the reports printed and the hosts, the Bengal Chemical and Pharmaceutical Works and the Havero Trading Company.

Dr. D. V. Venkappa of Madras in proposing a vote of thanks on behalf of the guests envied the active interest of the association

and the success of the Conference and paid a handsome tribute to the President Dr. Norman and the energetic Secretary Dr. Raghavan.

The Conference broke up at 5 p.m., after a Lunch Party given by the Havero Trading Company.

TRICHINOPOLY,
1—1—'35.

P. A. S. RAGHAVAN,
Secretary.

Notice

THE ALL-INDIA OPHTHALMOLOGICAL SOCIETY

The fourth Conference of the All-India Ophthalmological Society will be held in Madras, from the 22nd to the 24th April '35 under the Presidency of Lieut-Col. R. E. Wright, I.M.S. One session will be devoted to a discussion on Nutritional Disorders of the Eye in which Lieut-Col. Sir J. N. Duggan, Dr. S. K. Mukerjee, Lieut-Col. E. O. G. Kirwan, Dr. B. K. Narayana Rao and others will take part.

All Ophthalmic Surgeons who are not already members of the Society are requested to join and help to make the Conference a great success. The Society has over 110 members on its rolls. The subscription has been reduced to Rs. 10. Application for membership may be made to Dr. G. Zachariah, "Flitcham", Marshall's Road, Egmore, Madras, or Dr. B. N. Bhaduri, 10/5 A, Wellington Street, Calcutta.

ALL INDIA MEDICAL LICENTIATES' ASSOCIATION

The General Secretary, A.I.M.L.A., Bombay writes :—

"The dates for the 27th Annual Conference of the A. I. M. L. Association have been fixed on the 17th, 18th and 19th of April 1935 The places for the Conference, for the Exhibition and the delegates' camp have been fixed. The different Sub-Committees, particularly the Exhibition Committee have started the work in right earnest.

The Reception Committee wishes that the Conference should be well attended and should be a great success. Kindly help us in securing good exhibits for the exhibition and interesting Scientific papers for the Conference". For full particulars apply to :—

Mr. G. V. Motiwale, General Secretary, Reception Committee, M. T. Hospital, Indore.

Index to Advertisers.

Madras University Extension Lectures (1935)—Part III.

REGD. No. 9 M. 429. APRIL. 1935. Vol. XXXII. No. 4.

The Antiseptic

A MONTHLY MEDICAL JOURNAL

Edited by

DR. U. RAMA RAU & U. KRISHNA RAU, M.B., B.S.

CONTENTS.

Editorial & Publishing Offices: 323, Thambu Chetty St., G. T., Madras.

Subscription Rs. 5, Foreign 10 sh. a year. Post paid. Single Copy Re. 1. In advance.

Index to Advertisements, see page. 57.

When writing to advertisers, please mention the "Antiseptic."

When writing to advertisers, please mention the "Antiseptic"

T'PHONE NO. 2168.
T'GRAM: "ANTISEPTIC."

SUBSCRIPTION, RS 1-8 OR 2'SH. A YEAR FOR ANY EDITION POST PAID.

EDITORS :-
DR. U. RAMA RAU.
AND
DR. U. KRISHNA RAU.
M.B., B.S.

HEALTH
A JOURNAL DEVOTED TO HEALTHFUL LIVING

PUBLISHED IN
ENGLISH,
TAMIL, TELUGU
AND
KANARESE.

FOUNDED IN 1923.

323, Thambu Chetty St., P. O. Box 166, G. T., MADRAS, E.

Date as Post Mark.

Dear Doctor,

You know there was a time when the Medical Profession have been interesting themselves on the curative side of Medicine alone, leaving the preventive aspect aside. The order has since been reversed, and more attention is now paid by doctors in educating their patients to lead a healthy life and thereby enable them to resist and ward off diseases. Nature cure, fast Cure, sea-baths, sun-baths, sanatoriums, change of air, change of environments, diet, exercise, recreations are the means now adopted to effect a speedy and permanent cure and you will find in HEALTH a good guide and a true friend to help your patients.

'HEALTH,' the popular illustrated monthly on health topics published since 1923, in English, Tamil, Telugu, and Kanarese tells the very things, which you want your patients to know. It is an ideal Magazine for your waiting room-tables. Eminent medical men contribute to the periodical in entertaining non-technical style.

The Subscription is only Rs. 1/8/-per annum post paid for any edition. Subscription may begin from any period. Volumes begin with January issue. Further particulars about the periodical can be had on application.

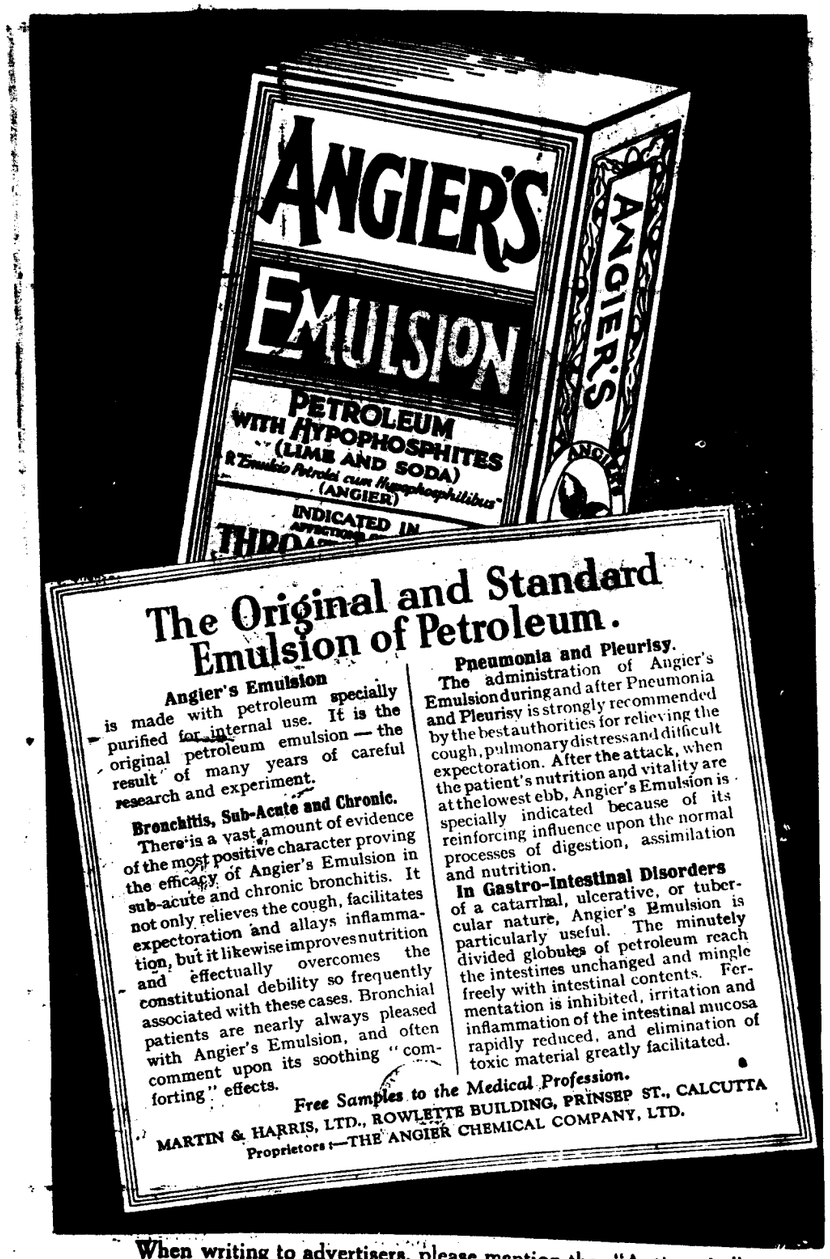
May I know if I can enlist you as a subscriber and if so may I request you to include in your remittance to the ANTISEPTIC the amount of subscription for this Journal also intimating the edition you wish to have and from when?

Special reduced rates :-

2 Years or 2 Copies Rs. 2-12.
3 „ 3 „ „ 4-0.
4 „ 4 „ „ 5-0.

Yours faithfully,
MANAGER,
Health & Antiseptic.

Contributions to Health from Members of the Medical Profession are invited. All approved articles will be paid for suitably on publication. Enquiries solicited for full particulars.



STOVARSOL

(ACETARSONE)

Literature on Request

MAY & BAKER (INDIA) LTD.

11, CLIVE STREET CALCUTTA.

A Product of Outstanding Reputation for the treatment of:—

AMOEBIC DYSENTERY
MALARIA
RELAPSING FEVER
YAWS
SYPHILIS

Vol. 32. No. 4.] [April 1935.

The Antiseptic

ESTD. 1904.

A Monthly Journal of Medicine and Surgery.

Editors: Dr. U. RAMA RAU & U. KRISHNA RAU, M.B., B.S.

Editorial and Publishing Offices:—323, Thambu Chetty St., Madras.

Annual Subscription Rs. 5. Foreign, 10 Sh. Post Paid.

The Madras University Extension Lectures-*(Contd.)*

GASTRIC NEUROSES

BY

DR. T. SATAKOPAN, M.D.,

Physician, General Hospital, Madras.

It is common knowledge that the nervous system is intimately connected with all the various functions of the body, stimulating or inhibiting particular organs or set of organs as the occasion demands. It is easy to understand therefore how when the nervous system is diseased or deranged, many of the ordinary functions of the body are correspondingly affected. The digestive system is no exception to this rule. The vomiting in cerebral tumour, the acute pains and other gastro-intestinal symptoms which occur in the crises of locomotor ataxy are examples.

When we speak of neuroses of the stomach, we exclude gastro-intestinal manifestations of organic neurological lesions as instanced above. Goodhart has said "If I am going to write a book on indigestion, I should first devote myself to a volume on diseases of the Nervous System." Again, he has said, "It is no great exaggeration to say that there are only two forms of indigestion; that produced by overeating and drinking, and that due to a failure of nervous power." Under the term gastric neuroses, we include only such disorders of digestion which arise from a lack of nervous power.

These disorders arise in different ways. They might arise from functional disturbances of nerves supplying the stomach.

Excessive stimulation of secretory nerves produces hyperacidity. Similarly stimulation of motor fibres increases tonus and produces hurried peristalsis. In these conditions there are no gross changes in the nerves, but only modification of functional efficiency, both in time and intensity. In some cases, loss of tone of muscle of the stomach is brought about by undernutrition, leading to stasis and the consequent train of symptoms. This is particularly so in neurasthenia. In these cases the stomach is the primary source of dyspeptic troubles to cure which the measures should be directed to the stomach first. Secondly in many cases of nervous dyspepsia, the symptoms resemble those of actual disease of the stomach; but the influence of a general mental state of excitability is clearly shown. Medical men are familiar with the dyspepsias that arise from states of anger, anxiety or hope. The most important factor in all these cases is the mental state of emotion connected with certain bodily conditions known as hypochondriacal anxiety. Fear of the evil effects of food produces the anxiety that it may bring on severe stomach troubles and then to the gradually increasing state of mental agitation. Thirdly, many cases owe their origin to a psychic hyperaesthesia which translates a perfectly healthy sensation into one of actual pain in the stomach, for example, the ordinary movements of the stomach, consciously or otherwise cause eructation and vomiting. Fourthly, anticipation has a share in the psychogenic origin of many nervous gastric symptoms. For instance, the anticipation or fear of pain leads to the actual feeling of pain. From the fear of nausea, nausea even increasing to vomiting comes on. And in recent times in certain countries, the dread of cancer produces in nervous patients all the symptoms of gastric cancer. It would thus be seen that in the great majority of cases of gastric neurosis there is no functional disturbance of the gastric nerves themselves, but a morbid excitation of the psychogenic centres. The effects of this disordered stimulation are specially manifested in the functional activity of the stomach. These gastric symptoms are merely part of a general neurasthenia — "neurasthenia gastrica".

The subjects of this syndrome are patients in whom nervous intensity is greater than physical capacity. They may complain of neuralgia of the head and face, fits of exhaustion and palpitation. They are generally restless, lean and bloodless. They are dyspeptic. They complain loudly and bitterly of the stomach and anxiously enquire about the various drugs and methods of curing their indigestion. If these unfortunate patients are to be

benefited by treatment, the physician should realize early that the nervous system is at fault and that the indigestion is only a part of the nervous upset. But not all patients are of the type just described. It is not unusual to see anæmic young women who are lazy and slow in their movement complain of epigastric pain, anorexia and vomiting. They have polyuria, tenderness on spine and contracted field of vision. These patients are often likely to suffer from gastric neurosis.

Causes of nervous Dyspepsia.—Whatever the pathology of the condition, it is chiefly by their causation that neuroses of the stomach are known.

1. Dietetic indiscretion after strenuous exertion. A young or middle aged man after an unusually full and strenuous day has a heavy dinner, and goes to sleep well tired. He wakes up early in the morning with severe pain in the abdomen. He is restless and feels bilious in the morning and is indisposed for the following week, or if he had vomited when the pain was on, he escapes further trouble. If after this unpleasant experience, he is careful next time after similar exertion, to go to bed with a very light meal postponing his proper dinner to the following day, he escapes altogether. The stomach failed on the first occasion because the nervous energy was exhausted.

2. A second group of cases arises as follows:—A keen man of business who takes no rest. He drives himself and those about him at full speed; every disappointment, every mishap worries him. He becomes nervous, fretful, sleepless and ends by becoming a dyspeptic.

3. A very large group of cases of gastric neurosis arises as in sympathy with disturbances elsewhere; these could be conveniently grouped as *reflex dyspepsias*. They are often the result of disorders of the pelvic organs, bile-ducts or gall bladder and the appendix.

It would thus be seen that nervous dyspepsias arise in diverse ways with a variety of presenting symptoms. Gastric neurosis therefore is generally polysymptomatic and cannot be "typed". The symptoms have to be dealt with severally.

Symptomatology.—Pain in the abdomen and other sensory perversions form the chief manifestations of gastric neurosis. The pain in the epigastrium and abdomen often simulates that of organic gastric lesions, chiefly peptic ulcers. But a careful examination and a history of the evolution of the symptoms will reveal many points of diagnostic usefulness. The pain in gastralgia does not usually penetrate to the interscapular region. Any

pain and tenderness that may be felt in the back is lower down, about the 9th or 10th dorsal vertebrae. The area of tenderness in the epigastrium is large unlike the very limited area of tenderness and hyperaesthesia in ulcers. The attacks of pain come on independently of food and are not relieved by alkalies, or food. Ordinary restrictions of diet which generally relieve the pain of other gastric disorders fail in gastralgias. Many patients with disorders of the stomach complain of pain soon after taking food. But the degree of pain complained of by some neurotic young women is more unreasonable, to swallow a few spoonfuls of food being sometime a severe torture. Such is never the case in patients with peptic ulcers.

