Regd. No. 9 M. 429. NOVEMBER, 1939 Vol. XXXVI. No. 11

The Antiseptic

A Monthly Medical Journal

Edited by

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

CONTENTS.

Editorial and Publishing Offices: 323, Thambu Chetty Street, G. T., Madras.

London Office: 34-40, Ludgate Hill, E. C. 4.

Subscription Rs. 5. Foreign 10 sh. a year. Post paid. Single Copy As. 12—in advance.

Index to Advertisements, see page 42.

IRON

THE therapeutic value of iron is directly proportional to the ease with which ferrous ions are liberated. Recent experiments have shown the ferrous salts to be the most effective in the treatment of anaemia because they are more rapidly assimilated, require smaller doses and are more economical than other forms of iron now in use. An effective form of ferrous ion is available in 'Plastules' brand Haematinic Compound. Actual tests reveal that the haemoglobin regenerating power of 'Plastules' is four to five times greater than that of ferric ammonium citrate, 15 times greater than that of reduced iron, and is more readily adaptable to metabolism in the human body. Three 'Plastules' Plain provide the average Patient with an adequate daily dose of iron to show a marked increase in haemoglobin..... 'Plastules' provide ferrous ion and vitamins B_1 and B_2 in an edible oil in the form of a semi-fluid mass, enclosed in soluble gelatin capsules which quickly dissolve in the stomach.....'Plastules' are available in two types Plain and with Liver Extract.

Distributors in India:—KEMP & CO., LTD., Charni Road, P. O. Box 937, Bombay.

Sole Proprietors:—JOHN WYETH & BROTHER LIMITED, Oldhill Place, London, N. 16.

In Gynæcology

As many gynæcological conditions have their origin in a disturbed calcium balance, a rational calcium therapy is the most suitable in such cases. The composition of 'Kalzana' ensures the maximum degree of calcium retention, the prerequisite of successful calcium therapy. 'Kalzana' regulates the hormonal functions of the ovaries, decreases the permeability of the blood-vessels in all cases of hæmorrhage, checks exudations and beneficially influences menstrual disorders.

Ztrbld. f. Gynäkol., Vol. 55, No., 43 etc.

Kalzana

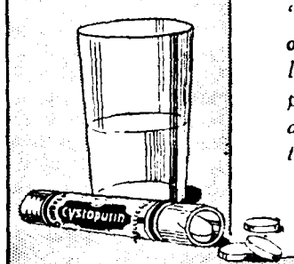
HOLLAND IMPORT

In Urology

The sodium acetate in Cystopurin stimulates diuresis and thereby carries the hexamine undecomposed more quickly and in large quantities into the urinary tract. This accounts for the excellent therapeutic effect of Cystopurin.

"I gave Cystopurin preference above all other urinary disinfectants. I can thoroughly recommend the extensive use of Cystopurin in urology, as it is absolutely harmless and its pharmacodynamic action far exceeds that of all other similar preparations"

(Ars. Medici, Vol. 18, No. 1)



CYSTOPURIN

HOLLAND IMPORT

Chosen by Radiologists Everywhere

ILFORD X-RAY FILM is particularly suited to the requirements of modern radiographic technique. It is coated with an emulsion which combines speed to X-Ray, speed to Intensifying Screens, excellent contrast, freedom from fog, and quick fixing to a degree hitherto unknown

The same film may be used with or without Intensifying Screens, and radiographs of excellent quality, full of detail, are obtainable.

Ilford X-Ray Film is supplied on both nitrate and acetate bases.

ILFORD
X-RAY FILM
(Double Coated)

FOR EXTREMITY WORK, the finest results are obtained from

ILFEX Double-Wrapped X-Ray Film. Supplied only on Acetate (Safety) Clear Blue Base.

Manufactured by ILFORD LTD., London and distributed throughout India by:

ILFORD-SELO (INDIA) LTD.

Post Box No. 2288. CALCUTTA.
Post Box No. 314 BOMBAY.
Post Box No. 339 MADRAS.

SUCCINOL (Regd.) **(J. N. Missra)** Is a satisfactory injection for LEPROSY strictest test of the profession equally in official and non-official circles in all stages which has always stood the .02 Grm. to .2 Grm. in ten graduated ampoules. *Doses:—*

DERMOL (Regd.) **(J. N. Missra)** Is an unchallenged, stainless, bland, and the most effective remedy for all skin diseases, swellings, ulcers, carbuncles, cuts, bruises, insect bites, ear troubles, burns; joint, gland and chest troubles *etc.* In short, an unfailing application for *each and every disease externally.*

IODINOX **(J. N. Missra)** (Regd.) The best, stainless, bland, and non-irritative preparation of Iodine "**superior to other similar preparations**" containing 5% of the active principle. Equally efficacious on skin and mucous surfaces. Indicated for use in cases ... ...requiring Iodine without irritation.

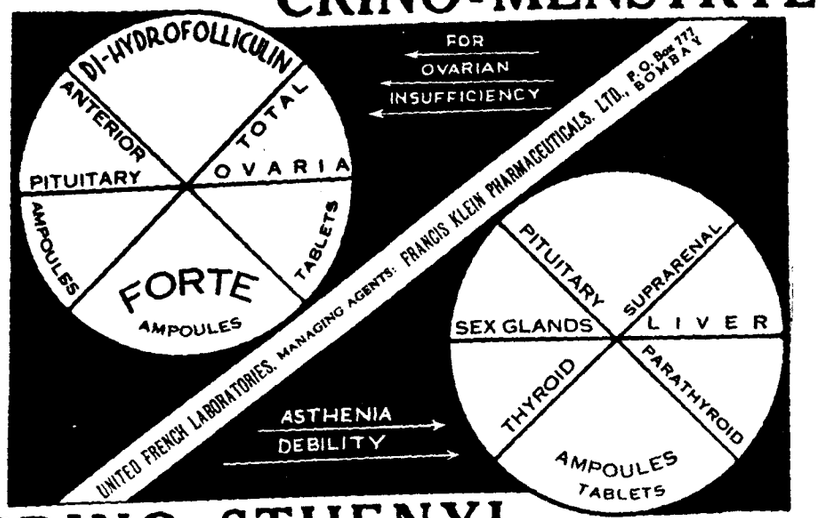
HYDROXY ERYTHRIN Hydroxy Erythrin also called Hydroxy Anthocyan—discovered by Dr. Missra is a **synonim HYDROXY ANTHOCYAN (Regd.) (J.N. Missra)** satisfactory injection for T. B. infection. It shows its effects both as preventive and curative only after a few injections. For detailed description leaflets will be sent on request.

To be had from:—**GALLENO PHARMACEUTICAL WORKS,**

P. O. Waini, Ry. St. Pusa Road, B. N. W. Ry. Dist. Darbhanga. BIHAR, (INDIA).

Main Stockists:—**Messrs. SMITH STANISTREET & CO., LTD.**, 18, Convent Road, Entally, Calcutta.
Messrs. SRI KRISHNAN BROS., 323, Thambu Chetty St., Madras.
Messrs. E. STELLA & CO., Marshall's Building, Ballard Road, Bombay.

CRINO-MENSTRYL



CRINO-STHENYL

The Treatment of GONORRHOEA

"NILTOX" Brand Detoxicated Vaccine recommended in the two standard works on the subject; see:—"Gonorrhoea" by Thomson, 1923, and "Treatment of Venereal Diseases" by Lees, 1933.

● Shortens duration of the disease ● Prevents complications ● Prevents relapses

DETOXICATED GONOCOCCUS VACCINE "A" FOR ACUTE CASES
DETOXICATED GONOCOCCUS VACCINE "B" FOR CHRONIC CASES

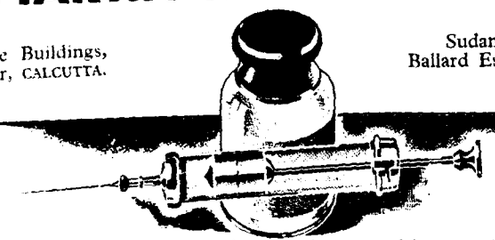
Be sure you obtain the original "NILTOX" Brand. Prepared by

THE PICKETT-THOMSON RESEARCH LABORATORY
LONDON (Proprietors: RESEARCH PRODUCTS LTD.) **for**

MARTIN & HARRIS LTD.

Mercantile Buildings, Lall Bazar, CALCUTTA.

Sudama House, Ballard Estate, BOMBAY.



There is a wide range of "NILTOX" Brand Detoxicated Vaccines prepared for acne, colds, influenza, pneumonia, rheumatism, staphylococcal and streptococcal infections, tuberculosis, typhoid and whooping cough.

For Infectious Diseases

'SEROBACTERINS'

(Mulford's Sensitized Bacterial Vaccines)

Outstanding Advantages

1. 'Serobacterins' are less toxic than plain vaccines. Local and general reactions are reduced to a minimum.
2. 'Serobacterins' can be administered more frequently and in larger doses (as to bacterial count) to stimulate maximum immunity response.
3. In most cases 'Serobacterins' confer almost immediate onset of active immunity, without 'negative phase'.
4. 'Serobacterins' give excellent results even in sub-acute and chronic infections.

In 5 cc. Vials.

MULFORD BIOLOGICAL LABORATORIES

SHARP & DOHME

PHILADELPHIA, U.S.A.

VOLKART BROTHERS

Sole Importers for India Burma Ceylon:

Bombay Karachi Calcutta Madras Colombo.

The most recent advance in the treatment of

Pyelitis and other Urinary Infections

UROMALINE

Ammonium Mandelate in a Palatable Solution, B.R.I.

Prepared for the first time in India

One fluid drachm or one teaspoonful contains an equivalent of one gramme of Mandelic Acid.