Sensory perversions.—In neurotic patients, gastric distress does not always appear as pain. It is often revealed as perverted organic sensations. These are as hard to bear as pain itself. These perversions generally occur as a sense of sinking or as excessive hunger. The sense of sinking which is referred to the abdomen is peculiarly distressing. The patient experiences a feeling of utter exhaustion, voice becomes weak and slow and the face turns grey—almost an attack of fainting. But the patient does not faint. The sense of hunger is acute and depressing. It is a feeling of want rather than appetite. For, food soon produces satiety, though not much relief. This false hunger may be experienced in any part of the day, mid-forenoon, late afternoon or midnight. Saline purgatives very often bring on this hunger. Sudden vascular dilatation is said to be the cause of this peculiar sensation of hunger and emptiness. In the diagnosis of these sensory perversions, particularly the sense of sinking, the sudden postural variations in the pulse rate is noteworthy. When the patient is standing or sitting, the pulse rate goes quickly upto 110 or 120, and on lying down, in a very short while the pulse rapidly falls to about 70 per minute.

Bulimia.— Different from false hunger is the voracious appetite which occurs in some neurotics. The hunger and the ability to eat and digest may be enormous in some of the patients ; it might be easily worse than in diabetics. Similarly bulimia has been observed in affections of the vagus,—a neuroma was found in one case ; it is sometimes observed in Grave's disease.

Vomiting.—Uncontrollable and recurring vomiting after almost every meal is complained of by many. Two adult men were admitted into my wards with this complaint. But the vomiting ceased while under observation. I have seen this vomiting in two children of the same family. The children got over it after

some months. It is remarkable that these patients keep plump and well-nourished in spite of the repeated vomiting. Obviously considerable portions of the meal are retained. This symptom occurs both in the idle rich as well as in the hardworking poor. Nausea is not very common in these cases.

Flatulence.—Windiness is often the most troublesome symptom of those who suffer from neurosis of the stomach. Flatulence and eructations come on in storms with such noise and gust that one often wonders whence these symptoms arise. The intolerable feeling of epigastric distention has no relation to the flatulence. This feeling may be so great as to oblige the sufferer to undress without any measureable enlargement of the waist. These patients almost regularly wake up in the small hours of the morning with the uncomfortable feeling of distention, belch up boisterously for some minutes, and then go to sleep again quite comfortably. According to Goodhart, this flatulence affects the stomach in men and the bowels in women. In some women, who are otherwise sensible, the neurosis takes the shape of " volcanic rumblings and noisy upheavals of air". This might sometimes be so serious as to necessitate their giving up their jobs.

Anorexia Nervosa.--We owe this name to Sir William Gull. There is gastric anæsthesia in which the natural sensation of hunger is blunted or even absent. The patients soon get emaciated. They are generally young women who fall victims to the craze of thinning. Though emaciated with nothing beside the skin to cover their bones loosely, they continue capable of occupations, interests and even of efforts, which are astonishing in such frail bodies. Though they may live literally on thimblefuls, they often find fault with some other members of their families, for not eating enough : In these women the neglected appetite gradually begins to disappear and the body is tragically though painlessly pined.

Extra-gastric symptoms.—In women, the caecum and ascending colon are constricted and may be felt like a sausage or a " coiled snake". This is due to spasm of the colon which often leads to troublesome constipation. I have known a case of a young woman of 32 who was suffering from the hyperacid syndrome. Eight years later, she developed severe attacks of pain and a lump with tenderness was felt in the right iliac region. Appendicitis was suspected. On operation, appendix and caecum were normal. There were no adhesions.

In addition to these gastric and other abdominal, symptoms,

other nervous symptoms such as increased psychic irritability, headache, vertigo and abnormal sensation in the extremities simulating neuritis are often present.

Diagnosis.—It is generally not very difficult for an experienced physician to mark out a case of gastric neurosis from the nature of the symptoms. One should take into consideration the general nervous state, the attacks of anxiety with marked mental flutter and the hypochondrial nature of the patients. The frequent variation in the symptoms and their dependence on the state of mind as agitation, diversion or recreation and the co-existence of other nervous symptoms as headache, vertigo and palpitation often indicate the diagnosis. In all cases, a careful examination towards eliciting the possible presence of an organic lesion should not be omitted, especially, since a careful examination is often the best treatment for neurosis. These unfortunates thereby develop a greater confidence in the ability of the physician.

Errors in diagnosis arise in a number of ways :—

(1) The symptoms may be of such an objective kind that one is compelled to assure the existence of organic lesions.
(2) In neurotics, actual disease of the stomach may be masked by the general state of neurosis.
(3) In some cases, though there may be no definite evidence of organic disease, certain abnormalities are still present, such as hyperacidity, hypersecretion, achlorhydria and gastroptosis. These conditions should not be overlooked. But it is easy to stress their importance too much, forgetful of the fact that very many people with these abnormalities go about in life without the least inconvenience. These are really excellent cases for treatment with suggestion.

Conditions which have to be eliminated before a diagnosis is made are: peptic ulcers, chronic cholecystitis without jaundice and carcinoma of the stomach. The points of difference between ulcers and neurosis have already been dealt with in the discussion of the symptoms. In all cases, a careful evaluation of all the symptoms, and watching the progress of the case and the result of treatment are very helpful. X-ray examination of the stomach and the duodenum is essential. Cases which were considered neurosis, and were put through various forms of treatment, have eventually been found on operation to present organic lesions, old ulcers, cicatrices and adhesions. That these lesions were really responsible for their trouble is proved by the fact that these cases improved and were sometimes cured by the operation. According to Clifford Allbut very trifling organic lesions like small umbilical hernias are likely to produce serious symptoms which could only be put down against neurosis if the small lesion be overlooked.

In cases where organic and nervous symptoms are combined, diagnosis is only possible after thorough all-round examination and careful consideration.

Prognosis.—The prognosis depends on the degree of the underlying neuropathic state of the patient and his environment. Cases which are susceptible to suggestion thereby do very well, especially if there is association of loss of flesh and undernutrition. These are the cases that do well on the lines of Weir Mitchell's treatment. But people in whom abnormal conceptions and general morbid psychic conditions are ingrained deep and long and those in whom the harmful psychic influences continue to act, generally fare ill. If these influences could be removed, even apparently bad cases tend to recover. In all cases, there is an unfortunate tendency to relapse.

Treatment.—The number of people who are victims of gastric neuroses is really very great. There is a tendency even now among medical men to ignore the complaints of these patients, once the diagnosis is made. The patient is sent out with a prescription or two of some one or other of the innumerable proprietary or patent preparations with an injunction not to mind his symptoms which are expected to clear up by themselves. It is true that we fail to find evidence of organic lesion But there is no reason to forget that the distress of the patient is great and that the pain and other symptoms of which he complains are very real to him. The first and the most important step in treatment therefore is a thorough and painstaking investigation of the case including a complete history of the evolution of the symptoms. After this is done, if the patient is told that there is no structural lesion in his body, he is greatly assured and often he does not trouble himself any further about his condition. On the other hand over-anxiety and fussiness on the part of the doctor is very harmful to the patient. Whereas a definite course of treatment should be prescribed in every case, such exaggerations as the prescription of a rigorous diet with a string of dont's, or innumerable drugs in the shape of drugs before and after meals with a "tonic" or two besides are extremely harmful. Measures for general strengthening of the body and quietening of the nerves are often helpful. Change of environment, cold bathing and friction to epigastrium are useful within limits. Electrical massages may be useful in obstinate constipation. Drugs have very little use in these cases except as aids to suggestion therapy. He who pins his faith in drugs generally fails in these cases. It is the personality of the physician that achieves results.

ALOPECIA

BY

DR. S. THAMBIAH, B.A., M.C., M.R.C.P., D.T.M. & H., F.D.S.,

Dermatologist, Government General Hospital, Madras.

Introductory

THAT the ancients were as much interested in cosmetic dermatology and hair defects as we of the present can be clearly ganged from the amount of space devoted to these subjects in both the Papyri—Edwin Smith and Ebers. The latter has a prescription, which has the record for age, for a remedy not for one of the great captains of death, but for baldness, prepared for Ses, mother of Teta, King of Upper and Lower Egypt about 5,000 years ago. A bolus composed of iron, red-lead, onions, alabaster and honey was to be taken daily after pronouncing a short invocation to the Sun.* Hippocratic writings and compilations have terse clinical descriptions and terminology for alopecia of various kinds as we find them to-day. By the time we reach Aurelius Cornelius Celsus, a Roman physician of great repute, 25 A. D, we find almost all the different terms used in describing various forms of alopecia. Though the moderns may cavil at these terms, saying that refinement in terminology has gone much ahead of actual established facts, yet some of their descriptions and conclusions still remain true and unimpeachable.

Alopecia is deficiency of hair or baldness. It is derived from a Greek work "Alopekia" which means 'Foxmange.' The coats of foxes became denuded of hair in patches during winter.

Men suffer from alopecia much more than women. How this comes about is not satisfactorily explained. Wearing of tight fitting and heavy hats, fez, turbans by men impede the circulation in the scalp by pressure on the temporal arteries. Ventilation is poor and light excluded. Thus the hair is not given a fair opportunity for exercising its function of protection, whereas the hats of women are more ornamental than protective. That brain workers were liable to premature alopecia does not find general acceptance. Perhaps worry and sedantary habits of this class may act indirectly by want of a brisk circulation.

Men are very perfunctory in the matter of hair-dressing.

* INVOCATION

Oh! Shining One, Thou who hoverest above:
Oh! Xare, Oh! disc of the Sun:
Oh! Protector of the Divine. Neb—Apt:

More than keep the hair in position to keep up appearances, men pay very little attention; women attend to their hair regularly, daily, and conscientiously. Anointing the head with oil and frequent shampooing is regularly practised by women as it adds to their personal appearance.

The Hair

The hair is a highly modified ectodermal structure. It is divisible into a root portion contained within the follicle and a shaft extending from the surface of the skin. The bulbous end of the root of the hair is perched on the papilla—a conical structure with a good vascular and nervous supply. The papilla of the hair is the exact analogue of the papilla of the corial layer. The cells on the surface of the papillae are the germinal cells and by their proliferation the growth of the hair takes place and the hair is moved gradually outwards. The scalp hair grows at the rate of half an inch per month and in the summer a little longer by about an eighth or a quarter of an inch. The sebaceous glands open into the follicle at the juncture of its outer and middle thirds or slightly lower. The mouth of the hair follicle, above the opening of the sebaceous glands, is formed by an invagination of all the layers of the epidermis, and below only the reticular layer remains. This difference in structure requires notice as a keratotic condition may affect the mouth of the follicle and interfere with the growth of the hair.

External and internal root sheaths are derived from the germinal cells and both these structures are surrounded by a fibrous sheath. Numerous nerve filaments can be made out ending in the inner and outer sheaths. The individual outer cells forming the cuticle of the hair point outwards and upwards while the cells of the inner root sheath, adjacent to the hair, point outwards and downwards. This arrangement together with the pilary attachment helps to keep the hair firmly enclosed in its follicle.

The span of life of the scalp hair is variously estimated as from 2—3 years. When shedding is about to take place, a fibrillary appearance is seen above the papillae and the distinct cellular arrangement is lost, and the new hair from the papilla pushes out the old hair which is slightly loosened by the shrinking of the adjacent cells holding it in position.

Endocrines: Sympathetic Nervous System and Toxines

We know that the endocrines and the sympathetic nervous

system have a certain amount of influence on the pilary system as regards the growth, maintenance and shedding but just how the influence is exerted has not been satisfactorily explained.

Well-recognized cases of single endocrine disturbances show certain forms of changes in the hair. In *myxœdema* the skin is dry and desquamated in a branny form. Secretion of sweat is absent. The hair of the scalp, face and eye-brows and eye-lashes often falls out. In *exophthalmic goitre*, there is frequent loss of hair, which sometimes comes out in handfuls. Hyperfunction of the supra-renal cortex produces abnormally strong growth of hair in the body, particularly marked in the genital region. When the anterior lobe of the *pituitary* hyperfunctions, hair becomes coarse and shaggy. Frolich's syndrome is marked by defective hair growth, and in Simmond's disease, hair on the scalp and eye-brows fall out. Again in Lorrain's type of infantilism, hair growth is sparse. Sabouraud noted that eunuchs did not suffer from alopecia.

Epilation by thallium acetate, in preadolescents, is brought about by a toxic action on the sympathetic trophic nerves. Pilocarpine series of drugs act by stimulation through the parasympathetic and produce growth of hair.

From the foregoing it will be evident that anything which destroys the hair follicle, or inhibits its function will become an aetiological factor in alopecia. If the follicular vascularity is well-maintained and the sympathetic trophic nerves are in good condition, the growth of the hair will not be interfered with. Certain forms of alopecia cannot be cured; certain others can only be dealt with in a palliative way, and there are others where therapeutic efforts will produce a permanent cure. An attempt will be made to bring out clearly the point how far the patient will be benefited by treatment.

Classification

1. Congenital.
2. Symptomatic premature alopecia.
   (*a*) General :—
      (i) Specific fevers, *e.g.* Typhoid
                                 Pneumonia
                                 Smallpox—eruptic fevers
                                 Influenza

      (ii) Cachetic conditions *eg.* Syphilis
                                 Tuberculosis
                                 Leprosy
                                 Diabetes
                                 Chronic malaria
                                 Kala—azar
      (iii) Nervous depressions, as Shock, worry, anxiety, etc.

   (*b*) Local diseases of the scalp:—
      (i) Seborrhoeic dermatitis
      (ii) Infection by pyo-cocci impetigo, (Fox type)
                                 Impetigo (Bockhart)
      boils, furncules, Folliculitis Decalvans.
      (iii) Vegetable parasites, favus, fungus—Trichophytic—Epidermophytic.
      (iv) Other diseases of scalp, as Eczema, psoriasis, Lup. vulgaris, Lup Erythmatosus.

3. Special forms of alopecia :
   (*a*) **Alopecia areata (pelade)**
   (*b*) **Pseudo-pelade (Brocq)**
4. Alopecia arising from pyogenic infection.
5. Senile Alopecia
6. Cicatricial alopecia—all causes resulting in follicular destruction and fibrous tissue formation.
7. Diseases of hair shaft resulting in alopecia.

Congenital Alopecia.—True congenital alopecia is a rare condition, and varying degrees of baldness may be present. Complete baldness is met with in a few cases. This type arises from a poor development of the pilary system and other ectodermal structures are also involved as teeth and nails. In extreme cases sebaceous and sweat glands may be poorly developed or not at all. A small percentage of these cases may grow the hair eventually.

Non-hairy naevus, and alopecia resulting from amniotic adhesions in utero with deep cicatrix, birth injury to nerve trunks in instrumental deliveries, and hydrocephalic distensions of scalp, are all classified under this heading.

Symptomatic premature alopecia.—As the name indicates, it is always secondary to obvious causes, general or local. After long febrile conditions as typhoid, K. A., tubercle, sub-acute bacterial endocarditis or pneumonia, the patient loses the hair in varying

degrees either during the illness or the period of convalescence. Cachexia following chronic malaria, phthisis, leprosy, syphilis is another cause for thinning of hair. Convalescence from eruptive fevers is attended by a defluvium; shock, prolonged anxiety and depression of spirits may result in alopecia; of the local causes, scarring lesions as tertiary syphilis, Lupus erythematous and morphoea and intense inflammatory lesions from eczema, psoriasis, and erysipelas, destroy the hair follicles and, as shown above hair, growth is out of the question. In psoriasis, for many years, the growth of hair is not interfered with till the inflammation becomes intense and persistent. In the same way Keratosis and Ichthyosis interfere with the healthy pilo-sebaceous activity by plugging the mouths of the hair follicles.

Fungus infection of the scalp by the small spore and large spore varieties is a self-limiting disease and the patient is free from the disease even without treatment after the age of fifteen in any case. With the disappearance of the disease, a good regrowth of hair takes place. This is not so in the case of favus where permanent alopecia results from intense inflammation and cicatricial atrophy.

Of the numerous local causes, seborrhœic dermatitis or seborrhoeic ezcema will cover more cases than all the rest put together. This fact will be more appreciated when I say that early and mild cases are overlooked in those who wash their hair frequently or use regularly oily preparations for the scalp toilet A well-known authority estimates that a large majority of the urban population suffer from the disease. Whether the disease is due to the morococcus of Unna which is now considered to be identical with the staphylococcus albus, pityrosporon of Malassez which is confirmed by the researches of McLeod and Dowling, or yet the newly described Schizosaccaromycetes of Benedek need not detain us, as there is yet no unanimity among the different investigators. Both the types, seborrhoea oleosa and seborrhoea sicca, eventually produce baldness. The fall affects the vertex and the temples; the former area is affected earlier. Before complete baldness, the hair becomes less dense and thin, and daily combing brings out more and more of the easily shedding hair. Shed hairs are replaced by thinner ones and later they fail to appear. As pointed above, men are more affected than women; mode of living, over-crowding, poor ventilation, etc., may be contributory factors in the urban population.

3. Special forms of alopecia:

(*a*) **Alopecia areata.**—This is characterized by the appearance of bald patches, round, oval or irregular, without any evidence of a disease process. The area has been aptly described to be as smooth and bare as a billiard ball. The periphery may show the presence of attenuated hairs of a special type, known as "mark of exclamation hairs" (!) as the proximal root part is atrophied giving rise to this appellation. It is also considered to be of value in prognosis; when the mark of exclamation hair is found, the process is active and when not present, there is an arrest of the fall. Regrowth takes place sooner or later or not at all. After the age of 45, a good prognosis cannot always be expected. Regrowth takes place without treatment; earlier growth is downy and may lack in pigmentation. Normal colour and texture will be restored in time. This form of baldness may affect other regions than the scalp. Beard region, eye-brows, pubic and axillary hair and the hair of the trunk and limbs may be similarly involved.

The aetiology of this condition is still unknown. Focal sepsis, diseases of the nervous system, endocrine dysharmony and reflex irritation have been suggested as cause or predisposition to the disease. That it is due to a fungus infection (*e.g.*, tinea tonsurans) or a bacterial infection is the contention of others. Epilation induced by Thallium acetate will lend support to a toxic theory. Another view is to regard alopecia areata as a condition arising from all the different aetiological factors, one or the other operating in a particular case.

(*b*) **Pseudo Pelade of Brocq.**—This is a form of alopecia of insidious onset arising from a destruction of the hair follicles in small patches. The individual patches vary in size from a split pea to a pie, the former dimension being commoner. The affected area is slightly depressed (absence of follicles) and the periphery may show small epidermic follicular plugs. Otherwise there is an entire absence of crusts, pustules and broken-off hairs. The alopecia is permanent and the disease is slowly progressive. When the patches are small, the scalp presents the moth eaten appearance of syphilitic alopecia; negative specific serum reaction will put syphilis out of court. Pseudo-pelade of Brocq is also

one of unknown etiolgy: a tropho-neurosis seems probable.

4. **Alopecia arising from pyogenic infection.**—Impetigo contagiosa of the Tibury Fox type accompany such scalp affections as seborrhoeic dermatitis, pediculosis, etc., where scratching is a prominent symptom. When the inflammation is extensive and involve the deeper parts (ecthyma), much follicular destruction and scarring takes place. Impetigo of the Bockhart type sometimes affects the scalp region. This is easily recognized by the small pellicle of pus at the mouth of the individual hair follicle. Anyone who has had a little experience with the Bockhart's impetigo in its common site of election—the legs, will find no difficulty in accepting the affection as chronic. Healing takes place when most of the follicles are disorganized and scarred. The same is also true when the affection is in the scalp.

5. **Senile alopecia.**—Our span of life, according to the Psalmist, "is three score years and ten, if by reason of strength, they be four score years". But we do not get an inkling when senescence actually sets in. Some begin to look old at thirty—prematurely old, while others look young and active at sixty, blessed with a wealth of hair on their heads. Senile alopecia results when all vital powers slow down. The quantity and quality of blood supplied to the papillae become much altered and nutrition gradually fails. Senescence is brought about by some slight but cumulative deficiency of substances essential to cell metabolism.

Senile alopecia begins at the vertex, spreads to the temple and lastly to the occiput. The hairs become sparse and thin and finally cease to appear. Why the vertex should be affected first has been variously explained. I consider that, the circulation of the vertex being from below upwards, the distal and peripheral part of the circulation suffers, *i.e.*, in the area of the vertex, where alopecia begins first. The treatment of this condition, in the very nature of things, will be unsatisfactory.

6. **Cicatricial alopecia.**—This classification brings in all the causes where there is follicular destruction with a resultant scarring. I have dealt with this under local causes. Pseudo-pelade of Brocq may also find a place here, as the underlying pathology is destruction of the hair follicles. Infection by the pyogenic cocci will also result in follicular scarring.

Diseases of the hair.—Such diseases as monilethrix, trichorhexis Nodosa and leptothrix will have to be considered when the scalp hair keeps constantly short and stumpy. In the young,

fungus infection should be excluded by careful examination. Correx filter or Wood's glass will give valuable assistance in diagnosis and in deciding the effectiveness of treatment adopted.

Such conditions as trichotillomania, loss of scalp hair in rickety children by pressure and rolling of the head on the pillow and the rubbing off of the hair in acrodynia, may also be borne in mind. Idiopathic premature alopecia indicates a condition due to no detectable cause and cases falling under this grouping will become less and less when the aetiology is fully worked out. Most of the cases are really cases of Seborrhoeic Dermatitis not properly diagnosed as shown above.

Treatment.—A consideration of the aetiology will show which of the cases will yield results to treatment. If the follicular destruction is evident, regrowth in those areas is impossible. Congenital alopecia, cicatrical alopecia and pseudo-pelade of Brocq cannot be influenced by any form of treatment. In a general way it may be stated that all departures from normal health will require correction by improved hygiene, diets and medicine. Nervine tonics may be useful by providing a stimulus to the nerve endings supplying the pilary follicles. Alopecia accompanying or following acute infectious diseases, prolonged febrile conditions, etc., will not require any special kind of treatment as re-growth usually appears when the patient's general condition has improved.

Fungus infections of the scalp requires treatment by X-ray or thallium acetate by mouth in addition to parasiticide. As shown above one of the filters, Correx's or Wood's, is useful in diagnosis and treatment. The disease becomes self-limited at the age of thirteen to fifteen; Favus is not met with in South India and I have not seen a single case. Coccal infections of the scalp will require parasiticides for local application, after cutting off of the hair over the affected parts. Auto-vaccine may be of aid and may cut short the duration of the treatment.

Seborrhoeic dematitis precedes most cases of alopecia and careful search should be made to establish its presence. The following plan of treatment may be adopted when seborrhoeic dermatitis is present:

(1) A spirituous lotion for daily use containing a parasiticide and a disinfectant.

(2) Pomade for use in the night preceding the morning shampoo and

(3) A simple shampoo. The spiritus lotion may be made up as follows :—

Hydrargyri perchloridi	...	grs. 20 to 30.
Chloral hydrate	...	1 dr. to 1½ drs.
Spt. Cologne	...	2 ozs. and
Rectified spirit	...	1 pint.

The lotion may be put up in a sprinkler-top bottle for ease in daily use. I have found a lotion containing sulphur precipitate 1 dra, acid salicylic 1 dr. in 4 ozs. of Bay rum to be equally effective for daily use. Pomade may be made as follows :

Sulphur precipitate	...	grs. 30.
Acid salicylic	...	grs. 20.
Unguentum aqua rosae	...	oz. 1.

This should be rubbed in small amounts into different parts of the scalp after parting the hair seriatim, so that the whole scalp is gone over once fairly well. The morning shampoo for use is made up by digesting 2 ozs. of Saponis Mollis in 1 ounce of spts. rectificatus. The addition of a 2 or 5 grs. of thymol may make it more effective. Two to three drachms of the Soap spirit will be sufficient for a shampoo.

Alopecia areata patch may be painted daily with Tr. iodine or ordinary vinegar till growth appears. Good results are also accomplished by painting the bare area with pure carbolic acid as recommended by Bulkley. The re-painting can only be done after the inflammation has subsided. Aolan may be injected intradermally once or twice a week. All these measures aim at producing a peri-follicular vascularity. This may be attained by a regular massage of the area for ten minutes both morning and evening. U. V. L. may be used to effect the same and keep the patient in touch with the modern craze. The hair will grow in most of the patients under 45. It may not acquire the proper colour and texture, and so the patient may have a pie-bald appearance.

The lecture was demonstrated by epidiascopic pictures.

THE ROLE OF ANIMAL HEALTH IN HUMAN WELFARE

BY

DR. M. R. V. PANIKKER, B.Sc., M.R.C.V.S.,

Government Veterinary College, Madras.

Part I

HEALTH and Wealth are two of the important factors in human welfare and for attaining these all nations of the world are striving hard. Major portion of the human efforts and researches are directed towards the same. Of these two factors, the first, *i.e.*, Health is considered to be more important as is denoted by the old proverb "Health is Wealth"; but it may be realised that health is not wealth itself; it is only a quality or state that may be possessed by the individual and that may enable him to acquire wealth and as such he should possess other forms of wealth also besides health to make his welfare complete.

Relation between Man and Animals in various aspects.—Before entering into the subject proper, it is necessary to have an idea of the relation of man and animals in various aspects in his daily life. The association between them is of ancient origin, and one of man's early associates was *cattle*. Archæological researches in the submerged town of Annau show that as early as about 8000 B. C., its inhabitants had to fight against the wild aurochs which were damaging their cultivation and they had great fear for the strong wild cattle. Out of weakness and fear, these animals were regarded with religious veneration by mankind, which continued generation after generation resulting in a wide-spread religious significance for the ox. Thus worship of the ox was also prevalent among the Greeks, Romans and Germans. According to the law book of Manu, "Brahma created the cow, the mother of gods and placed it the first among animals as the dispenser of milk and butter for burnt offerings to secure the favour of the deity". Even today there exists a cow worship in India, Egypt and Central Asia and among certain Negro races. It is also well known to us that even the dung and urine of cows have certain religious sacredness among the Hindus.

In later days, man began to realise the usefulness of cattle in his daily life and it was first employed for work and then for meat and milk production. The Asiatic people made use of them in the beginning for riding and carrying loads and the Swiss as beasts of burden. Subsequent to the domestication of horse and improvements in agricultural operations, ox was more utilised for

When writing to advertisers, please mention the 'Antiseptic.'

When writing to advertisers, please mention the "Antiseptic."

drawing and pulling as the former animal was found to be more suitable for carrying and riding. This is evident from the old writings in Egypt, Rome and Greece. "The Roman Vegetius impressed on agriculturists that no people could exist without working oxen" and "in the writings of the middle ages the work of the ox was described as the basis of husbandry". Today in India ox is the most important animal used for drawing and ploughing purposes.

The utilisation of cattle for food purposes is of later origin. In primitive times, the eating of meat was under the influence of the religious feelings. Asiatic races did not eat the flesh of ox. Aryans did not consider it as a sin but the Buddhist did. Now, a good proportion of the human race are meat eaters. From ancient times, cow's milk played a great part as an article of diet. At present, it is universally used by young and old and in health as well as in illness and the cow is considered as the "foster mother of the world." Other by-products of milk such as butter or ghee is an important item of daily diet among all nationalities, cheese and cream largely used especially by the Westerners, and curd or buttermilk is almost an indispensable daily item both among rich and poor in this country. Apart from their usefulness in diet, they are of industrial importance as well, because of the hide, fat and other by-products.

In early times, the wild ancestors of the modern *horse* were roaming over the territory between Northern Africa and the Eastern Manchuria and they were hunted for human consumption and were tamed. Much later, about 2000 B.C., the horse was in common use in preference to camel and ass in Egypt and Arabia, Since then, his friendship for man has become close and his contact intimate as is evidenced from the numerous ways he is used now, *i.e.*, in hunting, riding, racing, cavalry, carriages etc. *Sheep* and *goats* have also come under domestication, because of their usefulness to man, and in the present day, they hold a significant position in the wealth of mankind in virtue of their *meat, wool, hide* etc. *Avians* including the fowls play only a less important part in their usefulness and as a source of risk to human beings. The importance of swine chiefly depends on its meat and fat. Of all animals, *dog* enjoys the most intimate relationship with man as a faithful companion or servant of his and a playmate of his children.

From the foregoing, it is clear that most of these animals either by their usefulness or from man's liking or fancy for them have become indispensable associates of mankind. This is particularly so in the case of cattle for Indians as India is essentially an agricultural country. Thus the cattle, apart from being a portion of India's wealth in kind, is also a necessary adjunct in securing wealth in other forms.

Having established the indispensable nature of the relationship of animals to man, we will now see how *their health influences the financial position and health* of mankind. Let us consider the financial position first. As already alluded to, animals especially cattle play a great part in India's wealth. But, this part will be played well only if they are healthy and strong. Death, illness and lack of physical fitness due to semi-starvation, considerably affect our wealth. Heavy mortality due to *contagious diseases* is itself an item of great financial loss. For instance, in the year 1933-34, the death figure for bovines as recorded by the Revenue Department was about 32,000 in this Presidency. This is evidently much below the actuals as all deaths might not have been reported or recorded and as this figure is exclusive of the deaths in Zamindari lands, Native States, Agency tracts and certain Municipalities that do not keep record of cattle mortality.