Pamphlets on Uromaline are sent free on application to:

The Brahmachari Research Institute,
82.3, Cornwallis Street, :: Calcutta.

TRIPATHI'S GUIDE

To the Young Medical Jurist.

(Cloth-bound, 432 pages, Price Rs. 3, postage extra.)

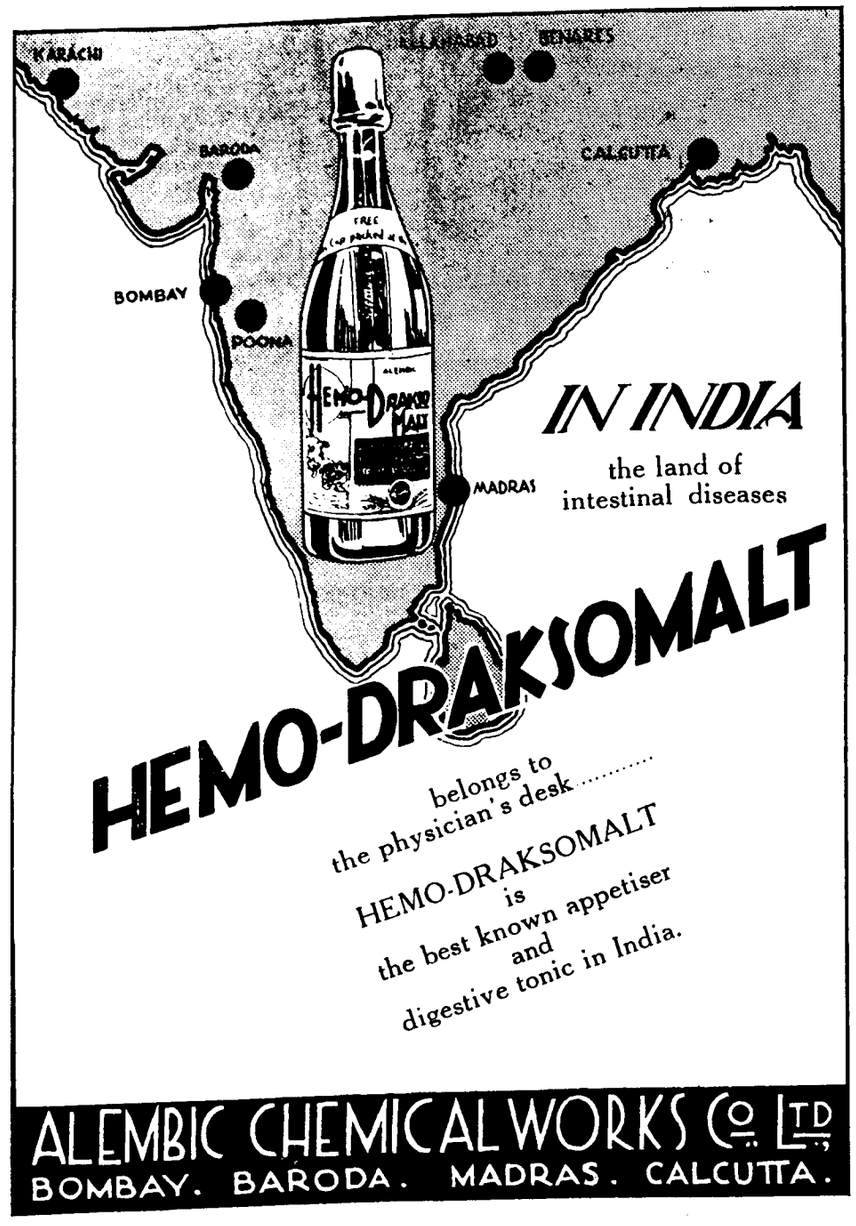
Chiefly intended for the use of the Senior Medicos preparing for the qualifying Examination in Jurisprudence and Toxicology, the Rising Medical Novitiate, and the growing Legal Practitioner, to serve as a guide on matters of medico-legal interest regarding a variety of crimes of everyday occurrence, and highly praised by the Medical and Legal Men and the Medical Press.

The Medical Times, London:—This is quite a unique book. For revision purposes, just before examination, it will be found extremely helpful. As a Guide to the young Practitioner in medico-legal matters, it will prove to be thoroughly reliable.

Col. A. Hooton, I.M.S., S. G. with the Govt. of Bombay:—I think it is a useful summary of the subject. I shall have much pleasure in commending it to the notice of Dispensary Medical officers.

Col. C. R. Bakhle, I.M.S., I.G. of Civil Hospitals, Punjab:—I have brought it to the notice of the Medical officers in the Punjab as a useful work for Sub-Assistant Surgeons.

To be had from:—**Manishanker H. Tripathi,**
Hon. Assistant Surgeon, Jamnagar, Kathiawar.



When writing to advertisers, please mention the "Antiseptic"

When writing to advertisers, please mention the "Antiseptic"

The Antiseptic

Estd. 1904.

A Monthly Journal of Medicine and Surgery.

Editors: Dr. U. RAMA RAU, M.L.C., & 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.

Vol. 36. NOVEMBER, 1939. No. 11.

ORIGINAL ARTICLES

Diagnosis and Treatment of Acute Appendicitis*

BY

Dr. P. P. Sheth, F.R.C.S. (ENG.)

Honorary Surgeon, Civil Hospital, Ahmedabad.

THE readers will excuse me for selecting such a common subject about which much has been written in the journals. But I find the General Practitioners have not yet appreciated the importance of early diagnosis and appropriate treatment of acute appendicitis.

Acute Appendicitis is quite a common surgical *emergency*; though perhaps it is less common in this country than in the West, due most probably to difference in diet. All the same the mortality rate is higher in this country, both due to illiteracy amongst the patients and lack on the part of General Practitioner of realizing the necessity of early operation, and impressing upon their patients the seriousness of the disease.

To improve our results, a close co-operation is necessary between the family doctor and the surgeon. The former sees the case in its early stage first, and it is he who advises the patient to call a surgeon. The doctor should attend the operation and follow the case till the end, and then only he will realize, what a

* Specially contributed to 'The Antiseptic'.

mischief, the inflammation of an appendix, a narrow mouthed diverticulum, produces.

For diagnosis, it is very essential to go into the history and patients' symptoms thoroughly and systematically. The sequence of events is as follows :—

1. *Prodromal symptoms* :—The patient may complain of constipation, uneasiness and out-of-sorts ; but these may be completely absent.

2. *Pain* :—This is the first symptom and is complained of after some unusual or heavy meal or even at the middle of night. This pain is vague and is round about the umbilicus. The patient is unable to localize it exactly. The pain is paroxysmal when there is primary obstruction in the lumen of the appendix, due to peristaltic movements trying to overcome the obstruction. Again it is not related to the position of the appendix.

3. *Nausea and vomiting* :—These follow pain and are reflex in nature. Vomiting is inconstant but nausea is always there. In acutely obstructed appendix, the patient vomits twice, thrice or even more without relief from the colicky pains.

4. *Localization of pain in the right iliac fossa* :—The pain settles down in the right iliac fossa after a variable interval of two to twelve hours. This pain is due to irritation of the parietal peritoneum and therefore its exact position depends upon the position of the appendix. In the usual subcæcal variety it is at the McBurney's point, which is defined as a point one inch and a half to two inches internal to the right anterior superior iliac spine on the spino-umbilical line. It is more towards the middle line in the pelvic type and it is in the right lumbar region in the retrocæcal or retro-colic appendicitis. On palpation there is hyperæsthesia and rigidity in the right lower quadrant of the abdomen and tenderness at McBurney's point.

5. *Pulse rate* :—It rises and its rate depends upon the severity of inflammation. In gangrenous appendicitis though there is less pain and no temperature, the pulse rate is much rapid 100 to 120 per minute. Pulse rate is a good index of the condition of the patient.

6. *Temperature* :—This is the least important and comes in the scene last. Usually it is between 99.5° F. to 100.5° F. but no higher. On the contrary high temperature of 102° F. to 103° F. is atypical of appendicitis.

7. *P. R. Examination* :—This must always be done and

must be insisted upon. I always refuse to give my opinion if I am not allowed to put my finger in the rectum. Many a time one would miss the diagnosis of pelvic appendicits if this examination is omitted. There is marked tenderness in the right anterior quadrant of the rectum. In such a case there will be pain also on rotating the thigh internally due to irritation of the Obturator Internus muscle.

Rovsing's sign.—This is elicited by pressure in the left iliac fossa when the patient complains of pain in the appendicular region. It is said to be due to distension of the cæcum by displacement of gas. I do not pay much importance to it but it was present in one of my cases, a medical student.

Blood Examination.—If facilities are available, and especially when there is a doubt about the diagnosis, examination for total W. B. C. must be done. There may be polymorphonuclear leucocytosis of fifteen to twenty thousands. Roughly, if above twenty thousands, it denotes pus formation.

Urine examination.—When there is suspicion about pyelitis in those cases which are accompanied by temperature and rigor, the urine should be examined for R. B. C. and W. B. C.

Further signs depend upon the virulence of infection, pathological changes round about the appendix, and duration of the attack.

If the attack does not subside, then a mass appears in the right iliac fossa, which consists of inflamed appendix, omentum, (the policeman of the abdomen), coils of small intestine, inflammatory exudate and the parietal wall. This mass may subside by appropriate treatment, or abscess formation may occur, which again may burst into the general peritoneal cavity producing spreading peritonitis, into the pelvis or its viscera. Mass formation denotes localization which is inadequate in children and the aged.

An appendix abscess is a localized abscess, with a perforated or otherwise inflamed appendix. The signs are those of acute appendicitis, plus, tender swelling which fluctuates on careful examination, redness, œdema of the skin over the swelling and a leucocytic count above twenty thousands.