The actual figure, therefore, may be not less than 50,000 heads of bovines. Assuming that each animal costs on an average about Rs. 30, the total loss on account of contagious diseases in bovines in '33—'34 works upto about Rs. 15 lakhs. The loss on this account alone would have been several times more if the cattle mortality had continued to be as it was in the recent past; for instance, the figure for 1929-'30 was 1,58,574 or nearly a lakh and sixty thousands.

Then, we have to take into account loss arising from deaths due to non-contagious diseases of preventable and curable nature. Deaths in other species of animals that are useful to man both due to contagious and non-contagious diseases also affect our wealth materially. Further, ordinary ailments of animals, though not fatal, dislocates the agricultural operations and interferes with their usefulness in other respects resulting in severe loss to mankind: for example due to illness there may be partial or complete stoppage of milk yield; the animal may be rendered unfit temporarily or permanently for work; meat may be made unwholesome for human consumption: the fleece and hide may be damaged or rendered unmarketable. Above all, there is also the wastage of time, labour and money in his own treatment for recovering himself from the disease contracted from animals and in restoring normal health to his diseased animals. Unfortunately we have no sufficient statistics to show the actual economic

loss occurring annually in this Presidency, but from what has been said above, we could see that it would be enormous and this alone apart from the point of view of public health, should serve as an eye opener and induce us to view the financial aspect of animal diseases in its true perspective.

Thus, man may sustain very severe loss when his animals are ill or when they are not looked after well.

Let us next consider *the role of animal health in respect of the health of man.* This is more important than the wealth factor as it affects his own person and may lead to untold suffering and even to death. How the animals may form a source of danger to the health of man is well expressed in the following statement of Edward Jenner which was made as early as 1796 :— "The deviation of man from the state in which he was placed by nature seems to have proven to him a prolific source of diseases. From the love of splendour, from the indulgences of luxury and from his fondness for amusement, he has familiarised himself with a great number of animals which may not originally have been intended for his associates. The wolf disarmed of ferocity is now pillowed in the lady's lap. The cat, the little tiger of our island whose natural home is the forest is equally domesticated and caressed. The cow, the hog, the sheep and the horse are all for a variety of purposes brought under his care and dominion."

Subsequent researches and experiences of mankind have fully justified the truth of the above remarks and now we know definitely and beyond any doubt that there are very many diseases of animals that are communicable to man. A full account of these it is impossible to give in the limited time at our disposal and consequently I intend to deal with only the more important ones and that too briefly.

Tuberculosis.—The first and the foremost disease that merits our attention is Tuberculosis which is one of the many evils of civilisation. It is unknown in man and animals of the wild state. The disease as you all know is caused by one or other of the three strains of Tubercle bacillus (Human, bovine and avian). The importance of this disease can very well be understood by the attention, vast amount of researches and investigations it has received all over the civilised world. The work done on Tuberculosis will be almost equal to that devoted for all other diseases put together excepting cancer.

There is evidence of this disease existing in man and animals from very olden times. Probably Indians are the pioneers in recording it, as mention is made of it in Vedas about 1500 B.C.

It was recorded by the Parsees and Egyptians later. In 1882 Robert Koch discovered the tubercle bacillus which was proved and established to be the cause of the disease. Almost all warm-blooded animals either domesticated or associated with civilisation may contract the disease and may be a source of danger in transmitting the disease to man; but of all the animals cattle form the most prolific source of human infection; only to a lesser extent are the pigs, fowls and other animals. Human adults (above 16) are said to be practically immune to bovine infection, but children are susceptible and the infection usually takes place during infancy or childhood chiefly by ingestion of infected or contaminated milk.

Aninals having the open type of tuberculosis in which the tubercle bacillus are voided along with the secretions, excretions and discharges are the disseminators of the bacillus and transmitters of the disease. Thus the milk may be infective when the cow is having tubercular udder, the milk even from healthy udder may get contaminated and thereby become infective through dung or urine, when there is intestinal tuberculosis or tubercular metritis. Again the sputum or the coughed out material from animals suffering from pulmonary tuberculosis is infective. When any of these materials get access to the system of man (especially child) he becomes a victim to this dire disease in course of time. Infected meat, egg and other foodstuffs, and contaminated articles of diet and other objects, such as cups, vessels, spoons, mouth piece of telephone, and contact mediate or immediate of infected animals, such as calves, dogs, cats, lambs, poultry, pigs, etc., are other sources in transmitting the disease. The disease being chronic, the infected child grows with it into a debilitated, suffering, miserable and at times deformed creature.

Regarding its incidence among cattle of this Presidency, it was once considered to be rare, but there is evidence now to show that it may not be so. The former conception of its rarity, it is presumed, was due to want of careful clinical and P. M. examinations, which if conducted extensively I am inclined to think would yield results to show that it is not so rare as it is thought to be.

However the disease is of common occurrence in human beings. From the latest reports of the working of the civil hospitals and dispensaries of this Presidency, it may be observed that 59,889 or roughly 60,000 human tubercular patients were treated in the medical institutions referred to in the report. But we should bear in mind that this number by no means represents the

total existing strength of tubercular patients. Those treated in the military hospitals, and treated privately by allopathic physicians and cases treated by physicians of other systems of medicines (ayurvedic, homeopathy, unani etc.,) and those undetected and untreated are evidently not included in this figure. Thus the actual strength of the tubercular patients may be much more, probably more than double the number now recorded. Our uncared-for or ill-cared-for animals especially cattle, coupled with the lack of proper sanitary and preventive measures may be greatly responsible for at-least a good proportion of the cases mentioned above. Even in countries like Great Britain where much has been done and is being done to prevent tuberculosis in man and animals, the object has not yet been fully achieved. For instance, a recent report by a special committee appointed by the People's League of Health states as follows:—"The maximum incidence of tuberculosis of bovine origin is in childhood. About 2000 deaths in England and Wales mostly in children occur annually from this cause. At least 4000 fresh cases of bovine infection develop each year, an immense amount of suffering and often permanent deformity caused by this bacillus." When such is the case in England where much progress has been made with regard to general preventive measures, one could easily imagine what would be the state of affairs in India where prophylactic measures in respect of animal diseases are still in their infancy.

From the foregoing we could see that tuberculous animals are a very serious menace to human health especially of children. It is high time that investigations are launched to determine its prevalence in our cattle especially milch cows with a view to minimise infections of bovine origin in man and eventually to eradicate the disease from our animals a potential danger particularly to our children. Total elimination of infection is not at all an easy problem but infantile infection could be first eliminated by allowing infants, milk only from tubercle-free herds of cattle or that has been very carefully pasteurised. The U. S. A. Bureau of Animal Husbandry has made excellent progress in the eradication of the disease as could be seen from their report for 1933. They have already established eleven states under modified accredited areas. Over 13 million cattle were tuberculin tested during the year with only 2% reactors. In carrying out the work, there were about 197 whole-time Veterinary Surgeons under the Bureau in addition to 586 Veterinary officers engaged in this work and expended about 13 million dollars from state and federal finances for compensation and operation costs.

Anthrax.—Anthrax is another disease that man may contract by his association with animals. It is caused by Bacillus anthracis and is primarily a disease of ox. All domestic animals are susceptible and thus, in addition to ox, the sheep, horse, pig and dogs are also sources of danger to our health. The disease existed from ancient times. When Moses threatened Pharaoh about 1491 B. C., with an epidemic among the animals, it is considered by many authors that the disease contemplated was Anthrax. During this outbreak it is stated that the disease devastated all the cattle of Egypt. Homer, Virgil, Hippocrates and Pliny have described the disease. There was a casualty of 60,000 among human beings due to this in the south of Europe in 1613. Later the heavy mortality among sheep in France and neighbouring countries (25 to 50%) which jeopardised farming, led to extensive researches that resulted in the discovery of the causal organism by Koch in 1876.

In India the disease among cattle is of frequent occurrence and the average yearly mortality of cattle in this Presidency for the last 5 years is about 5,500. It appears as a very acute rapidly fatal enteritis and death may supervene before any symptoms have been observed. Man becomes infected secondarily by handling infected carcases or hides and offal from such, and also by inhalation of spores from infected wool. When spores gain access into any abrasion or wound a malignant pustule or carbuncle develops. This may be followed by a general infection of the body and death. Infection from shaving brushes used to be a common method of contracting the disease. Inhalation of Anthrax spores while sorting wools leads to pulmonary anthrax or woolsorter's disease. Intestinal form of the disease also occurs at times by the ingestion of improperly cooked meat from infected animals. Thus the incidence of anthrax in cattle and sheep is a great source of danger to man and so it is essential to control the disease among animals by preventive inoculations and vaccinations of healthy animals, isolation of affected ones, proper disposal of the carcases and efficient disinfection of infected areas and objects.

Undulant fever (Malta fever) is another malady that man may contract from animals and it is caused by the micro-organisms Brucella melitensis or Micrococus melitensis the cause of Malta-fever in goats and Brucella abortus the cause of contagious abortion in cattle and hogs. All domesticated animals are susceptible and through one species (goats) a large number of individuals in certain areas are infected. Thus in Malta 50% of the goats are infected. These animals are so little affected in

their general health that the condition would not have received any attention or would not have been recognised as a specific disease, had it not been for the serious character of the disease in man. The condition in man may be regarded as a septicæmia as the organisms are found in the blood stream. The investigations in Malta of the Commission on this disease in 1904-1905 led to the conclusion that human cases very commonly arise as a result of the ingestion of the milk of infected goats. Milk products such as cheese and cream may also be a source of infection. It is also probable that cases in man may arise by contamination of the food by dust from soil on which the urine of infected animals or men has been voided. Infection by inhalation or through skin may occur very rarely. In places where the disease is prevalent among animals man should take particular care in guarding himself against the disease. Avoid goat's milk as far as possible and all milk should be properly sterilised before it is used. Persons whose occupations expose them to infection as in the case of Laboratory workers, employers of slaughter houses etc., should devote particular attention to personal hygiene. Early detection of the affected animals (by serum tests), slaughter when only a small proportion of the goats are affected, isolation, thorough disinfection of infected premises and utensils and attention to water supply and general sanitation are indicated.

THE ROLE OF ANIMAL HEALTH IN HUMAN WELFARE

BY

DR. M. R. V. PANIKKER, B.Sc., M.R.C.V.S.,

Government Veterinary College, Madras.

Part II

Glanders or Farcy is a disease that man may contract by contact with equines (horses, mules and donkeys) the natural hosts of the disease. It is caused by Pfeifferella mallei, formerly known as Bacillus mallei. The disease was known from ancient times. Hippocrates refers about it in 450 B.C. Its contagious nature was recognised in the 4th century A. D. and a systematic description was made by Vegetius in the 5th century. Its transmissibility to man seems to have been recorded only in 1783 by Osiander. The causal organism was discovered from materials of the lesion in 1881 by Babes.

The two main factors that carried the disease from place to

place were trade and war. The spread of the disease and its incidence have been considerably reduced by strict legislation. In India also the Glanders and Farcy Act has done a great deal in controlling the disease. In animals the disease is usually chronic and occur in two forms, the nasal or pulmonary type known as "Glanders" and the cutaneous form named as "Farcy". The former is the more important and frequent form and the common source in spreading the disease.

Among men it is mostly met with in Veterinarians, hostlers, laboratory workers and others who come in direct contact with diseased animals or cultures of the bacilli. The acute form is more common in man with a mortality of about 60%. Gaiger who had an attack of the disease describes it as "the most painful disease from which man can suffer." Infection through skin (wound or abrasion) is the usual method: probably by ingestion and inhalation also. Prevention in man consists in strict adoption of personal hygiene and eradication of the disease in horses by early diagnosis of affected animals, their destruction and proper disposal of carcases, disinfection of infected materials and premises.

Again **Ringworm** and **Actinomycosis** are contagious diseases of animals mostly in cattle due to certain parasites of vegetable origin. The former usually occurs as local skin lesions but the latter may affect any part or organ of the body.

Psitacosis is a disease of parrots and parrakeets that is communicable to man through his association with them. It is caused by Salmonella psitacosis and produces severe pneumonic symptoms in man.

Food Poisoning is an infectious disease of man caused by certain Salmonella group of bacteria mostly of animal origin characterised by nausea, vomiting, abdominal pain and diarrhoea. It is transmitted through food mostly of prepared meat such as sausages, meat pies, chopped meat etc., and preventive measures consist in taking only clean food, fresh food, and properly cooked food. Careful meat inspection will considerably minimise the incidence of disease in man.

Swine Erysepelas is an infectious disease of swine caused by bacteria, and man contracts the disease through skin abrasions. It is comparatively of less importance to man as it causes only a local inflammatory lesion which may disappear in a week or two and as it is not of frequent occurrence. **Milk sickness** is another disease resulting from the use of milk of animals that have eaten the poisonous plants, white snake root or the rayless golden rod.

Diseases caused by Filterable Virus.—Certain of the diseases of animals caused by filterable virus are of great importance from a public health point of view. Foremost among them is Rabies or madness of canines chiefly dogs, which species are the common subjects concerned in the transmission of the disease to man. Infection is conveyed by bite and the disease when occurring in man is designated as hydrophobia (from the Greek "fear of water") which term is not apt in the case of dogs. The term "Rabies" (from Latin "to rave") is more appropriate for the disease as found in animals except probably in the case of dumb rabies.

It is one of the oldest known diseases of animals. Plutarch mentions of it as occurring in man. Whitmore alludes to it (13th century B. C.) and, Aristotle associates (4th century B. C.) it with madness of dog. Celsus during the 1st century A.D. gives the first proper description of the disease in man naming it Hydrophobia. Hertwig in 1829 demonstrated the usual method of transmission *i.e.*, through saliva by the bite of a rabid animal. Pasteur prepared the first vaccine for the disease in 1885. Negri described the bodies in the brain cells in 1903.

The disease could occur anywhere in the world. Because of the insidious manner in which the animals may get infected and the indefinite nature of its incubation period, it is only by strict and eternal vigilance that it could be stamped out and kept out. England stamped out the disease in 1902, but the Great War reintroduced it in 1918. There is none there since 1922. None in Ireland for the last 28 years. Sweeden-none for the last 48 years. In this Presidency, it is of frequent occurrence in dogs as there are too many uncared for and stray dogs on the road.

The virus is found in the nerve tissue, urine, lymph, milk, and other body fluids. It may be found in the saliva even five days before the animal shows clinical signs of the disease. Clinically in dogs two forms may be observed and they are named after the type of symptoms exhibited by the animal. Thus we have :—

(1) The furious rabies in which the animals are very aggressive, attack persons and objects, barks hoarsely and later shows signs of paralysis.

(2) Dumb rabies. In this there is excessive salivation, dropping of the lower jaw, tendency to hide in dark corners and early appearance of paralysis.

Both types may be met with in man in whom the incubation period ranges from 14 to 90 days (In dogs it may go up to 6 months or more even to 1 or 2 years.)

It is one of the most pitiable and dreaded diseases that man may become a victim to and much more needs to be done in India towards the control and prevention of this. Man who has no connection whatsoever with dogs may contract the disease by being bitten by stray rabid dogs wandering in the streets. Preventive measures consist in the destruction of stray, vagrant and vicious dogs, enforcing the use of restraint, muzzle etc., for dogs that are taken along or allowed into public places, the immunisation with Pasteur's antirabic vaccine and other general preventive measures.

Small Pox and Cow Pox.—These are also caused by filterable viruses. Smallpox is primarily a disease of man, but secondarily it infects cattle when it is called "Cowpox". From cattle the disease may pass back to man in an attenuated form producing a very mild type of disease "Vaccina" which protects man against the subsequent attack of smallpox. It is based on this that smallpox vaccine is now extensively prepared and made use of for man.

Foot and Mouth Disease of Cattle.—The most highly contagious disease of this species is also one of the filterable virus diseases that is transmissible to man. He may get himself infected by consuming raw milk and milk products from infected cows or by accidental ingestion of saliva of sick animals. Children are more susceptible. It is seldom fatal except in frail children. Prevention in man consists in the pasteurization of milk and adoption of proper personal hygiene. The only effective method of eradication of the disease is the destruction and proper disposal of infected and in-contact animals. When this is not practicable and possible general preventive measures have to be adopted.

Apart from the diseases referred to above, there are a variety of conditions due to **Animal parasites:** the source of infestation of some being from animals of different species. The parasites responsible are mostly the adult or larval stage of worms and partly some of the insects.

A large proportion of the human population in India especially among the poor classes suffer considerably from worm infestations. One of the common varieties is the round worm known as **A. lumbricoides.** Children are the commoner subjects probably due to their careless habits. A. lumbricoides is essentially a human parasite; but there is an identical parasite in the pig known as *A. Suis*, the ova of which when gaining entrance into the alimentary tract may behave in a similar way and develop into adult parasites and cause alimentary disturbances, anæmia, debility etc., in man.

The only other known round worm of animals that infests mankind is Trichinella spiralis, producing the condition known as **Trichinosis.** The natural hosts of the parasites are the pigs and the rats and man usually gets the disease by the ingestion of trichinous pork. The adult parasites are scarcely visible to the naked eye and are found free in the intestines. The females may be partially embedded in the intestinal wall. The larvae in the encysted form are found in the musculature. It is by the ingestion of such encysted larvae that fresh subjects get the infestation and develop adult worms in their intestines. No characteristic symptoms are shown by pigs while alive nor any appreciable lesions seen on post mortem examination. So the disease is not easily diagnosed, which augments the risk for man and the difficulties in prevention.

In man, it is seen mostly in countries where pork is eaten raw or undercooked. Symptoms at times may be lacking and in other cases not constant. When present, gastro-intestinal disturbances due to the adults and muscular pain on account of larvae may be observed. Preventive measures consist in protecting pigs from getting infested by eradicating rats in the neighbourhood of piggery and avoiding suspicious foods that may contain encysted larvae. Careful meat inspection and proper cooking of meat should also be done.

Human health is often seriously affected by **tapeworm disease.** This is due to the presence of adult tapeworms in their intestines and some of the domesticated animals play an essential part in transmitting the disease to man and in the propagation of the parasites. There is one peculiarity with regard to these parasites in that they cannot complete their life cycle in animals of one and the same species or in other words they require two animals or hosts to complete their life cycle. Thus, we have *Taenia Saginata* a tapeworm of man which is cosmopolitan in its distribution and the commonest of its kind in man ; the worm or adult stage is only found in human beings; the larval or bladderworm stage of its life cycle has necessarily to be passed in bovines or other ruminants which form the intermediate host. In cattle, presence of these larval, cystic or bladderworm stages causes the condition known as " Measles" and the beef of such animals containing these larval forms is known as " Measly " beef ; when measly beef, raw or partially cooked is eaten by man, he may get infected and the adult stage of the worm develops in his intestines in about two months. It may assume a length of about 15 to 30 ft. consisting of nearly 2000 segments

and is capable of producing thousands of eggs. The infected person expels innumerable numbers of ova in his faeces and contaminates the grazing grounds, ponds etc., and these eggs when ingested by the bovines or other ruminants along with food or drinking water or accidentally, larval stages of the worms develop in the muscles of these animals, the intermediate host. These cysts mature and may be about the size of a pea but cannot have further development into worms unless they get access to the intestines of man.

There is another tapeworm of man called *T. solium* which is a little smaller than T. saginata and which may develop in man under similar circumstances mentioned above. In this case, the intermediate host in which the larval stages develop is the pig and the meat containing these cysts is known as "measly" pork. The percentage of parasitism due to this may be less in man than that of T. Saginata in this country as Muhammadans form a good proportion of the population and as they do not eat pork. But this worm is more harmful because it is capable of establishing the larval stage in man unlike the beef tape-worm if an egg should be ingested. The embryo may invade the brain or the eye resulting in convulsions, blindness or death.

Eradication of human infection necessarily means the prevention and ultimate eradication of "measles" from animals and this is to be effected by the careful disposal of human excreta. Proper inspection of meat, proper cooking, refrigeration for a few weeks, personal hygiene etc., are other measures of control against human infection.

A third tapeworm which is occasionally met with in human beings (especially children) *is Dipylidium caninum* which is primarily a parasite of dog. It is one of the common tapeworms, found in the intestines of dog and occasionally in cats. The infection is carried from dog to dog and to cats and human beings through the medium of the intermediate hosts which may be fleas or lice which are ectoparasites of dog and cats. These vermins remain on the dog or cat as the case may be, and feed on the tapeworm eggs passed by the final host and the larval form of tapeworm develop in these vermins. When such infected vermins are ingested by human beings accidentally while playing with or caressing or kissing dogs or by taking food, milk etc., contaminated with them, the adult tapeworms develop in their intestines and cause intestinal disturbances. To prevent infection in man, get the infected dogs or cats treated properly for eradicating the worms in them and by keeping them clean by regular washing, brushing

etc., to guard against the vermins. Avoid allowing children to play with dogs and cats. Avoid contamination of milk, food stuffs etc., by these vermins falling into them ; keep articles of food properly protected and covered. Stray dogs and cats should be destroyed as these will form the permanent reservoir for the propagation of the parasites.

There is another tapeworm infection in man resulting from eating raw or partially cooked fish which is the intermediate host. This is *Diphyllobothrium latum*, the adults of which are found in the intestines of man and the larval stages in the muscle of fish. Prevention consists in proper cooking of fish before taken by human being. Lastly there is the dog tapeworm *T. echinococcus* the larval stage of which is responsible for *hydatid disease* in man who gets infected by accidental ingestion of ova contained in the faeces of dogs harbouring the adult worms.

Among the parastic skin affections that may be communicable from animals to man, mange or scabies caused by *sarcoptic mange parasite of dog* is one.

Up-till-now we have been dealing with the part played in the matter of human health by animals domesticated in its real sense or animals the flesh of which is used for human consumption. It may not be out of place here to make a passing reference to the role played by certain animals that are not strictly domesticated but may be regarded as involuntarily domesticated animals since they are often found taking shelter under our roof as intruders and against our wish. I mean the rats, squirrels, etc., *i.e.*, the rodents. These animals especially the rats are a great source of danger to man in this country as they are mainly responsible for the bubonic type of plague-a much dreaded disease in man. This is primarily a disease of rodents, but it occurs secondarily in man as a result of bite from infected fleas. The causal organism of this disease is Bacillus pestis or Pasterella pestis and the rats chiefly concerned in propagating the disease are the brown rats (Ratus norvegicus), the roof rat (Rattus rattus alexandrinus) and the English black rat (Rattus, rattus rattus). The flea chiefly responsible in India is said to be Xenophylla cheopis. Other diseases of rodent origin occurring in man are Tularemia, rat—bite fever, and rocky mountain spotted fever. Preventive measures against these diseases are to be directed towards the rodents and vermins responsible for transmission of the infective materials.

Lastly some of the animals act as passive carriers of pathogenic organisms such as those responsible for botulism, tetanus

and gas gangrene thus being a source of danger to human health and others help through the medium of their products (such as milk, butter etc.,) in spreading certain diseases from man to man ; for example, septic sore throat, diphtheria and scarlet fever may be spread in this way.

Hitherto I have been telling only the dark side of the picture regarding the role of animals in Public Health and in fairness to our dumb and inevitable associates, I should make mention of the good side of it also a bit, before I conclude my lecture. Our animals have had and are having an essential and significant part in alleviating sufferings of man and animals and in the advancement of sciences in general and this fact is well expressed in the following statements of Sir Leonard Rogers. "That the sufferings of animals, as well as man have been immensely reduced through experiments on animals may safely be said to be the universal opinion of all the scientists who are best qualified to judge at the present day." "As practically the whole basis of modern scientific medicine—physiological, pathological, bacteriological and therapeutic is built upon knowledge largely acquired through experiments on animals, it would require a complete medical library to expound it". The vast amount of information we have today regarding the therapeutic use of drugs, the use and benefit of vaccines and sera and of glandular products would not have been so easily available for us for use both in men and animals, if we were not able to make use of animals as subjects for experimental study and research and for the manufacture of biological products.

To sum up, we have seen from the foregoing that animal health is of immense importance in problems connected with human welfare.

Firstly, animal diseases are a source of great drain on our wealth either by causing heavy mortality in the animals or by interfering with their usefulness in agricultural operations, dietetic purposes, industrial and commercial development of animal products and in other respects. Secondly, human health is often considerably affected by the diseases of animals transmitted by them or by other diseases conveyed to men through their agency directly or indirectly. We have also seen that animal diseases are of varied nature and are transmissible to man from different species of animals. Thus we have Anthrax, Tuberculosis, Foot and Mouth disease, cow pox, Antinomycosis and Tæniasis caused by Cysticercus bovis from cattle ; Trichinosis and Taeniasis caused by Cysticerus cellulosae from pigs, undulant fever from goats,

rabies, hydatid disease, Dipylidium infection and Sarcoptic mange from dogs, Glanders from the horse, T. B. from fowls, diphyllobothrium infection from fish, plague from rats, and several others. Consequently, it is imperative on the part of human beings, from points of view of our wealth and health, to look after our animals well and to guard them against diseases. Above all, there is also another reason that should actuate man in preventing diseases in our dumb associates, *viz.*, from a humanitarian point of view.

DIAGNOSIS AND TREATMENT OF HAEMATURIA

BY

DR. C. P. VISWANATHA MENON, M.B., & M.S.,

Tutor in Surgery, Medical College, Madras.

THE passing of blood in the urine, while alarming enough to the patient, should be considered a grave symptom by the Medical attendant also; but too often one finds that both Doctor and patient are inclined to make light of it. As a symptom Haematuria is an important one, because it directs one's attention immediately to the urinary tract and points to organic disease there. The commoner causes of Haematuria, *viz.*, tumours, stone, tuberculosis and infections are conditions in which early diagnosis is of very great importance to the patient, and hence the necessity for an immediate, complete and comprehensive genito-urinary examination is evident. We often use terms like Essential Haematuria and Idiopathic renal bleeding. These are but expressions of our inability to determine the cause and are often used to gloss over the negligence of giving the patient the benefit of a complete examination. The only thing essential about Essential Haematuria is our own ignorance about it. We do, however, find that in spite of the most complete examination a few cases have still to be classified under that heading and Levy and others, after following up the after-histories of some of these cases have come to the conclusion that " we can get away from the idea that bleeding in these cases was due to early malignant disease or other organic conditions." They found that while a few cases had subsequent operations performed for organic disease in the kidneys, the majority remained alive and well and had no further trouble.

Blood in the urine, while it may occur at any age, is

commonest during adult life and males are more often affected than females in the proportion of 2 to 1.

For our purposes, obvious causes like gonorrhoeal infections, bleeding as a result of instrumentation and injury to urethra, bladder or kidneys need not be considered. Haematuria may also occur as a symptom of a general disease like Leukaemia, Purpara, Haemophilia, Malignant endo-carditis and embolism and High Blood pressure and in certain diseases like Cirrhosis of the Liver, cardiac failure and Phosphaturia. In connection with high Blood Pressure, it is well known that epistaxis from the nose may first draw one's attention to the condition. That bleeding from one kidney may occasionally be the first symptom is not, however, recognised. One such case occurred in the General Hospital. Patient was admitted for Haematuria of a few hours' duration. A cystoscopy was performed and blood seen issuing from the right ureteric orifice. X-ray examination and intravenous pyelography were negative for stones. Considering the age of the patient and that the Haematuria was painless, malignant disease was suggested and the right kidney was, therefore, explored through the lumbar route. Nothing abnormal was found in the kidney and the incision was closed after removing the capsule of the kidney. Following this, Haematuria stopped completely and the patient went away apparently alright. A few months later he came back with a very high Blood Pressure and uraemic convulsions and died. This case evidently was one in which a chronic nephritis with high Blood Pressure gave rise to unilateral renal bleeding. A case which would have ordinarily been classified as one of Essential Haematuria.

Coming now to the causes of Haematuria, which are traceable to the urinary tract itself, Kirschmer found in an analysis of over 900 cases that renal causes accounted for the majority. Tuberculosis, stone, pyelitis, malignant growths and infections were the conditions in that order of frequency. Rarer conditions, like Hydronephrosis, congenital cystic kidney, nephritis of pregnancy also accounted for a few cases.

The next group of cases were traced to the bladder and here malignant growths, papillomata, stone, tuberculous ulcerations and cystitis follow in that order. The prostate accounted for a number of cases and hypertrophy, carcinoma, the presence of a prostatic bar, calculus, tuberculosis and abscess were the causes. Next in order of frequency comes the ureter and here stones, stricture and carcinoma may all give rise to bleeding. Bleeding from the urethra apart from trauma and acute gonorrhoea is very

rare. Stricture and prolapse of the female urethra and papillomata may all give rise to Haematuria. Haematuria may also occur from causes outside the urinary tract, for instance, disease or inflammation of the neighbouring organs. Acute appendicitis, salpingitis, Diverticulitis and carcinoma of the rectum have all been known to cause it.

We will now discuss the diagnosis, first of all, as to the *presence* of blood, then as regards the *site* of origin and lastly the *cause* of the bleeding. A red colour in the urine may be produced apart from blood by drugs like Rhubarb, senna etc., and certain dyes. The colour produced is slightly different from that of haemoglobin. Specific tests for blood—like the Benzidine and guaiacum tests and the spectroscope will show the presence of blood. The spectroscope may also show the presence of Methaemoglobin, which indicates that bleeding has probably occurred from the kidneys. The presence of blood apart from haemoglobin can only be decided by the microscope when R. B. Cs. are actually seen. There is a fallacy in women in whom blood in the urine may have come from other sources like menstruation or bleeding from a growth in the cervix.