Atypical appendicitis.—(1) Sometimes a case is seen where there is high temperature of 102° F. to 103° F. in the first twenty four hours of an attack of abdominal pain. High temperature, as I said before, is very rare in acute appendicitis, but it does

occur sometimes and baffles the surgeon. If lobar pneumonia of the right base or right sided pyelitis are excluded by detailed examination of the lungs and urine respectively, the case should be treated as that of acute appendicitis, if other signs and symptoms weigh in favour of it.

Acute appendicitis without abdominal rigidity.—I have mentioned about this above, with regard to different positions of the appendix. To this may be added the second condition, perforation of acutely obstructed appendix in which there is no rigidity, no hyperæsthesia and no pain; but there is rising pulse rate. I have operated upon quite a few cases within a few hours of an attack when there was no rigidity in the abdominal wall.

Treatment.—In the cases of acute appendicitis seen within 48 or 50 hours of attack, no question arises as to the best line of treatment. It is universally accepted that the appendix should be removed without delay. Here instead of time limit of 48 or 50 hours, I would say that the operations should be done if there is no lump in the right iliac fossa without caring for the time limit. The pathological process cannot be measured by clock work precision. Failure to find a lump denotes absence or presence of few adhesions and the operation of appendicectomy is the most satisfactory one in surgery attended with no risks, earlier the operation done, better for the patient.

If for one reason or another, the diagnosis has not been made until there is an appendicular mass in the right iliac fossa opinion is divided as to the best course to follow immediately.

I. **The Oschner Shereen or delayed line of treatment** is the best for these cases provided the following conditions are fulfilled :—

(1) The patient is under constant observation of the surgeon in charge of the case.

(2) Proper two hourly records are kept of pulse and temperature.

(3) Facilities of operation theatre are available at a moment's notice, *i.e.* in a well equipped Hospital or a Nursing Home.

The patient is put to bed in Fowler's position and a record is made of temperature, pulse, vomits and the size of the mass in the right iliac fossa. Nothing is given by mouth except sips of water and no drugs are administered except perhaps a carminative mixture. Morphia should never be used for the relief of

pain, for fear that it may mask the symptoms and signs which inform the surgeon that the delayed line of treatment has failed. No purgatives or enemas of any kind are given till resolution is complete *i.e.* pulse and temperature are normal for four days and the mass is not felt. Afterwards four drachms of liquid paraffin are given three times a day.

The indications to interfere are :—

(1) Rising pulse rate.

(2) Vomiting.

(3) Persistence of pain, which should have disappeared after a couple of hours of treatment.

(4) Diarrhœa or mucus in the stool denotes pelvic abscess.

The appendix is removed after two to three months when the above line of treatment is followed and it is surprising to notice at the time of operation that there are no adhesions.

Contra-indications of delayed line of treatment are :—

(1) Child under 8 to 10 years because localisation is inadequate and there is danger of infection spreading further.

(2) When the diagnosis cannot be made from other abdominal conditions where operation is necessary as for example perforated peptic ulcer.

(3) Pregnant women when there is doubt about diagnosis between appendicitis and right sided pyelitis even after examination of urine.

(4) Where these treatments cannot be carried out *e. g.* when the patient is seen in some outlying district where the surgeon is not available at any time.

Advantages of this line of treatment are :—

(1) Many cases subside.

(2) The appendix is removed at the time when it is most easy to do so.

Disadvantages are :—

(1) Nature may fail to combat the infection and operation required at a critical time after the infection has spread to the general peritoneal cavity.

(2) The patient requires hospitalization twice, one for the treatment and second for appendicectomy later

on and thus this method of treatment becomes costlier to him financially.

(3) Illiterate patients may not return for the operation after subsidence of the attack and may get another attack of acute appendicitis which may be worse than the former and jeopardize his life.

II. **Immediate line of treatment.**—Surgeons belonging to this school remove the appendix soon after it is diagnosed to be inflamed, without caring for mass formation or otherwise. Operation at this time is one of the most difficult in surgery, and the operator has to search out the appendix from the matted mass and there is fear of opening the general peritoneal cavity and spreading the infection further and thus doing the very thing for the prevention of which, the operation is undertaken. I think the advantages met with in this treatment are out-weighed by the disadvantages and difficulties, attached with the operation. Again, better the localization, less the risk of a spreading peritonitis and other complications and greater the probability that the attack will subside spontaneously and permit the removal of the appendix in the quiet period.

Appendicular Abscess.—Here is followed the cardinal rule for pus anywhere in the body *e.g.* incision, evacuation and drainage. When the appendix is cleanly felt in the abscess cavity and can easily be removed without much disturbance, appendicectomy should be performed at the time of the operation; because, the illness is thereby shortened and the patient is saved the necessity of subsequent operations. When the mass is unduly hard, the interest of the patient will be better served by leaving the removal of the appendix to a later date—after three months.

If for any reason the appendix has not been removed during an acute attack, it should be removed subsequently.

> "It is familiarity with common condition which breeds contempt, but in the whole of emergency surgery, there is no condition which may call for more diagnostic ability, judgment and operative skill than appendicitis. When we reflect upon enormous death-rate from appendicitis, deaths as often as not in youth or prime of life and at the same time ponder over the absolute durability of the condition by an operation skilfully performed at the right time, we cannot but be stirred to study the subject".

Case Records.—1. Chhotalal Popatlal, a clerk in the Bank, aged 32, got severe attack of pain round about the umbilicus at about 12 noon. He then vomited three to four times. The pain then settled in the right iliac fossa. He had no temperature. His doctor had given him a dose of purgative. He consulted me on 28th June 1939 on the fourth day of the attack. He was run down in health, and he had pain and tenderness in the right iliac fossa, one inch medial to the Mc Burney's spot, no rigidity and no hyperaesthesia, temperature—98.8°, pulse—84. On P. R., the right anterior quadrant very tender; diagnosis of acute pelvic appendicitis was made.

He was operated on 29th June under spinal anæsthesia by McBurney's incision. The incision was enlarged downwards and medially to find out the appendix. The tip of the appendix was adherent to the anterior wall of the rectum and gangrenous. It was hooked out and removed. The abdomen was closed in layers by ordinary methods but suppuration occurred in the subcutaneous tissues and he got temperature of 100° F. for 5 days. Two stitches removed and two ounces of foul pus drained out. He was discharged with a healed wound on the 12th post-operative day. It would have been better if I had put a glove drain in the subcutaneous tissues for 24 to 48 hours but I was too optimistic.

2. One, Rameshwar, a cook aged 20 years, got pain round about the umbilicus at 12 noon on the 10th June 1939, which localised in the right iliac fossa after two hours. He had two vomits and one stool on the same night. He had had a similar attack two years back. He was admitted to the Civil Hospital in the morning of the 11th June 1939, when his pulse was 80, temperature 98.4°, respiration 20, rigidity in the right iliac fossa and tenderness at McBurney's point. No mass felt. He was operated by the usual McBurney's incision. Appendix was much inflamed and twisted and there was clear fluid in the peritoneal cavity. He was discharged cured on 24th June 1939. The patient consented for operation after great persuasion.

3. A medical student aged 22, got typical acute attack of appendicitis at 12.30 A. M. on 22nd July 1939. He had marked nausea but no vomiting. On examination, his pulse was 90, temperature, 100° F. tenderness at McBurney's point but no rigidity in right iliac fossa. No mass felt. Total W. B. C. 18400 per cubic mm. with polymorphs 80%. P. R. negative; operated on 23rd July under spinal anæsthesia and the inflamed appendix

removed. He had retention of urine for three days and he was given Doryl injections and tablets. He got temperature upto 102° for three days due to slight congestion at the base of right lung for which he was given repeated injections of Omnadin 2 c.c. He was discharged cured on 4-8-1939.

4. A medical student aged 23, got severe attack of vomiting at 11 A. M., after a feast in the club on 17th July 1939. Then he got pain all over the abdomen which later localised in the right iliac fossa. He vomited 8 times between 11 A. M. and 5-30 P. M. He was admitted to the Civil Hospital where, on examination, he was found to have pain, tenderness in the right iliac fossa with slight rigidity, pulse 120, temperature 98.4° and the tenderness in the right anterior quadrant on P. R.: total W. B. C. count was 13000. Diagnosis of acute pelvic appendicitis was made. He was operated on the same evening and appendix removed by Mc.Burney's incision, the lower end of the incision had to be enlarged to remove the appendix which was crossing the pelvic brim. On slitting open the appendix, there was a gangrenous spot in the mucosa at the tip.

I am indebted to the Civil Surgeon, Dr. D.D. Variava, O B.E., F.R.C.S. (ENG.), for allowing me to publish the records of the cases and Dr. M D. Desai, M.B., B. S. (MAD.), S.M.S. for preparing the notes of the cases.

References :

1. *Choyce Surgery.*
2. *Emergency Surgery (Hamilton Bailey).*
3. *Carson's Operative Surgery.*

General and Critical Study of Bacteriophage and its Therapy*

BY

Dr. H. S. Sinha, M.B. (CAL.)

Principal and Professor of Pathology, Ludhiana Medical School.

THERE are few subjects in bacteriology so vastly complicated and controversial as the phenomenon of Bacteriophagic activity. And also there are few instances in the history of scientific discovery where a discoverer had been subjected to such adverse criticism,and is still maintaining his own theory stubbornly and with a conviction, as the discoverer of Bacteriophage.

It has been noticed that most discoveries have their roots deep in the past. It is well known to the people in India that the Ganges water is very pure in the true sense, apart from the sanctity attached to it by orthodox Hindus. Many scientists have proved this fact by actually testing its water bacteriologically. Hindus specially in Bengal also believed in the antiseptic property of cowdung water and hence use it to cleanse the floor, walls etc. It has recently been found out that cowdung contains Bacteriophage of high potency.