In the diagnosis of the source of bleeding, the distribution of the blood in the urine may give some help. The three-glass test is still useful. It would show that if the first portion of the urine contains more blood than the others, the origin is from the urethra, if the last portion, from the bladder and if uniformly distributed in the three glasses, Haematuria is probably of renal origin. We have in cystoscopy, however, the best and probably the only reliable method of diagnosing the source of Haematuria. To be useful, this examination has to be undertaken when the bleeding is actually in progress, so that the actual source of the blood may be seen. For this it is important that the cystoscope should be introduced with the minimum amount of trauma, as otherwise, it may itself set up a little bleeding, which may give rise to confusion in diagnosis. Again when Haematuria is very excessive or when there is co-existing cystitis, it would be difficult to clearly visualise the bladder and details cannot be made out in such cases. Continuous washing of the bladder through an irrigating cystoscope may enable one to get a clear view but occasionally the examination has to be postponed till local conditions have improved.

In the routine examination of these cases, a careful history, especially of a tendency to bleed, has to be obtained and the presence of symptoms associated with the haematuria if any should

be enquired into. Symptomless haematuria generally points to malignant disease or to Essential Haematuria. In the presence of symptoms, pain referred to the loin points to disease of the kidney while severe attacks of renal colic are due either to passage of stone, tuberculous debris or clots when there is severe bleeding from the kidney. Frequency of micturition, pain referred to the tip of the penis, irritability of the bladder etc., point to disease of the bladder itself, though occasionally these symptoms are secondary to renal disease, as in tuberculosis of the kidney.

A general examination of the patient with a view to finding out the presence of general disease, disease of the circulatory system etc., has to be made. The blood pressure must be estimated. An examination of the abdomen will show the presence or otherwise of tumours in relation to the kidneys, presence of other abdominal disease, the condition of the bladder, whether distended or otherwise. A rectal examination is important. An enlarged prostate, disease of the vesiculae seminalis, sometimes a stone in the bladder, occasionally tumours in the bladder or disease of the surrounding pelvic viscera may all be recognised. In women a vaginal examination must also be undertaken.

The examination of the urine macroscopically and microscopically will also give information of value. Blood may be present in the urine either in large amounts recognisable by the naked eye or in small quantities seen only under the microscope. Massive haematuria is very common in malignant disease especially if symptomless, while in stone, blood may be recognisable only on microscopic examination. The presence of clots and their nature will point to the source. Clots formed in the bladder are generally large and tend to get broken up in the urethra. Clots formed in the ureter has the characteristic long worm-like appearance. Those formed in the pelvic of the kidney are supposed to have a triangular outline. A microscopical examination will also show the presence of pus cells, pointing to infection, crystals pointing to calculus diathesis; occasionally, fragments of growth may be seen. When present these are of great diagnostic importance. But a conclusion as to the malignancy or otherwise of a growth should not be drawn from the appearance of pieces which are passed, because malignancy can be determined only if the healthy tissues surrounding the growth are examined. A bacteriological examination of the urine as well as a guinea-pig inoculation should also be done preferably with urine collected from each kidney separately. Presence of pus cells without

culturable organisms points to tubercular disease, and a guinea-pig inoculation will confirm the diagnosis.

Cystoscopy while of great use when actual bleeding is in progress will also give important information when done after the bleeding has stopped. New growths of the bladder, benign and malignant, ulcerations, the appearances characteristic of tubercular disease of the kidney, stones and cystitis are all conditions which can be recognised by the cystoscope. Often one finds difficulty in deciding whether a given papillomatous tumour in the bladder is benign or malignant. Benign tumours are pedunculated while the malignant ones are sessile. A test described as very useful is done by means of the diathermy electrode. With the electrode in contact with the growth, the current is switched on just sufficient to produce coagulation and make the tip of the electrode adhere to the growth. If the electrode is now withdrawn gently if it is a benign tumour, the bladder mucous membrane gets pulled up with it in the form of a cone. With a malignant tumour, this does not occur on account of the infiltration of the base.

Chromocystoscopy and ureteric catheterization must also be done at the same time as a cystoscopic examination with a view to finding out the functional capacities of each kidney separately.

Radiography of the whole urinary tract must be performed. In the interpretation of shadows seen, outside causes like conditions in the bowel must be avoided by preliminary preparation of the patient and an enema must be given just before the examination to expel air bubbles which may otherwise obscure conditions in the kidney and ureters. When a shadow is seen, its relation to the urinary tract can be established by a lateral radiogram, when a stone in the pelvis will be shown up against the body of the second lumber vertebra. Stones in the gall-bladder are seen more anteriorly. Calcified mesenteric glands have a characteristic appearance and they also tend to shift their position in different radiograms. Ossification of the costal cartilages will be apparent as such in a lateral picture. The only certain method, however, of establishing their connection with the urinary tract is by means of a uretero-pyelogram. For this purpose either an intravenous injection of uro-selectan B or a retrograde pyelogram by filling the pelvis with a solution of 10 to 20 per cent sodium iodide can be done. It is important to remember that a pure uric acid calculus may not cause a shadow, but its presence will be evident as a comparatively radio-translucent area in a retrograde pyelogram. A pyelogram will also show negative shadows of

papillomata of the renal pelvis. Tumours of the kidney produce characteristic distortion of the pelvis. And lastly, exploration of the kidney may have to be undertaken when malignant disease is suspected or when other examinations have proved negative.

Treatment.—I do not propose to go in detail into the treatment of the various conditions which may give rise to hæmaturia. It is important to recognise that treating hæmaturia by things like calcium and hæmoplastin without making an attempt to diagnose the cause is not justifiable. So that, it will be very seldom indeed that purely symptomatic treatment will have to be undertaken. Where examination has proved negative, these drugs might be tried to reduce the bleeding. Sometimes in cases of massive hæmaturia, the bladder may get filled with clots and give rise to retention. These clots may have to be washed out. In some cases suprapubic cystotomy may have to be performed. Exploration of the kidney with a view to rule out organic conditions in the kidney has very often to be undertaken in Essential hæmaturia and following this, the bleeding has been known to stop. How exactly this is done is difficult to say. Intra pelvic therapy by irrigating the pelvis through a ureteric catheter with silver nitrate has been recommended and may be useful.

Where the cause has been discovered, the treatment is directed towards removing it. Traumatic cases acquire an importance apart from the bleeding, because they may be associated with extravasation of urine-intra or extra peritoneal—and treatment has to be undertaken to prevent this serious complication. In injuries of the kidney, the tendency now is towards conservative treatment. Exploration is indicated only in those cases where there are signs of increasing of internal hæmorrhage with a rapidly increasing swelling in the loin pointing to active hæmorrhage from the kidney. In a few of these cases primary nephrectomy may have to be performed when the kidney is considerably damaged.

Stones in the kidney have to be removed without much delay except in those cases where a number of small stones are seen. These will be passed through the ureters and treatment should be mainly medical. In bilateral cases when one kidney from previous examination has been shown to be considerably affected and the other is in its early stages, it has been the practice to operate on the comparatively healthy side first so as to prevent further damage to the kidney which is probably the only one functioning. The other kidney may be dealt with later, if necessary by nephrectomy. But this is done only if it is shown to have very little function.

Tuberculosis affecting only one kidney should be treated by unilateral nephrectomy. Partial excision of a tuberculous kidney has been recommended but this does not appear to be sound treatment, because one can never say from an external examination of the kidney how much of it is involved in the tubercular process. In bilateral cases as well as in the generalised miliary tuberculosis of the kidney treatment is medical except when it can be shown that one kidney is completely damaged as a result of the disease and the other one is in its earliest stages of infection. Removal of the larger focus may help the patient to overcome the early infection in the other kidney. Papillomata of the pelvis of the kidney have to be treated by nephrectomy including as much as possible of the ureter. The papillomata are found in these cases to extend down the ureter. Malignant tumours, if diagnosed early enough, may be treated with nephrectomy. In late cases probably very little can be done except relieving the patient's condition by X-rays and irradiation. Papillomata of the bladder, if small, may be treated cystoscopically by means of the diathermy electrode. These cases, however, have to be watched and cystoscoped from time to time as they have a tendency to recur and in some cases become malignant. When large and extensive, the electrode may not be sufficient to completely destroy them and they may have to be excised after a supra pubic cystotomy. Malignant tumours when seen early may be eradicated by partial or total cystectomy implanting the ureters into the rectum if necessary. In inoperable cases some relief may be afforded by diathermy.

CARBUNCLES

BY

LIEUT. COL. K. G. PANDALAI, M.B., F.R.C.S., (Eng.) I.M.S.,

Superintendent and Surgeon, General Hospital, Madras.

CARBUNCLE is a universal disease and attacks all races. In the early stages, it is easily mistaken for a mere boil or an abscess. It is more prevalent in the hot weather, when the skin perspires freely and is in a favourable condition for the onset of infection. It is a secondary disease, grafted on people predisposed to it by metabolic or other disorders. If the disease is recognized early and its seriousness understood, not only by the practitioners but by the people themselves, a great deal of unnecessary suffering and many valuable lives could be saved.

Clinical features.—It is a disease of early and late middle age. Generally men and women at the most useful period of their lives, when their earning capacity is at the highest, are affected.

Carbuncles are masses of devitalized tissues, occurring in most of the cases, in subcutaneous tissue. They also occur in the submucous tissues of mouth, anal canal, etc. When occurring in the neighbourhood of the two ends of the alimentary canal, mouth and anus, they are most dangerous lesions. If a carbuncle is cut into, it is found to be a mass of slough, infiltrated with pus very much like a sponge soaked in water. In a carbuncle it is difficult to say where the slough ends and healthy tissue begins as there is no dividing line. A carbuncle does not become circumscribed but permeates subcutaneous tissues very much like malignant disease. It affects the deep fascia also, like the fascia over the pectoral muscle, fascia over the erector spinae etc. From fascia carbuncles may creep on, around and along layers of muscle. In extreme cases, practically all the tissues are infiltrated except perhaps large nerves and vessels. Small vessels dilate and may be very friable, as when a carbuncle is cut out, the haemorrhage might be very serious.

Although it is true that carbuncles occur in certain young apparently healthy men and women who are perhaps specially sensitive to the staphylococcus, this is not the rule. This sensitiveness to certain organisms occurs throughout the animal kingdom. But carbuncles ordinarily occur in elderly fat and flabby individuals whose urine when tested contains sugar and ketone-bodies and occasionally albumin. Cases associated with albuminuria are comparatively more dangerous.

The immediate cause of the carbuncle is the staphylococcus pyogenes aureus. The onset of streptococcal infections may perhaps be very acute and terrifying but if we compare the sum-total of the mischief wrought in the human body by the streptococcus with that by the staphylococcus, I consider the staphylococcus a more terrible organism both by the insidiousness of its work and its chronicity.

The onset is signalled by a little local pain and slight redness, the surface is slightly elevated, tender, hot and with a tendency to spread. The colour soon changes to dark red, and a carbuncle at this stage can usually be distinguished by the absence of a central core, unlike a boil. Usually the patient makes light o fit, thinks it is a mere boil and generally neglects it in the early stages. The local phenomena rapidly become aggravated, constitutional symptoms also manifest themselves. The temperature rises upto 100° or 102°; there is increase of pulse and respiration rate, the tongue is coated, there is loss of appetite and patient feels and looks ill. There is a peculiar pallor about these cases. If left untreated, the carbuncle increases in size, the skin assumes a coppery red colour in light skinned people and gives away at more than one spot with a little discharge of pus and slough. The patient thinks that the abscess has burst, but induration remains and constitutional symptoms do not abate. The carbuncle extends in size and depth. In cases where more than one organism is present as is frequent at this stage local and constitutional symptoms are much more severe.

As regards rapidity and extent of growth, it varies a good deal. In some favourable cases the carbuncle may become circumscribed and may react to local abortive medical treatment, such as cold or hot compresses, leeches etc., which aim at producing local congestion by counter-irritation.

A favourite method with some surgeons was to inject into the core of a carbuncle such antiseptics as tincture of iodine, 5% carbolic acid or to apply pure carbolic acid in the core of the lesion at the end of a probe. Carbolic acid thus applied is rapidly neutralized by body fluids and rendered inert. Very small carbuncles can be cured by abortive treatment, such as cupping and antiseptic pastes, etc.

Clinical Types.—There are some clinical types of carbuncles we should all recognise. There is the acute galloping carbuncle with rapid spread and severe constitutional symptoms. In such you cannot feel sure what the patient will be like to-morrow. These are very serious and mostly fatal rapidly passing into

a state of coma. Then there are cases which spread rapidly, but are arrested temporarily by treatment only to flare up again in a week or 10 days. Then there is a type of carbuncle which may be called 'Carbu culosis'. In these cases, several carbuncles are present scattered throughout the body, and in the back you may find a large central carbuncle surrounded by several smaller carbuncles. These small carbuncles should be pricked, disinfected and dressed with dry dressings.

The condition of Carbunculosis is generally fatal. It is a sort of cutaneous pyæmia, the pores of the skin being extensively involved. Then there is the variety with real pyæmia. The organism is carried in the blood stream and multiple pyæmic abscesses deep to the muscles and close to the bones develop. Each pyæmic abscess contains a piece of slough surrounded by thin milky pus. These abscesses form very rapidly overnight. They are really cold abscesses with no local or general reaction. When, in a patient who has undergone an operation for carbuncle and when he is usually expected to be gradually improving, you find that sugar is being kept up, and the wound does not heal as rapidly as it should, one should be on the look out for these abscesses which may be hidden from the patient himself. In such cases if you make a careful examination, you may find lumps in various parts of the body. When these lumps are cut into, you find some slough floating in thin white pus.

Then there is the variety, common especially in the lower extremities in which there is generalized œdema of the part. The tissues are water-logged. It is a variety of local inflammation like **cellulo-cutaneous** erysipelas. It is not erysipelas and is common in fat and flabby people especially those with albumen in the urine. These swellings fluctuate and resemble collections of pus and patients press you to operate, but if you incise it nothing escapes but serum. Such cases are of poor prognosis.

There is a variety which after a few days shows a band of redness in the surrounding area, a rash with a creeping edge. This is really erysipelas supervening on a carbuncle. Such cases may get better with serum, for a time but generally the patch of erysipelas recurs at a little distance from the original site. It is curious to find in these cases a good deal of healthy tissue skipped over between the original focus and the secondary patch of erysipelas. These cases are of bad prognosis.

There is also a variety which is seen often in the buttocks. After excision in these cases the wound does not heal, the infection

spreads in all directions. The organisms find no resistance and there is absolutely no reaction on the part of the patient.

In carbuncles occurring in non-diabetics, prognosis is good. Carbuncles occurring in the neck, face and scalp are very serious, because of the early spread of infection in the limited space and the tendency for the intra-cranial veins to become involved. In such cases there is considerable general reaction. Carbuncles occurring in the anal region are of bad prognosis. Carbuncles occurring on the scalp, even when operated upon early are difficult cases. It may take as long as six months for a small carbuncle of the scalp after operation to heal, and even, when the healing is complete, the newly formed skin may readily break down. In carbuncles occurring in the anal region, there may be secondary infection from gas-producing organisms and patient may die of gas-gangrene.

Prognosis.—Patients with a marked general reaction, moderately high temperature and who complain of pain have a better prognosis. Cases with poor resistance have a low temperature and pain is not complained of. Generally people who are pale with a muddy complexion, anaemic, double-chinned and pot-bellied are bad subjects to treat. In these cases, the vital organs are seriously affected by the toxins especially the heart, so that it is not surprising to have sudden death in a carbuncle case which overnight was apparently in a fine state. In these fat patients, therefore it is wise to give a guarded prognosis and to specially watch the heart and lungs.

Treatment.—Treatment is divided into general and local.

General: *Diet*—Anti-diabetic diet, in a case with sugar in the urine. Albumin must be controlled, if possible. In patients who have no sugar or albumin, diets need not be restricted, but in all cases stimulants such as light wine, etc., may be given. In general the diet should not be much restricted with elderly or feeble patient.

Local.—In the early stages applications of counter-irritants such as antiphlogistine, or one of its modifications, heat and moisture in the form of poultices, glycerine and magsulphus, etc., are all tried before the Surgeon sees the case. Auto-vaccine is not of much value for an existing carbuncle, but it may be of help against a future carbuncle.

Face to face with a carbuncle of any size there is no wisdom in placing faith on drugs. Patients do not do well usually with these slow methods. Every carbuncle must be looked upon as an emergency and treatment started early.

Since the disease is a composite one due to infection grafted or a constitutional disorder like diabetes, the constitutional condition must also be treated. In diabetic cases insulin is very useful, but there are cases where it may not be immediately successful. When pus or slough is retained in a wound, insulin appears to have no effect on sugar in the system Sepsis makes insulin inert. Even very large doses may be futile until the gross sepsis has been removed by operation; later insulin has a better chance.

In operating no half-measures should be employed. Operations for carbuncle should be early and 'decisive'. The aim should be to avoid repeated operations for these repeated operations under a general anaesthetic destroy the morale of the patient and turn the scales against him. Except in such dangerous situations as the neck where a carbuncle spreads collarlike and where you cannot be too radical, in an advanced case, and where you must be content with partial excisions, in all other situations a wide excision with a healthy margin is the ideal method for in all cases it is difficult to say exactly where the diseased tissue ends and healthy tissue begins. It is a safer procedure therefore to take away a little more healthy tissue than leave a portion of the carbuncle.

In operating, make a crucial incision, the ends of the cross being beyond the obviously indurated border. Raise the flaps and holding them well back excise the indurated mass with bold sweeps of the knife and make sure that you are going through healthy tissue right round the carbuncles. One important point in the operation is the control of bleeding. As little blood as possible should be lost. Quick operating is a virtue here: vessels should be clamped instantly and no patient should be sent to the ward until all bleeding has been arrested by ligature. A little time spent in stopping oozing will be amply repaid. In some instances I have had to leave artery forceps on for 12 to 24 hours and this shortens the operation. Pack the wound firmly with Iodoform gauze and leave it alone for 3 days.

Such complications of carbuncle as erysipelas and pyaemia have been dealt with already. In these patients healing takes an extraordinary long time and a carbuncle of the size of the hand occurring in the back may take as long as 3 months to heal. In all fat and flabby subjects the heart should be supported by digitalis or digalen as a routine before and after the operation.

In spite of every possible precaution some cases develop coma against which no available treatment seems to be of any avail.

SOME COMPLICATIONS OF FRACTURES AND THEIR TREATMENT

BY

DR. K. RAMA MENON, M.B., F.R.C.S., (E.),

Orthopaedic Surgeon, General Hospital, Madras.

I PROPOSE to talk to-day about some complications of fractures and their treatment. A certain amount of injury to soft tissues around the fracture is usual and is to be considered normal. But when the injuries are extensive and injures an important structure in the neighbourhood, such as a main artery or a main nerve, it should be considered as a complication of the fracture. Similarly the fracture may extend into a joint, or in the young, injure the epyphysis. Then these require special attention on our part along with the treatment of the fracture. Otherwise, the after effects are almost irreparable.

Infections from a concurrent surface wound whether communicating with the fracture and making it compound or whether it is superficial, lead to far-reaching after-effects unless properly attended to. These are mainly the complications one mainly meets with in a recent fracture. In cases that come to us late one usually meets with non-reduction of the fragments, malunion and deformity, wasting of the muscles, ankylosis of joints (complete or partial) fibrous or bony, tenosynovitis, delayed union, or in some very late cases non-union. A few cases come with ischaemic contractures of various degrees, and a few with myositis ossificans.

Secondary or pathological fractures constitute a class by themselves, and in general very little treatment is possible for them.

Treatment.—In early cases, every case that comes must be properly examined and the extent of damages gauged. Skin wounds must be carefully looked for, and treated by thorough disinfection. In compound wounds, a thorough exploration of the wound and disinfection is absolutely essential. In this connection attention must be specially drawn to dangers of punctured wounds which have not been thoroughly explored and disinfected. More than once have I seen cases brought to the hospital within 24 hours of the injury with a punctured wound, which had been cleaned on the surface and dressed but in which gas gangrene had developed. One such case died within 6 hours of being brought into the hospital. In another case, an emergency

amputation of the limb in a patient who was almost moribund saved life. In punctured wounds there should be no hesitation in excising the margins of the wound, and if necessary enlarge it for thoroughly exploring and disinfecting.

Some cases come grossly infected and with threatened gangrene. The threatened gangrene, in some cases is the result, not so much of the infection as of the faulty preliminary tight splinting or other treatment that had been followed. In threatened gangrene whether local surgical interference alone is required or whether the limb requires amputation is entirely a matter to be judged on individual cases. (In the case of gas gangrene when present or suspected, there is no option but to follow the radical method.)

Fractures involving a joint should be accurately set. Some of these will have extensive hæmorrhage into the joint cavity, which will prevent the limb being put into the position considered most favourable. In such cases a few hours after the injury when it could be safely presumed that actual bleeding process has stopped the joint should be aspirated under strict aseptic precautions, the limb put up into the desired position and a pressure bandage applied to the joint. If such a procedure is not done in most such cases a certain amount of ankylosis is sure to result. (The blood that is effused organises and produces fibrous ankylosis). In other cases, from the injured articular surfaces of the wound callus may form and may result even in complete bony ankylosis.

Splinting of fractures have to be carefully done. Unduly prolonged splinting may lead to undue wasting of muscles, and this is often seen in many cases which come late to the hospital. Again splints applied too tight lead to interference with the blood supply and produce to various degrees that dread condition "ischæmic contractures".

Ischæmic contractures are seen far more commonly than they ought to be. The commonest cause I have seen here is a tight splint applied or a light pressure bandage put on in a case in which the fracture has not been reduced. Again and again, this condition has been seen in supra-condylar fractures, in which the limb has been put up forcibly in as much flexion as possible without reducing the displaced fragments.

If contractures are started, the affected muscles should be put in extension without any loss of time. In an early case with constant stretching movements and massage, very good improvement is to be expected. In late cases with confirmed contractures and marked deformity the results of treatment are unsatisfactory.

With persistent manipulations, combined with such operative procedures of tendon lengthening etc., a few cases do show some improvement. With proper care, it is possible to avoid ischaemic contractures and in the cases that are seen, it is mostly either the result of inattention to details during treatment, or ignorance.

In mal-union, in early cases before callus has hardened, it is possible in some cases by manipulation and moulding (sometimes with the aid of Thomas Wrench) to correct the deformity and set the fracture. In some others re-fracturing and setting is necessary.

In delayed union cases, the fracture does not unite in the normal period or within reasonable limits of time. They require careful investigation. Want of requisite amount of immobilisation (by too frequent attempts at adjustments) or insufficient splinting, (which ignores the effect of movements of the neighbouring joints on the fragments concerned, etc.,) or too wide a separation of fragments, especially with interposition of soft tissues, anæmias in general, or intercurrent diseases which call upon the patient's resources of recoupment or injury to the nutrient artery, or a mild auto-infection, or compound fracture and infection, last but not least injudicious and unnecessary surgical interference are the main causes. If the causes in a particular case are understood, treatment is self-evident and need not be stressed on here.

In cases of compound wound, treatment in the open method and allowing to heal in immobilized position gives good results; the delay being due to delay in healing. But in these cases even after healing of surface wound a little mild infection lies latent in the wound and leads to osteomyelitis in a certain number of them—a condition not so very rare either Conservative treatment and waiting till the sequestrum separates is the best method of treatment in most of such cases. But whether early interference is necessary is a matter to be entirely decided by the conditions of individual cases.

Non-Union is another complication which fortunately is rare. No case should be considered to be one of non-union till careful conservative treatments have been tried for at least a period of one year. In fact, they should be treated as cases of delayed union and all possible methods of stimulating callus formation should be tried (such as treating inter-current diseases and anaemias; causing mild local inflammation by auto-haemic injections etc.) If unsuccessful, then operative treatments should be considered. Exposing the ends and cutting away the fibrous tissue from both ends and freshening the surfaces, step-cutting if necessary or in other cases, auto-genous grafts from some other bone or sliding grafts from the same bones etc., may be tried and after the closing of the wound the limb immobilised with suitable splinting plaster casing or otherwise-and treated in the same as a new fracture. A certain amount of failure is to be expected in such cases, for the causes operating which produced the non-union primarily may still be present, the commonest cause for such failure being injury to the nutrient artery of the bone in the original injury. The role of mild infections in causing non-union must be kept in mind, and, in bone operations scrupulous asepsis in the operative procedure must be rigidly observed. If in spite of all these attempts, the bones failed to unite, then, external corrective appliances may help to some extent. This is specially useful in the cases of fractures of lower extremity, especially below the knee, where walking callipers suitably modified may give the patient a great measure of relief. In the upper extremity especially in the fore-arm with both bones fractured even with the formation of a false joint, the limb is found useful for light work. How much one interferes in such cases is to be decided by the amount of utility of the limb.

DISCHARGE FROM THE EAR

BY

DR. P. V. CHERIAN, M.B., F.R.C.S.E., F.R.F.P.S., D.L.O.,

Lecturer in Ear, Nose and Throat, Medical College, and E. N. T. Surgeon, General Hospital, Madras.

Discharge from the Ear.—Discharges from the ear may be either from the external or middle ear. In rare cases it is combined with injury to the internal ear. The chief cause of discharge from the external ear is Furunculosis. This may be found in the external meatus alone or along with furuncles in other parts. It usually appears in debilitated or diabetic people; sometimes in healthy people also. The cause is infection of the sebaceous glands and hair follicles with staphylococci which may gain entrance from outside as from scratching or from within as from discharge, superficial or deep. The furuncles may be single or several There is always a tendency to recurrence.

Symptoms.—The pain is very marked especially on pressing the tragus, or pulling on the external ear, also on chewing. When superficial, there is a circumscribed area of redness. When deep, the redness is diffuse; when furuncles are situated on the posterior

wall of the meatus there may be erection of the auricle, and œdema of the mastoid, which may be mistaken for mastoiditis. The points for diagnosis from a mastoid abscess are the following:—

(1) Careful autoscopic examination. The drum in furunculosis will be seen to be entire.

(2) In furunculosis the discharge is thick and scanty. In mastoiditis it is profuse and purulent.

(3) There is great pain on touching the auricle in front. In mastoiditis this sort of pain is very rarely present.

(4) Hearing is better in furunculosis than in *mastoiditis*.

(5) On pressure even if there is œdema over the mastoid some portions may be found where tenderness is absent. This is not so in mastoiditis.

(6) *History in mastoiditis*:—There is almost always a history of discharge or some exanthemata.

(7) If you do valselva, in furunculosis, tympanic membrane will simply bulge, but in most of the cases of mastoiditis, the patient will feel air rushing through the perforation in the tympanic membrane.

(8) Lastly, an X-ray photograph will help in the diagnosis.

It must not be forgotten that both furunculosis and mastoiditis may exist together. Where there is doubt, the condition must be treated as the more serious one, *i.e.*, as mastoiditis.

Treatment.—Several kinds of drugs may be used. The commonest are Menthol in Parolin 10 grs. to an ounce, Glycerine carbolic 5 to 10 per cent, and 10 per cent ichthyol in glycerine. In some cases it may be necessary to incise the furuncle under general anæsthesia.

After treatment.—Treatment consists in cleaning the ear with hydrogen peroxide. Where recurrenee occurs vaccines should be used. A stock staphylococci vaccine is satisfactory. A very good preparation is staphylosan. General health should be seen to also.

Discharge from the Middle ear.—Acute purulent otitis media. This is a severe form where perforation of the tympanic membrane takes place. It may result from any inflammatory condition of the upper air passages. It is a common sequelæ of the exanthemata. Acute rhinitis, operations in the nose and accessory cavities; sea bathing or bathing in public baths also may bring about this. It sometimes occurs through the external meatus from injuries; sometimes in fractures involving the temporal bones. It very rarely occurs through internal ear as in cerebro-spinal meningitis, the infection spreading through the foramen ovale or foramen rotunda. The predisposing causes are adenoids, heredity, and perforation of the tympanic membrane. Organisms concerned are streptococcus and pneumococcus.

Symptoms.—Pain is the chief symptom. This pain is worse at night, and rarely radiates to the temple and occiput. Sometimes the pain is unbearable. There is a certain amount of tenderness over the mastoid. Temperature rises very rarely. In adults it is usually under 100°. In children the temperature usually goes up to 102° to 103°. Impairment of hearing is slight in early cases, but more marked later. Facial paralysis occurs in a very small number of cases.

Appearance.—On examination the external ear may be filled with pus. After this is cleared out, autoscopic examination will show the situation of the perforation.

Prognosis.—is good in majority of cases. The perforation heals up under good treatment and hearing returns to normal. The discharge should cease within 7 to 15 days, but if it persists as a pulsating discharge beyond this time, it is an indication for doing a mastoid operation. In a certain number of cases the discharge ceases, but perforation persists. This will involve a certain amount of diminished hearing. In a very small percentage of cases, it leads to intracranial and fatal complications.