In 1896 Hankin published a paper "Annales de l' Institute Pasteur" in which he drew attention to the notable bactericidal property of certain Indian river waters. He found that the Jumna, just below Agra, contained over 100,000 organisms per c. cm., but that five kilometers further down the river it only contained 90-100 organisms in the same bulk. On further investigation, it was found that the filtered water exerted a marked lethal action upon the cholera vibrio in the test tube, an effect which disappeared by boiling. Hankin attributed this to a volatile substance, which he failed to isolate, and his observations remained unexplained until brought into light again by D'Herelle. F. W. Twort (whose name is so frequently conjoined with that of D'Herelle as co-discoverer, of the phenomenon) working upon filtrable viruses, and especially with vaccinia, discovered in 1915 that certain colonies of cocci which he had cultivated from vaccine lymph underwent a glassy degeneration, becoming transformed into a transparent vitreous substance which on staining, showed only unrecognisable debris and no proper coccal forms. He further found that this degeneration

* Specially contributed to 'The Antiseptic'.

was a contagious condition in the colonies, and could be transmitted from "diseased" to healthy colonies by inoculation with platinum wires. The infective material was capable of passing through Pasteur Chamberland B. filters and of transmission through an infinite number of generations. Looked at in a broad way, these results appear practically identical with those of D'Herelle, although obtained under different circumstances and with a different type of organism. Twort himself appears to consider the phenomenon identical, as also does Bordet, but this is strongly contested by D'Herelle mainly on gounds which will be described later on.

The Phenomenon of Bacteriophagic activity. In 1917, D'Herelle announced the existence, within the organisms of individuals convalescing from bacillary dysentery,of an agent possessing the property of destroying and wholly dissolving dysenteric bacilli. He succeeded in isolating this "destructive agent combating bacteria" by filtering through a porcelain cylinder an emulsion prepared from the stools. The "agent" in quest was contained in the sterile liquid traversing the filter. D'Herelle observed that, if a trace of such a filtrate be added to a very cloudy bouillon culture of dysentery bacilli, the culture became perfectly clear, three or four hours later, all the bacilli having been destroyed and dissolved "like sugar in water". The phenomenon, however, is not limited to disappearance of the bacilli. If a trace of this cleared culture be now added to a second bouillon culture of dysentery bacilli which is well clouded, the second culture also becomes clarified. A trace of the clarified second culture dissolves the bacilli present in a third culture and "serial passages" may thus be continued indefinitely. After making more than thousand transfers from culture to culture, D'Herelle established the fact that the activity of "the bacteria destroying agent', was far from diminished, was in fact enhanced to such a degree that a quantity equal to the hundred-thousandth part of a drop of the thousandth dissolved culture was capable of totally dissolving five billion dysentery bacilli present in ten cubic centimeters of culture in four to five hours. The agent obtained from the intestine of the convalescent patient and present in the thousandth part of a drop of filtrate placed in the first culture tube, necessarily reproduces itself in each successive tube, in which the bacteria present are simultaneously dissolved. It is to this serial dissolution of bacteria that D'Herelle has applied the term "Bacteriophagy".

The phenomenon in question was so unexpected that it encountered only incredulity. Until 1920, no bacteriologist attempted to verify it owing to this circumstance. D'Herelle had the opportunity, so rarely occurring in the history of science, of continuing the study of the phenomenon quite alone and of thus having time to discover and describe the essential characters of the bacteriophage before other investigators had understood the importance of the discovery. D'Herelle thus learned that the bacteriophage is formed of bodies which are so minute (about 35 microns in diameter) that they are not rendered visible by even the most powerful microscopes. However, inspite of invisibility, he devised a method permitting the counting of such corpuscles present in a liquid. His method was based upon the following phenomenon. When placed upon cultures developing in a solid medium, such as agar, each bacteriophagic corpuscle attacks the nearest bacterium, penetrating into its interior and reproducing, as it dissolves the substances of the bacterial body. When the entire internal structure of the bacterium is thus liquefied, the bacterial wall bursts and liberates the young bacteriophagi. The phenomenon of sudden bursting of bacterium under the action of bacteriophagus is visible microscopically and may be filmed. Each of the young bacteriophagi thus liberated in turn attacks the bacterium which is nearest to it, reproduces, dissolves the bacterial substance and bursts the bacterium. The cycle thus continues and after a few hours, a circular area is produced in the bacterial film at each site where a bacteriophagic corpuscle originally existed. Within the circular area not a single bacterium is present, but it is filled with millions of the bacteriophagic corpuscles. Each area, visible to the naked eye, really consists of a colony of bacteriophagi derived from a single corpuscle. Since the number of these circular colonies scattered through the bacterial culture must equal the number of corpuscles present in the bacteriophagic liquid originally added to the bacterial culture, it is very evident that it is thus possible to count corpuscles which are too minute to be visible.

General Characters of the Bacteriophage.—D'Herelle next discovered that phenomenon of Bacteriophagy is not limited to the dysentery bacilli alone but that it is a general one. He isolated bacteriophages capable of attacking numerous species of bacteria, such as the bacilli of typhoid, para-typhoid, plague, the proteus bacillus, the cholera vibrio and other micro-organisms. By studying the characters of hundreds of bacteriophages

isolated from the organisms of human beings and animals convalescing from various diseases he observed among other things, that every bacteriophage possesses a group of characters, such as attacking power, attacking extent, vitality, resistance to the destructive action of various physical and chemical agents (heat, antiseptics), etc. Each of these characters proved to vary in different bacteriophages and in an independent manner for each character. It therefore follows that two bacteriophages possessing absolutely identical characters can hardly exist.

Specific Nature.—Although a bacteriophage which has been obtained from the stool in a case of intestinal disease is usually lytic for the causal organism only, in some instances, the principle is polyvalent in that its action may be exerted upon a number of bacterial species, usually however, not to the same extent upon each. Thus a given bacteriophage may have a powerful dissolving action upon Shiga's bacillus, a moderate one on B. paratyphosus B, and a slight action upon B. coli; whilst the intensity with which another strain affects these organisms may be the converse of this. In the second place, the ability of any strain of bacteriophage to lyse micro-organisms is susceptible of being altered; "its virulence may be enhanced" in D'Herelle's phraseology. This is done by repeated transfers in broth culture, during which any increase in activity of the bacteriophage can be gauged by the number of the bare plaques formed in cultures made upon agar.

All these facts seem to show that bacteriophage behaves like a true parasite of bacteria and studies continued proved that this hypothesis was the most acceptable one. D'Herelle finally showed that the bacteriophage possesses all the characters of living beings. It assimilates bacterial substances and can reproduce itself because of this fact. It can adapt itself to environmental conditions, its power of adaptation explaining the extreme variability of the characters of the different strains of bacteriophages. Again assimilation is effected by the bacteriophagic corpuscle in the same way as that occurring in other living beings, even by those of the highest development. It dissolves bacteria by means of lysins, or solvent ferments which it secretes and which may be isolated in a pure condition, that is free from any bacteriophagic corpuscle. The pure ferment dissolves bacteria but its action does not continue serially for, though the bacteriophagic corpuscle is a living being and can reproduce

itself as such, the ferment which it secretes is a chemical substance and cannot reproduce itself. The secretion of lytic ferment implying the presence of metabolic processes, constitutes absolute proof that the bacteriophagic corpuscle is a living being and a parasite of bacteria, producing a disease of which the phenomenon of bacteriophagy is the visible manifestation.

The attention of experimenters did not awake to the subject until about 1920. Since then interest in it has steadily increased, more than two thousand notes and papers have already appeared upon this question, and study of bacteriophagy is at present the subject of interest in all bacteriological laboratories throughout the world. It may be said that the consequences of the discovery of bacteriophage are, in biology, comparable to those attending the discovery of the electron in physics.

Isolation and Distribution of Bacteriophage.—The bacteriophage is ubiquitous in its distribution, but is always found in association with living bacteria. It has been isolated from the fæces of normal persons and animals, as well as from those of persons convalescent from intestinal disorders. It has been found in water, in soil, in sewage, in urine, in pus, in trypsin, in peptone etc. Bordet obtained it from the leucocytic exudate in the peritoneal cavity of an animal injected with bacteria. It is also present active or latent in many laboratory cultures. The isolation of the principle may be effected by filtering the homogenised materials through bacterial filters or by repeated heatings to 56° to 58° C which destroys nonsporing organism but not the bacteriophage. Its action, however, is weakened by this process, so that the filtration method is the one to be preferred. Hadley (1928) stated that it may in certain cases be obtained by the simple procedure of growing an organism repeatedly in its own filtrates, over fourteen to twenty generations and others have claimed that the phage has appeared spontaneously in cultures or has been produced by certain conditions of cultivation.

Physical and other properties of the Bacteriophage.—The action of the lytic agent is only exerted on young actively growing cultures. This takes place over a wide range of [H]ion concentration, but is most active just on the alkaline side of neutrality. Gratia gives 8—5 as the optimum P_h for lysis. Acidity of the medium generally has a deterrent effect on the process. The bacteriophagic principle is filtrable with ease through the whole range of Pasteur-Chamberland filters. The lytic material is, however, rendered completely and permanently

inert by exposure to a temperature of 75° C for thirty minutes. The activity of the substance is rapidly destroyed by ultra-violet light, but towards chemical agents, it shows considerable resistance.

Antiserum.—The bacteriophage is possessed of specific antigenic properties, and the injection of a suspension of material into animals results in the production of a specific antiserum. Since such a suspension will contain lysed bacteria, ordinary bacterial antibodies such as agglutinin, complement fixing antibodies, etc. are developed at the same time. Nevertheless, a true antiphage antibody is also present and can be demonstrated by its neutralising action upon the bacteriophage after the absorption of the bacterial antibodies. It is, moreover, specific in its effect for a given strain of bacteriophage, irrespective of the organism which served as a substrate in its production. The possibility of preparing such specific antisera has thrown light upon the disputed question of unity or multiplicity of bacteriophages. D'Herelle held that there is but one bacteriophage and that the multitudinous varieties and strains which exist all represent modifications of a single, very adaptable principle. It is generally agreed, however, that this view which at one time received a good deal of independent support, was largely based upon complement fixation tests which were misleading as a result of unsuspected non-specific factors (Gratia and Jaumain 1922, Sanderson 1925). On the other hand, in neutralisation experiments the various races of bacteriophage behave as sharply independent units. In the experience of most workers this individual specificity is independent of the organism which served as a substrate in the propagation of the phage, but agreement in this respect is not absolute (Schultz, Quingby and Bullock, 1929).

The Bacteriophagy in vivo – The natural process of cure.—Within the intestine of living beings bacteriophage always exists. There they vegetate in symbiosis with colonic bacilli of the intestinal flora. The bacteriophagi are not present there at birth. They appear in the human intestine about the eighth day following birth. The child is "seeded" by bacteriophagi abundantly present in the surrounding medium especially in water. The bacteriophagi do not solely remain in the intestine. Owing to their minuteness, they can traverse the intestinal wall, enter the circulation and reach the tissues.

The action of bacteriophage is not limited to direct destruction

of bacteria by the process of bacteriophagy. As we have seen, the bacteria are dissolved by means of lysin, which are solvent ferments secreted by bacteriophagic corpuscles. When the bacteria are thus dissolved, the lysins are liberated into the surrounding medium, in which they act as opsonins of considerable activity, and as such induce an intense phagocytosis. To this dual action, which is immediate and tends to bacterial destruction, a third effect must be added, whose action is delayed, not occurring until some 15 to 30 days; the bacterial substance rendered soluble, exists in a physico-chemical state which is specially adapted for producing reactions in the cells of the organism of the convalescent individual, which finally produce very active immunity. In vivo, bacteriophagy is thus a phenomenon whose direct and immediate consequence is cure, and whose indirect and delayed result is the production of immunity. Preliminary adaptation of the bacteriophagi primarily essential for producing natural cure does not occur inevitably, but is subject to uncertainties whose discussion would be too prolonged for presentation here. Three general conditions may occur :—

(1) Under favourable conditions, bacteriophagi of the intestinal flora adapt themselves rapidly and from the very beginning of the invasion of the organism by the pathogenic bacteria. The latter undergo bacteriophagy, often before the occurrence of any symptoms, and the affection becomes aborted without having even been suspected. This case occurs very frequently.

(2) Following less favourable conditions, the bacteriophagi undergo adaptation gradually instead of abruptly. The pathogenic bacteria present, grow within the organism, symptoms appear and the given disease occurs. Within the organism, a veritable combat takes place between the bacteriophagi whose power gradually increases and may vary more or less, and the bacteria which attempts resistance. During this process, the patient's condition faithfully reflects all the variations in the struggle continuing within the organism, and upon which the fate of the latter depends. Convalescence occurs only when total Bacteriophagy is possible because of sufficient adaptation.

(3) With still more unfavourable conditions adaptation does not occur, or occurs so slowly that fatal lesions

are produced by the developing pathogenic bacteria before bacteriophagy can take place. In either case the affected individual succumbs. Such are the three possibilities which may occur when the infection occurs in but one individual. A fourth alternative occurs very frequently when the cases are grouped and especially during epidemics.

It has been known since the time of Pasteur that, in epidemics of bacterial nature, propagation occurs through dissemination of the pathogenic bacteria from the infected organisms, but the factors determining the course, character and termination of the epidemic have been unknown for a long time. A study of the behaviour of the bacteriophagi during each epidemic gave the key to these various phenomena. We have just seen that cure occurs because owing to favourable conditions, bacteriophagi present in normal individuals adapt themselves, cause bacteriophagi of the pathogenic bacteria. Convalescence begins from that moment. Convalescent individuals thus distribute throughout the surrounding environment bacteriophagi which are already adapted to produce bacteriophagi of the bacteria present which are the causative agents of the infectious disease affecting the given individuals. These adapted bacteriophagi enter the organisms of individuals who may be already infected or wholly healthy. With individuals already infected the "inoculation" by the adapted bacteriophagi immediately produces bacteriophagi and consequent cure. From this moment, the next convalescent individual distributes adapted bacteriophagi in turn and so on. With healthy individuals the introduction of adapted bacteriophagi protects them from infection, since pathogenic bacteria attempting to attack the protected organism are destroyed before they can grow and develop. Any infected individual constitutes a source of contagion, because of the bacteria which grow within his organism and which he distributes about him; and any convalescent individual constitutes a source of cure, because of the adapted bacteriophagi which develop within his organism at the expense of pathogenic bacteria and are then distributed throughout the surrounding environment. Cure is contagious on the same term and by the same means as is the infectious disease itself.

Bacteriophagy Induced in vivo.—Observations thus made during epidemics suggested to D'Herelle the idea of attempting experimentally to reproduce the natural process of cure. Such

an experiment is easy since it is possible to cultivate in the laboratory bacteriophagi which are adapted to attack parasitically and destroy a given species of bacteria. It suffices, as we have seen, to inoculate a bacterial culture with an adapted variety of bacteriophagi in order to produce disappearance of the bacteria together with the growth of the bacteriophagi developing at the expense of bacteria. The culture which was at first one of bacteria becomes one of bacteriophagi. We may thus administer to an infected person as soon as possible after the appearance of symptoms, a culture of adapted and selected bacteriophagi, instead of waiting for the bacteriophagi which are normally present in the intestine to adapt themselves to become parasites of the pathogenic bacteria which are seeking development with the organism, or instead of hoping that the patient may ingest by chance a suitably adapted variety of the bacteriophagus, a possibility which is extremely uncertain and doubtful. We may administer the bacteriophagi by such a route as will bring them, surely and rapidly into contact with the pathogenic bacteria which it is necessary to destroy. During epidemics, we may also administer preventively cultures of suitably adapted bacteriophagi, in such a way as to maintain them permanently within the organism. In the first instance, we thus accomplish the natural process of cure and, in the second we secure natural prophylaxis.

As early as 1919, D'Herelle applied this therapeutic method to bacillary dysentery and during succeeding years, extended it to bubonic plague and Asiatic cholera, to refer only to diseases affecting man. He also investigated preventive vaccination against hæmorrhagic septicæmias and studied the collective and individual prophylaxis of cholera. All his results were so conclusive, that the general method of employing therapy by means of "Induced Bacteriophagy" became widely and universally employed. During recent years, all these studies have been amply confirmed by the work of many investigators. It may be said that there is not a single biological or medical journal in the world that has not published some paper on the subject covering therapeutic application. Numerous investigators have followed the lead, applying the method of "induced bacteriophagy" to various infectious diseases. This method is at present employed in routine treatment, principally of intestinal, urinary and staphylococcic infections in the more important hospitals of the world, each hospital preparing in its own laboratory, cultures of adapted bacteriophagy.

The preparation of cultures of Bacteriophage.—With the purpose of treatment consisting of "induced bacteriophagy" to current medical practice, several official laboratories, especially in the United states, Brazil and India, have recently begun the preparation and distribution of Bacteriophage cultures for use by public health agencies. This fact has induced various private laboratories to undertake their manufacture from a purely commercial point of view. Such practice is not exempt from danger. The preparation of Bacteriophage cultures for therapeutic applications is infinitely more delicate and difficult than the making of other biological products, such as serums or vaccines. While certain official institutes or laboratories may undertake this work in an acceptable manner, there are but few commercial laboratories in the world which are in a position to bear the considerable expense so involved. Bacteriophagic therapy constitutes an "all or nothing" method, par excellence. If the bacteriophagi which are administered are capable of inducing bacteriophagy within the patient, cure occurs; if they are not so capable, they have no action whatever.

D'Herelle makes the widest claim for this agent as a natural therapeutic substance in the cure of disease and as a valuable therapeutic weapon in the armamentarium of the physician. He sees, in the course of such diseases as typhoid or dysentery a struggle for supremacy between bacteriophage and invading organism; in the natural cure of these diseases the destruction of the bacteria by this agency; in their chronicity the period occupied in the bacteriophage in reaching a degree of "Virulence" sufficient to effect this.