Treatment.—Mild cases: Confine the patient to bed. Give him calomel by night and saline purgative next morning. Also glycerine carbolic or menthol in parolin drops. Use dry fomentations and not poultices. There are two methods of treating a discharge; one is known as the dry method and the other wet method. Dry method consists in cleaning the discharge and packing the ear with sterile guaze.....the sterile guaze has to be changed; depending on the amount of discharge. The next method is the wet method. This consists in cleaning the ear, syringing it and putting in the usual antiseptic drops.

If the discharge persists with marked deafness and if the perforation is small, it is an indication for doing a mastoid operation. This gives the best chance of restoring hearing and avoiding complications.

Chronic purulent otitis media.—This is a result of the acute variety. Therefore the causes are same. The most important cause is the presence of adenoids. It is more common in poor people, as they do not attach any importance to the middle ear discharge, and so

neglect it. Symptoms are, discharge, deafness and the presence of perforation. Tinitis is rare; pain is not common; if present it is a grave symptom. Occasionally there may be vertigo.

Prognosis.—There is always a risk. Firstly, for life insurance, the premium will be loaded. (2) Intracranial complications may take place more often in young people and adults and among poorer classes. If the discharge is purulent there is a greater chance of intracranial complications.

Treatment.—The first essential thing is cleanliness and then it is practically the same as for an acute middle ear discharge. But modified treatments like intra-tympanic syringing and zinc ionisation may be had recourse to.

ELECTRO-THERAPY

BY

DR. M. J. SANTHANAKRISHNA PILLAY, L. M. & S. (MAD.), L.R.C.P. & S., (EDIN.), L.R.F.P.S., (GLAS.), D.M.R.E., (EDIN.),

Radiologist, Govt. X-Ray Institute, General Hospital, Madras.

IT is definitely proved that in a living human being electrical energy is demonstrable and that the energy shows variations according to the state of tissues, healthy or otherwise; to give an example, this principle, as you all know, is utilised in the electro-cardiograph.

As such no wonder the treatment of diseases with the aid of electric current has come to stay. The general public understand and appreciate the efficiency of electric treatment. It is the incumbent duty of every medical practitioner to acquaint himself with the conditions where electro-therapy will be of considerable advantage to his patients. It would be prejudicial in the interest of the medical practitioner himself, to deny the patient the benefits of modern electrical and other therapeutic measures.

The rationale of electro-therapy consists in taking advantage of its quality and character as we meet with it in every day life and utilising them. *viz.*,

(1) The development of heat during its passage in a resistance.

(2) Its capacity to split the molecules into its various Ions when these Ions get deposited at the different poles according to their electrical charge.

(3) Its capacity to excite neuro-muscular junction.

(4) On the presumption that the electrical force in man is in a state of vibration and the rythm of these vibrations get altered in disease and that the passage of electricity restores or resets the vibration into their normal phase.

(5) On the empirical findings that the passage of electric current through the body is beneficial in a number of cases where other measures have failed. Psychic or otherwise, I leave it to you to judge.

Naturally to get the maximum advantage of these findings the electrical current has got to be altered in different forms and so the electrodes to suit the varying requirements. Galvanic current, interrupted galvanic, slow sinusoidal, surging interrupted sinusoidal, Faradic, High frequency, Diathermy and Static current are about the chief forms used in electro-therapy.

Before going into detail regarding the usefulness of these currents, I would like to point out that before treatment the patient's general and skin conditions should be studied and the strength of the current and course of treatment should be suitably altered. All agents that stimulate the skin decreases the resistance and increases the conductivity. It has been found that in hysteria, myxodema, in old age and cachectic conditions there is a high skin resistance whereas in the ex-ophthalmic goitre and in traumatic neurosis the skin resistance is decreased.

The galvanic and sinusoidal currents are preferably administered as a bath, and the four cell Schnee's bath is a convenient one. They produce general muscular stimulation, acceleration of metabolism and slight lowering of the blood pressure. The sinusoidal has an added advantage that its periodicity could be set to that of the patient's heart beats so that the increased mechanical stimulation of muscles does not over work—perhaps the poor myocardium of the patient. Besides, the galvanic current has got a toning effect on the musculature. They are chiefly indicated in the cases where, the contractility, irritability and the nutrition of the paralysed muscle have got to be artificially kept up till they regain their normal function. It has also been found that in some generalised arthritic conditions, some forms of neuraesthenia, post-pyrexial general debility, these baths have proved useful.

Cerebral galvanism is also employed in nervous exhaustion, mild neurosis, nervous headaches, postencephalitic lethargica with headache, slowness of thought and difficulty of speech with some benefit, especially so when the symptoms are due to circulatory

impairment rather than when profound organic changes are present.

Besides, the galvanic current is used extensively for Ionic medication with suitable electrolites and electrodes; the idea being to give a shower of useful drugs in a concentrated form to the diseased area rather than to wait for the slow absorption and dilute distribution of the drug as obtained by oral administration. But again it is not definitely settled whether by ionization the useful Ions are driven into the tissues in as concentrated a form as one would expect especially if the diseased area be deep, since the Ions are carried away by the blood in the intervening capillaries. All the same Ionic medication gives clinical results and as such is worth persisting in superficial lesions, such as colitis, prostitis, lupus, corneal ulcers, vaginitis etc., and when accompanied by a lymphatic œdematous stasis, Ionic medication has been found to be very useful. To give a few instances, chlorine Ionization for loosening scar tissues, Iodine in chronic sinovitis, Osteo and rheumatoid arthritis, salycylic acid in arthralgias and litheum in gouty arthritis, Quinine in persistent trigeminial neuralgia; Cocaine for anæsthetising a circumscribed area of skin or mucus membrane, and copper and zinc in persistent septic conditions, Ulcers, sinuses and cavities etc., are found very useful. Galvanic current is also used for purpose of destruction of naevi by electrolysis and for removal of superfluous hair moles and warts.

The Faradic is chiefly used for massage purposes, to exercise and keep up the nutrition of parietic muscles in young and vigorous patients, specially in infantile paralysis

The Bergonie chair is very much sought after by very fat people who could not be induced to take necessary exercises nor could they follow the restricted diet. Here the individual muscles are exercised without throwing a corresponding strain on the heart musculature which perhaps is undergoing fatty changes as well. In addition the interruption of the current can be so arranged that the number of heart beats can be reduced to normal limits.

Next comes the Diathermy and High Frequency currents and these are very popular and largely used by the profession to-day. It is common knowledge that the current for household purposes, gives anybody a nasty shock and higher voltages are fatal. But when the current alternates very rapidly something over 10,000 per second it produces no harmful effects since it is found that the individual electrical impulses while alternating so rapidly produce no muscular contraction. In this condition the

current surges to and fro through the human tissues and when applied through proper electrodes. The passage of the current produces heat, due to tissue resistance and this heat serves the purpose of fomentation attended with vaso-dilatation, rise of temperature and increased blood supply, with the added advantage that you could apply heat to any part of the body at any depth whereas in ordinary fomentations as applied to the skin the heat is distributed to the superficial tissues only and the effect on the deeper parts is reflex if any. As such the diathermy current is useful in all conditions where a fomentation is useful but please bear in mind that it is contra-indicated in all acute conditions attended with fever and where pus is present.

This heat producing quality in tissues has been very successfully exploited in the treatment of chronic Gonorrhoea where the causative organism has a low lethal temperature but is very resistant to other forms of drugs treatment.

The Diathermic couch is a very useful one where a general vaso-dilatation and diaphoresis is required specially in hyperpyesis. The patient rests on a couch on a dielectric, usually a sheet of vulcanite which is in contact on the other side with a big sheet of metal to which is attached the terminals of diathermic current. When the current is switched on an induced current circulates through the body of the patient with the desired effect whereby the cardiac depressive effect of the usual drugs is dispensed with.

The effect of producing heat while passing through the tissues is also utilised in diathermy knife and cautery. Here, one electrode has a comparatively very big surface area while the other or active as it is called is very small, as such the intensity of heat produced at its end is very great and when used produces immediate coagulation of tissues. With suitable shaped ones they could be used as a cautery or as a knife and the latter is very much in demand in the removal of cancerous conditions as thereby the metastasis and haemorrhage are avoided.

High frequency desiccation is very effective in the treatment of warts and moles giving better results than electrolysis.

Lastly, coming to the static current,—they have been found very useful in obscure cases of neuraesthenia, nervous debility, high blood pressure, insomnia etc., where other measures failed. But the rationale is not quite understood.

Thus we see the electro-therapeutics have a large future and it is bad to under-rate the beneficial effects, though perhaps it is worse to overestimate its usefulness.

There are other forms of radiation treatment, Light Therapy, Hydro-therapy, Suggested Therapy etc., avialable at the Barnard Institute of Radiology which we need not go into at the present moment.

Preparations and Inventions

THE DENVER CHEMICAL MANUFACTURING CO.

New York, U. S. A.

Antiphlogistine:—Muscular Rheumatism, neuritis, sciatica, lumbago, torticollis, as well as other forms of fibrositis, are the cause of a great deal of disability in all walks of life, with a corresponding economic loss.

In the physical treatment of these conditions heat, as supplied by a poultice of Antiphlogistine, which maintains a warm, even temperature for hours, may afford more grateful relief to the patient than any other measure.

By promoting correction of the local blood and lymph circulations it helps to relieve the inflammation and congestion, so that the pain is reduced and greater ease of movement follows.

Its therapeutic advantages, coupled with the plastic and adhesive nature of the Antiphlogistine, go far towards helping the patient to carry on efficiently with his daily tasks.

Proceedings of Societies, Associations, etc.,

THE SOUTH KANARA DISTRICT MEDICAL ASSOCIATION

Proceedings of the 3rd General Body meeting held in the Wenlock Hospital at 5 p. m. on 23-2-'35.

The following resolutions were passed.

1. That this meeting of the Association places on record its deep sense of sorrow at the untimely demise of Dr. T. Krishna Menon, M.B.C.M., L.R.C P., (LON.), M.R.C.S., (ENG.), on 11—1—'35. at Madras, a staunch worker on behalf of the Profession and offers its condolences to the members of the family. Moved from the chair.....passed unanimously all members standing.

2. That this meeting of the Association places on record its deep sense of sorrow at the untimely demise of Dr. B. S. Mallya, M.B., C.M., on 29—1—1935 at Madras an illustrious son of South Kanara. This meeting places on record also its appreciation of his unflinching zeal for public work, political, social and professional. This meeting offers its condolences to the bereaved family. Moved from the chair—passed unanimously all members standing.

3. The Honorary Secretary is authorised to communicate the above resolutions to the members of the bereaved and the press.

4. Read (1) G. O. No. 2480 P. H. d. 25-10-1934. (2) Memorandum from Dr. Ramasubbu, Secretary, Madras Provincial subsidised (rural) Medical Practitioners' Association d. 6—12—1934 to the Hon'ble Chief Minister on the above G. O.

The rural practitioners present explained their difficulties with regard to the working of the Government order.

Resolved (*a*) that this meeting of the Association is of opinion that this G. O. is a real hardship to the rural subsidised Medical Practitioners, is contrary to the spirit of the scheme, as it does not give them enough time to attend to their outside calls, and request the Government to restrict the working hours to mornings only.

(*b*) That the Honorary Secretary is authorised to communicate the above resolution to the Government, the Surgeon General, the District Board President, District Medical Officer and the press and Dr. Ramasubbu.....Dr. M. K. Kamath proposed and Dr. U. P. Mallya seconded...Passed unanimously.

THE MOTION PICTURE SOCIETY OF INDIA.

192, Hornby Road, Bombay.

The Motion Picture Society of India gave a Cinema show to the Medical profession of Bombay, consisting of leading physicians, surgeons and medical practitioners as well as medical students, on Friday the 5th April '35 at the Excelsior Theatre, Bombay, which was crowded to its full capacity.

Prominent amongst those present were Dr. Erulker, Dr. and Mrs. D'Monte, Dr. D. D. Sathaye, Dr. Sardesai, Dr. Dhawale, Major Peake, Major Will and Major Draper.

The films shown to the distinguished gathering were:—(1) Benign Prostrate Hypertrophy, (2) Embryonal Development of Ascarides, (3) Natural Menstruation—Artificial Menstruation, and (4) Manufacture of Sera and Anti-Toxins, and they were very much appreciated by the guests. All the films were provided with titles, however Dr. T. J. Thompson Wells gave a running commentary on the film Natural Menstruation—Artificial Menstruation.

On behalf of the Society, Dr. V. R. Khanolkar while welcoming the guests said that the Motion Picture Society of India

needed no introduction to the people of Bombay, but he would like to get them better acquainted with the activities of the Society so that the people may have an opportunity of taking greater interest in its affairs.

The Society was started about three years ago in Bombay, and has proved its desire to be useful to the people of this country by its many sided activities. They must have read in the papers how the Society had been actively working at Simla and Delhi in favour of the young film industry of this country, to give it a sporting chance against the formidable foreign competition.

As most of the people present were medical men and women they would probably be interested in the other activities of the Society. For instance, one of the many objects of the Society was to educate the general public in the utility of the film Industry, from its social, industrial and educational point of view, and persuant to this object the Society had given its first show in October last year.

The show was so very much appreciated by the medical men of the city, that the society was emboldened to arrange a second show within six months.

The society had been receiving films from France, Germany Japan and Australia and was establishing contacts with manufacturers and research workers all over the world. The Society was prepared to place these films at the disposal of colleges and schools in Bombay and outside so long as the safety of the films was guaranteed. But it was evident that if the society was to extend its utility to the fullest extent, it should receive co-operation from the different sections of the communities in the country.

He felt sure that medical men, who are usually the pioneers and advanced workers in most places, even in India they will lend their full support to the Society and become its active working members.

Dr. Khanolkar thanked Messrs. Schering-Khalbaum (India) Ltd., Messrs. Kodak Ltd., and Messrs. Parke Davis & Co., for the loan of their films, and the proprietors of the Excelsior Theatre as well as Western Electric Co., for the free use of the Theatre as well as broadcasting arrangement for the commentary of the film respectively.

Notice

"The three months' course of instruction for the Licentiate in Tropical Medicine will begin from the 15th July 1935. Applications for admission should be submitted as early as possible to the Director, School of Tropical Medicine, Calcutta."

Index to Advertisers.

Printed at the 'ANTISEPTIC' PRESS and Published by the Proprietor U. KRISHNA RAU, Madras.

தமிழ்நாடு ஆவணக்காப்பக நூலகம்,
எழும்பூர், சென்னை-600 008.

தவணைத்தாள்.

சே எண் : ப. எண் :

வழங்கிய நாள். (1)	திரும்பிய நாள். (2)	வழங்கிய நாள். (1)	திரும்பிய நாள். (2)
24/3/94	6/4		

S.F. 259A-6—1,00,000—30-1-84.