Topley, Wilson and Lewis (1925) did not get favourable results in series of carefully controlled experiments with mouse typhoid (B. Aertrycke) infection by introducing a bacteriophage of marked activity into the drinking water of the mice during an early period of infection. In experimental epidemics of mouse typhoid subcutaneous inoculation with the bacteriophage also failed to modify in any way the normal course of events (Topley and Wilson, 1925). The claim is made by D'Herelle that by injection of cultures lysed by the bacteriophage, two types of immunity are produced first an immediate resistance, due to the presence in the body of the bacteriophage, which lasts only as long as this substance can be detected and is therefore fleeting and secondly a more slowly developing solid type of immunity, which is simply a result of the injection of the products of killed bacteria, and is the type of antibacterial acquired immunity

abundantly familiar to the bacteriologist. In the case of Cholera, a substantial report has been issued by D'Herelle, Malone and Lahiri who specifically investigated the use of bacteriophage on behalf of the Government of India which are striking enough and may be briefly given together with certain others :—

	Total Cases.	Treated with phage.	Died.	Not treated with phage.	Died.
D'Herelle et al ...	198	74	6	124	78
Morrison and Vardon ...	60	31	9	29	22
Souchard ...	27	27	25		

It will be seen that Souchard's results in Cochin China are quite contradictory to those of D'Herelle, whilst Morrison and Vardon's occupy an intermediate position. To what extent the favourable results were influenced by the fact that the bacteriophage treatment may have been instituted at a phase in the epidemics when the mortality begins to decline is not clear, but this factor certainly seems to have intervened in the case of Morrison and Vardon's result. Moreover the smallness of the series prevent any final conclusions being drawn. In plague, D'Herelle again reports good results, whilst in the experimental disease both Compton and Pirie found that the bacteriophage conferred no particular resistance, except after an interval of days sufficient to allow the ordinary process of bacterial immunity to come into play. In the case of genito-urinary infections with Coliform bacilli, the method has had a fair trial and in the opinion of some workers is effective. Certain favourable results with bacteriophage treatment have been reported in localised septic infections (*e. g.* Gratia 1922.) It is evident that at the present moment it is impossible from the published reports to properly evaluate the effect of this agent. Many of these reports whilst extremely laudatory, are lacking in control or are based upon an inadequate material.

Critical study of the nature of the Bacteriophage.—This is a matter long and ardently disputed—numerous theories and sub-theories havign been put forward.

(1) For D'Herelle, the bacteriophage is a living micro-organism; the obligatory parasite of bacteria. A great deal of evidence goes to show that the material

is a small particulate body for which he coins the term "Protobe", against whose living nature D'Herelle will hear nothing. It is evident that simple ferment action cannot enter into the question, since the material is reproduced on each occasion of its action and is therefore in-exhaustible. There are, however, more complex possibilities of this nature which must be considered.

(2) The action of autolytic ferments, the view being that these, once introduced, set going a chain of autolytic processes in the bacteria which result in their dissolution and the freeing of the lytic substances from their interior. In this way, once the environmental condition is established, the bacteria are unable to escape from it and the process can therefore be carried on in series. This is a plausible hypothesis, though shrouded in mystery and not to any great degree supported in detail.

(3) A theory which is not very dissimilar, is that propounded by Bordet who believes that a mutational change is induced in the bacteria which causes them to undergo autolysis, in this process setting free actively lytic substance. There takes place what he terms "a hereditary nutritional variation" of the bacteria, which leads to their autolysis and the setting free of the lytic substance. His views have been rather overshadowed by the somewhat unfortunately obscure phase, in which he summarises them and D'Herelle attempts their refutation on the ground that there can be no question of hereditary transmission of lysis since bacterial free filtrate will accomplish this. Nevertheless Bordet's views or modifications of them, are those which have found most favour. There are as have been stated, reasons for regarding the bacteriophagi as a corpuscular element and not as a material in simple solution. The chief of these is the occurrence of the discrete plaques of lysis in surface cultures where the bacteriophage is present, for which it is hard to find an explanation upon any other supposition. D'Herelle has shown, and there is ample confirmation for this, that the number of such plaques in any

given instance depends solely upon the concentration of the bacteriophage that has been added and is independent of the concentration of bacteria which, it is difficult to conceive to be the case, were the bacteriophagi, the product of bacteria which many of the theories concerning it imply.

At the present time it is impossible finally to conclude as to the nature of the bacteriophage. To prove life, at the borderline between the living and the dead is as difficult as to prove its absence. The careful experiments of Bronfenbenner and Reichert (1926-27) failed to show any evidence of respiration attributable to the bacteriophage in cultures in which it was actively multiplying. The position taken up by D'Herelle is one readily defensible since each vagary of action of the lytic principle is seized upon as yet another point of evidence in favour of its adaptable and therefore living nature. The position of his opponents is more difficult to maintain and easier to attack. Nevertheless, they number amongst them the bulk of the more cautious, careful and experienced bacteriologists.

Conclusion.—The matter is of intense interest and has far-reaching ramification. The discovery of the bacteriophagi introduces an entirely new chapter into Biology and if the bacteriophage be not a living particle, complicates the already difficult matter of defining "life."

References :

1. *Arkwright*—"*British Journal Expt: Pathology 1924 V., 23.*"
2. *Bordet*—"*British Medical Journal 1922 II 296, Annales Inst. Pasteur 1925 XXXIX 717.*"
3. *D'Herelle*—"*The Bacteriophage and its Behaviour.*"
4. *Do.* "*Immunity in Natural Infectious Disease.*"
5. *Do.* "*Bactoriophagi and its Clinical Application.*"
6. *Do. Malone and Lahiri*—"*Studies in Asiatic Cholera.*"
7. *Gratia*—"*Journal Expt: Medicine*", *1922 XXXXV 287.*
8. *Hadley*—"*Journal of Infectious Disease*", *1928 XLII 265.*
9. *Topley, Wilson and Lewis*—"*Journal of Hygiene*", *1925 XXIV 17.*
10. *Twort*—"*Lancet 1915 II. 24.*"

The Circulatory Factor in Mental And Nervous Disorders*

BY

Dr. M. V. Govindaswamy, M.A., B.Sc., M.B.B.S., D.P.M., (ENG.),

Superintendent, Mental Hospital, Bangalore.

I. **Formulation** —The problem could be dealt with in two ways :—

(1) In a purely descriptive manner. This would mean a categorical account of such clinical states in which there are definite circulatory disturbances as evidenced by coarse anatomical alterations of the heart and blood vessels. Arterio-sclerosis and syphilis are two typical examples. Though descriptive accounts are necessary to understand these conditions, the usefulness of such descriptions is limited. Because, chronic inflammatory or degenerative conditions of cerebral vessels lead only to more or less unspecific deterioration of the personality with terminal dementia, and with or without weakness or loss of muscular movement.

(2) But a more fruitful field for investigation, as well as for the exercise of the imagination, is to try to understand the pathological significance of sudden alterations in blood flow to the brain, brought about by psychogenic, bio-chemical, and physio-pathological ways, and which affect the nutrition of the nerve cells.

The importance of this circulatory factor can be realised, if it is mentioned that the clinical picture and even the prognosis in such widely differing conditions as hypertension, epilepsy, cerebral excitement, various intoxications and infections are dependent on it. It might be taken as a working hypothesis that if the vascular insult is severe, the clinical picture is one of delirium, associated with anxiety, restlessness, confusion, defective orientation, and hallucinations. If the vascular insult, however, is not so severe, a general depression, and diminished capacity for intellectual work is the usual picture. These signs and symptoms are attributed entirely to defective oxygenation

* Specially contributed to 'The Antiseptic'.

of the brain cells. But defective oxygenation though an important factor in the symptomatology is not the only one. The clinical picture is determined by four variants :—

(1) The intensity of the stimulus.
(2) The susceptibility of the different lobes.
(3) Localised disturbances in vascular regions of the brain.
(4) Localised vulnerability of special regions.

Before we proceed further with our discussion, it would be preferable to consider briefly certain aspects of brain physiology in its relation to circulation.

II. **Applied Physiology.**—Three problems are relevant to our discussion :—

(1) The mechanism by which the supply of blood to the brain is maintained in spite of considerable alterations in posture and wide variations in blood pressure.
(2) The mechanism which makes for maximum utilisation of the blood supply, and minimum of harm due to anoxaemia, on occasions when the amount of blood sent to the brain is limited or less than usual.
(3) The mechanism by which additional activity of different portions of the brain can be provided for by additional blood flow to that particular portion.

The need for an efficient protective mechanism against alterations of posture producing bad effects is obvious when for example we think of the case of a giraffe and reflect on the difference there is when it puts its head into the trough to eat, and then raises it in the air. Yet, apparently the annimal does not suffer from the symptoms. The acrobats, those who fly on the trapeze and ballet dancers are examples amongst human beings. In the Schizophrenics, in patients suffering from anaemia, high blood pressure, and cardiac disorders, the re-adjustment of blood volume from the stooping to the upright posture, takes place more slowly, and less efficiently than in the normal person. This is probably due to a relatively ineffective vasomotor mechanism. The vasomotor mechanism is responsible for the maintenance of arterial tone and maintenance of blood supply to the various organs in proportion to their needs.

This vasomotor mechanism is influenced by a number of factors. (1) Emotional influence from high centres (2) Carbon dioxide concentration (3) Oxygen lack (4) Respiratory centre

(5) Carotid sinus (6) Afferent nerves of the aortic arch (7) Autonomic fibres and ganglia (8) Chemicals like adrenalin, pituitrin, histamine and metabolites (9) Alterations in temperature.

The inter-relation between the vasomotor and respiratory mechanism is of importance from the point of neurology and psychiatry. It is well known that stuporous conditions, whether psychogenically or organically motivated respond favourably to therapeutic measures which stimulate the respiratory centre. Such are for example, stimulation by Carbondioxide, by intravenous Sodium Cyanide, and even by improvised forms of artificial respiration.

There is another line of evidence which suggests that there is an irradiation from the respiratory to the vasomotor centre. Adrian in his studies on action currents in the sympathetic nerves, found that the frequency of the nervous discharges in vasoconstrictors is modified considerably by factors influencing the respiratory centre. Asphyxia, and histamine, which stimulate the centre increase the discharge. Adrenalin, which inhibits the centre reflexly by raising the blood pressure, often stops the discharge of electric impulses. He also found a variation in the sympathetic discharge with phases of respiration. All these investigations suggest the influence of the respiratory on the vasomotor mechanism. The respiratory mechanism is in turn influenced by various factors of acidosis and alkalosis which in turn one of importance in conditions leading to convulsive seizures, and catatonic syndromes.

A discussion of the innervation of the cerebral vascular bed follows naturally. The vessels in the piamater and also those penetrating the substance of the cortex are supplied by sympathetic, non-medullated vasomotor fibres. By trephining and painting the duramater with coagulin, or by inserting a transparent window, it is possible to notice the alterations in the size of blood vessels under various stimuli. It is found for example, that drugs like, Carbondioxide, Ether, Caffeine Citras, and Histamine produce marked dilatation of the blood vessels. But whether there is a constrictor mechanism as well is controversial. If there is a constrictor mechanism, it is not probably so very efficient, because it is not really so very necessary for the brain, in that the needs of the nervous system are met with ultimately by chemicals (adrenalin, acetyl-choline and their derivatives, endocrine products, and vitamins). It is also difficult to see what purpose is achieved by the innervation of the cerebral vessels. It might be supposed that the chemical sensitivity of the

vasomotor centre to changes in the quality of its blood supply and the regulatory afferents from the aorta and the carotid sinus would be sufficient to adjust the somatic circulation in such a manner as to ensure an adequate blood flow.

The temperature of the different parts of the brain has been used as a check on the amount of blood flowing to that part. This is done by inserting thermo-electric couples, such as copper and iron couples, and measuring the alteration in temperature registered as an alteration in electrical conductivity. It has been found that powerful visual stimuli raise the temperature in the occipital area, powerful auditory stimuli in the temporal area, and muscular convulsions in the pre-rolandic area.

These investigations throw light on the control of blood supply to the brain. They are admittedly incomplete, but still, they represent a considerable advance in our knowledge. The bearing of these investigations on the problems under discussion will be seen from subsequent paragraphs.

We cannot close this section without mentioning another method of approach to the problems of brain physiology, namely the study of cerebral action currents. Berger found that when electrodes are applied to the human head, especially in the occipital area there is a rhythmic oscillation of electric potential which can be registered and photographed. These rhythmic oscillations are marked when the eyes are closed, and disappear when the eyes are open, or by the appearance of a pattern in the visual fields. These discharges seem to be due to a large number of neurones discharging synchronously at the same rate.

The complex mosaic of asynchronous discharges in such diverse conditions like cerebral tumor, epilepsy and cerebral vascular conditions are being investigated. At the present moment, however, the interpretations of electro-encephalograms as they are called, are merely matters of individual opinion. It is probable however that they will soon be standardised, and we shall have in them an important aid in the diagnosis of cerebral disturbances.

III. **The Final Commonpath of Circulatory Disordre.**—Sherrington, from his investigations in nerve physiology elaborated the principle of the ' Final Commonpath of Nerve Impulses '. This final commonpath is the anterior horncell and its fibres—"It is the sole path which all impulses, no matter whence they come, must travel if they are to act on the muscle fibres to which it leads."

Ricker, Spielmeyer and others have found that in such diverse conditions like epilepsy, encephalitis, mental and neurological diseases, associated with infectious and toxic states, head injuries, hypertension and cardiac disease, there is a certain uniformity of vascular lesions. These vascular lesions are indentical in appearance with those found as results of organic diseases of the blood vessels. The theory has been put forward by Spielmeyer, Krapf, and others, that these lesions owe their origin to functional disorder of the vascular system and that this common factor accounts for the identity in histological appearance in spite of the profound ætiological differences.

These researches mean that one can visualise in the brain an analogous final common path of circulatory disorder. That is, however diverse may be the earlier links in the causal chain, they seem to meet in the final common path of functional circulatory disorder. This pathological identity, however, does not mean that all diseases are one—far from it. But it does mean that there is a tendency for simplification, especially as regards the last link, which is the ultimate cause of disturbance in the nervous substance itself.

This leads us to another fascinating problem: Whether it is not possible to visualise in a similar manner the problems of avitaminosis, and disordered endocrine states. Since the ultimate regulation of arterial, muscular tones, and as well of neuronic integrity is almost entirely chemical in character, and by relatively simple chemicals at that, the bearing of such a conception on the understanding and treatment of diseases would be obvious, provided the limitations are also appreciated.

If this last link is at work in so many different conditions, is it too much to try to find out whether there is any similarity in the clinical pictures and if so what is the degree of such similarity. The researches of Krapf and others go to prove that there is such a similarity. Discussing the clinical picture of hypertensive attacks, taken as an example (high blood pressure but not due to arterial disease) Krapf found that hypertensive disturbances showed a tendency to make their appearance in Episodic attacks. The syndromes of such attacks could be grouped as follows:—

(1) Transient loss of consciousness of the petitmal type.
(2) Twilight states.
(3) Transitory states of agitated depression.

Similar states have been described in such diverse conditions

like Reynaud's disease, migraine, lead poisoning, and pellagra; the inference being that although they are all so different in the first links of the causal chain, the final links are probably similar. That is, this circulatory triad is probably the framework on which clinical pictures of many apparently dissimilar states are built up and elaborated.

The elaboration itself, however, is determined by several other factors. In the brain, for example:—

(1) The intensity of the stimulus.
(2) The susceptibility of the whole brain.
(3) Localised vulnerability of parts of the brain.
(4) The integrity or otherwise of the whole or part of the vascular areas of the brain.

The ultimate clinical picture is due to these four variants acting on the circulatory triad of loss of consciousness, twilight state and agitated depression.

Intensity of stimulus is correlated with severe delirium. A low intensity is correlated with merely a depressive state. The influence of susceptibility of cerebral areas is well illustrated in the study of patients suffering from sequelæ of encephalitis lethargica. Where frontal areas are mainly involved in addition to the usual physical signs, character changes were most prominent, but where globus pallidus was involved the mental symptoms showed a peculiar hallucinatory state termed 'Peduncular Hallucinosis'.

The circulatory theory as well as the selective vulnerability theory of cells like those of globus pallidus are not mutually exclusive. It is possible that the circulatory deficiency might be brought about more easily in areas such as corpus straitum where its physio-chemical organisation has an especially high oxygen need.

Pickworth by an interesting technique has shown the importance of local disturbances in vascular regions. He has stained the blood flowing in capillary and arterial beds, and has attempted to show that conditioned mosaic pattern of vascular activity is a fundamental cause of perverted mental and nervous activity. Epileptic insanity is usually associated with cerebral vaso-lability. In confusional insanity there is often seen not only a meningo-encephalitis but also a series of vascular lesions similar to those in general paralysis. In manic-depressive psychosis arterial disease is very common. Coagulative necrosis of the nerve cells attributed to ischæmia is often noticed. Pickworth also has tried

to demonstrate lesions of vessels typical of arteritis in typhoid fever, diphtheria, dysenteries, lead poisioning and chronic septic conditions. Very few people have agreed entirely with the conclusions of Pickworth, but his observations are certainly interesting.

IV. **Heart failure and the Central Nervous System.**—The nervous symptoms occurring in circulatory failure are :—

(1) Stokes-Adam Syndrome.

(2) Various confusional and psychoneurotic states.

(3) Symptoms, due to emboli orginating in the thrombi that so often form in the dilated chambers of the failing heart.

(4) Cerebral symptoms due to the disease that causes the circulatory failure. Cerebral symptoms of arteriosclerosis, and chorea are examples.

(5) Mental and Neurological disturbances are occasionally seen during the resorption of oedema.

(*Fishberg*).

In right heart failure, the whole brain is voluminous and œdematous. High venous pressure due to right heart failure raises tension of the cerebrospinal fluid. When the venous pressure falls, the C. S. F. pressure also falls. In left heart failure with normal venous pressure, the C. S. F. pressure is unaltered. In peripheral circulatory failure, the C. S. F. tension is actually less.

The symptoms due to paroxysmal cerebral ischaemia are very many. Inability to concentrate, ready fatigue, emotional instability are very common. The clinical conditions in which circulatory failure might induce paroxysmal cerebral ischaemia are the following :—

1. *Heart block and the Stokes-Adam Syndrome.*—This is usually due to disease in the ventricular rates, with occasional ventricular standstill, and rarely from paroxysmal ventricular fibrillation.

2. *Paroxysmal tachycardia and disturbances of rhythm.*—In these paroxysmal conditions the filling and out-put of the heart are greatly reduced. The cerebral manifestations are usually faintness or vertigo but may be so severe as to cause temporary blindness or seizures. Similar cerebral manifestations may also occur at the onset of auricular flutter or fibrillation.

3. *Left ventricular failure.*—In patients suffering from left ventricular failure as a result of hypertension, aortic disease or coronary disease, cerebral symptoms are common, such as syncope, coma, convulsions, and the usual cerebral vascular accidents.

4. *Vagal inhibition.*—Overactivity of the vagus might so inhibit the heart as to lead to :

(*a*) Neurocirculatory asthenia with Sino-auricular block.
(*b*) Carotid Sinus Syncope.
(*c*) Various forms of shock and neurogenic Stokes-Adam's disease.

The mental symptoms due to circulatory failure have partly been discussed in the previous section. Insomnia, bad dreams, illusions and hallucinations, delusions of persecution, are very common. The content of cardiac psychosis is almost always depressive in nature. In cyanotic patients, a chronic somnolence is very characteristic.

V. **Vascular Lesions and Circulatory Disorders of the Nervous System.**—There are a number of conditions which give rise to vascular lesions of the nervous system, not only haemorrhage, thrombosis and embolism, but the more general circulatory disorders such as the anaemias and conditions causing concentration and increased viscosity of the blood. There are also severa- infections and intoxications which involve the nervous system indirectly by causing injury to the blood vessels, or by altering the properties of the blood. The mental and neurological manifestations of the nutritional anaemias has been discussed by me in some detail in a previous contribution to the Antiseptic, eighteen months ago. In this section, a brief summary will be given of pathological anomalies relevant to the problems under discussion.

1. *Disorders due to changes in the blood vessels* :—

(*a*) Haemorrhagic encephalopathy—This condition is secondary to various bacterial toxins and other poisons. Almost all fevers are mentioned as the cause of haemorrhagic encephalitis but influenza is the most common. The onset is abrupt with high fever and chills, and the patient sinks into a fatal progressive coma. The whole brain is haemorrhagic with thrombosis of many vessels. This condition is of particular interest because in the recent epidemic of influenza at Bangalore, there have been many fatal cases presumably due to haemorrhagic encephalitis.

(*b*) Thrombosis of large cerebral arteries following acute infectious diseases.

(*c*) Acute infantile hemiplegias of obscure etiology.

(*d*) Thrombosis of the dural sinuses.

(*e*) Malignant hypertension of childhood. It is a rare interesting condition in which the blood pressure is very high with the demonstrable renal lesion, and the peripheral arteries are soft.

2. *Disorders due to changes in the blood* :—

(*a*) Haemorrhagic disease of the new born.

(*b*) Involvement of the nervous system in thrombopenic purpura. This is a disease usually of childhood but may be met with in adults, of obscure etiology characterized by purpura, fever, reduction of blood platelets and haemorrhages into the nervous system.

(*c*) Involvement of the nervous system in haemophilia, usually in the form of intracranial haemorrhages.

(*d*) Involvement of the nervous system in anaemia. This is a very serious problem specially in India. Reference is invited to my previous article in the Antiseptic, 1936, on the subject.

(*e*) Involvement of the nervous system in polycythaemia rubra.

(*f*) Neurological phenomena associated with dehydration and increased viscosity of the blood. Clouding of consciousness, delirium and terrifying hallucinations.

(*g*) Nervous system may also be involved in bacterial endocarditis, air and fat embolisms of the brain.

3. *Vascular Anomalies involving the Nervous System* :— Saccular aneurysms of the cerebral arteries, arterio-venous aneurysms, venous angiomas, angiomas of the capillaries termed telangiectases are common conditions under this group. The vascular anomalies involved in the spinal cord are in general the same as, in the brain, such as arterio-venous fistulas, venous angiomas and telangiectases. These anomalies are congenital. A detailed description of these conditions is unnecessary ; they are merely mentioned for the sake of completeness.

VI. **Summary and Conclusion.**—An attempt is made in this paper to discuss in its several aspects the intimate relation between the Circulatory and Nervous System. In addition to the structural alterations in one system having its repercussions in the other, the Symptomatology of which are well known, one's imagination could be exercised to visualise the biochemical and functional possibilities of inadequate or intermittent blood supply to the brain. The descriptions given are incomplete and possibly controversial. If however they stimulate thought, the article will have served its purpose.

Acute Otitis Media*

BY

Dr. M. Sanjeeva Rao, M.B.B.S.

Ear, Nose and Throat Institute, 20, Thambu Chetty St., Madras

THE normal pathway of infection into the middle ear, is always *via* the naso-pharynx and Eustachian tube. Infection, however not infrequently gets into the middle ear through a perforation in the drum *via* the external canal or more rarely through a traumatic rupture of the drum. Infection from a suppurating labyrinth in epidemic cerebro-spinal meningitis is extremely rare.

The infective material—either infected water during swimming or diving or more commonly the infected mucus from the naso-pharynx is squeezed into the middle ear while blowing the nose or as often happens in acute infections of the nose and pharynx, spreads to the middle ear by continuity of tissue. In this latter mode of spread there is always a variable period of acute inflammation of the Eustachian Tube which can be recognised as a clinical entity until the middle ear infection symptoms overshadow the picture.

In the Tubal pathway of infection the predisposing cause is a *Rhinopharyngitis*, Acute or Chronic. *Acute Rhinopharyngitis* itself may be a simple cold or catarrh or the prodromal syndrome occurring in the early stages of the various acute infectious fevers, exanthemeta, whooping cough etc. *Chronic Rhinopharyngitis* may be due to chronic inflammatory affectious, catarrhal or suppurative, or Hyperplastic or Neoplastic changes in the nose, pharynx, mouth or sinuses.

In the external pathway of infection water may get into the ear during bath, or use of $H_2 O_2$ drops, or syringing or instillations of septic oils or irritant. In rupture of the tympanic membrane the infection is from external canal, usually introduced by uncalled for and unskilled treatment.

The actual exciting cause is bacterial. Though any of the organisms of the respiratory tract may be present in the middle ear-discharge, the *streptococcus*, some variety or other, is undoubtedly the cause of mischief in the large majority of cases. This fact is to a large extent confirmed by the results of sulfanamide therapy and also by the fact that in complications like sinus thrombosis, it is often the streptococcus that is grown in

* A paper read before the Association of Laryngology and Otology at its meeting held on 13-8-'39 and sent to ' The Antiseptic ' for publication.

pure culture from the blood, though a mixed flora may be present in the aural discharge. Streptococcus hæmolyticus, streptococcus Mucosus and diplococcus lanceolatus, capsulatus are particularly liable to produce virulent infection or extensive bone necrosis. Other organisms involved in middle ear suppuration, less frequently however, are Pneumococcus, Micro-coccus Catarrhalis, Staphylococcus and B. Influenza. The acute otitis media occurring during typhoid or diphtheria is frequently streptococcal in origin.

Pathology.—Pathology is *in essence* the same as that of inflammation of the mucous membranes elsewhere. The mucosa of the Eustachian tube is ciliated columnar, thrown into numerous folds, with plentiful mucous glands in the submucosa, and with lymphoid tissue (tubal tonsil) at its inner end. In the middle-ear, it is of cubical type with no mucous glands, and in the attic the mucous membrane is thrown into numerous folds and pockets as it invests the various structures there. In the antrum and cells, it is squamous and very thin.

Middle-ear inflammation is usually classified as of two types *e. g.*, acute catarrhal and acute suppurative :

1. *Acute catarrhal* with epethelial desquamation and serous or sero-mucous exudation.

2. *Acute suppurative* with round cell infiltration and frank pus formation.

3. *Mucosus Otitis* :—Though the incidence is rare, the infection of the middle-ear spaces by two capsulated organisms, the streptococcus mucosus and Diplococcus Lanceolatus capsulatus is very important. Pathologically it is essentially a suppurative process, but with marked loss of tissue reaction. There may be extensive bone necrosis and even fatal intracranial complication may develop while the tympanic membrane is still normal or nearly normal in colour and there is hardly any pain, temperature, deafness, or mastoid tenderness.

4. There is undoubtedly a fourth variety, *Acute Congestive*, marked by acute congestion and enlargement, going on even to venous obstruction, with marked inflammatory œdema. The tympanic membrane is dark red with a venous hue, indicative of circulatory asphyxia. Simultaneously, the postero-superior meatal wall is intensely inflamed and oedematous so much so, it is impossible to say where the membrano-meatal junction is. The membrane as a whole is bulging, but there is no free fluid or pus in the tympanum. If a paracentesis is done, we get

only free haemorrhage, but neither pus nor serum. On the morrow the incision far from closing is open and pouting with the inflamed mucosa herniating through the gap. Relief of pain following free paracentesis is less marked than in the other two types. If the mastoid is opened, on account of the severity of the symptoms, as I did, in two cases, in the pre-sulfanamide days, no pus is encountered in the cells or antrum, but there is free haemorrhage and the engorged oedematous mucosa of the cells goes on pouting into the wound as the cell partitions are being cleared away. I was of course not sorry for having opened the mastoid, as the relief from the severe pain, temporary deafness and above all anxiety, was very quick and a perfect cure resulted. But of course the question is whether one could safely do without it, especially,when the patient refuses an operation.

Signs and Symptoms.—I have dealt with the fourth variety *e.g.* acute congestive type of otitis media, a bit elaborately, because while I cannot maintain that it is very common, I cannot also say that it is very rare and certainly gives us a lot of anxiety. In these cases, there is deep-seated intense ear-ache, with severe pain radiating to the frontal, parietal, occipital and even deep orbital regions of the same side, mastoid tenderness throughout and sometimes mastoid œdema especially in children. There is also hyperæsthesia of the skin and temparature is invariably over 100° F., with considerable deafness. I have described the other details when dealing with its pathology. There is obviously an intense engorgement of the whole middle-ear cleft. This is understandable of course as the middle ear cleft is one indivisible continuum, but the severe radiating pains on the whole side of the head and hyperæsthesia of the overlying skin are puzzling. The only hypothesis, which I can think of, to rationally explain this symptom, is to assume that there is a sub-periosteal œdema on the upper side of the thin tegmen, the function of the periosteum here, however, being taken over by the dura, and thus forming a subdural inflammatory œdema, in the same way as the mastoid œdema. The natural course of spread of such a process would be forward and medialward, along the anterior petrous surface involving in order, the greater superficial petrosal Nerve, Gasserian ganglion and lastly the abducent nerve at the petrous apex under petroclinoid ligament, in which case of course you get the typical Gradenigo's syndrome. Apparently in these types of cases it stops short at the Gasserian

ganglion irritating it and giving rise to severe neuralgic pains on the whole side just described and hyperæsthesia of the skin. It is a Sub-Gradenigo syndrome if I may style it so. In children such severe pathology probably gives rise to, and explains the symptoms of "meningism" *i.e.* acute otitis media, with high fever, delirium, convulsions and positive Kernig's etc; but lumbar puncture is negative.

In the catarrhal types of inflammation the infection is invariably from the nasopharynx and if it is still confined to the Eustachian tube, the patient complains of deafness as if the ear is blocked, pain radiating to the ear and autophony. The only change in the membrane is an indrawing. Resolution may set in at this stage. This complaint is commonest after adenoidectomy. When the inflammation spreads to the middle ear, the gloss of the membrane begins to disappear, vessels round the handle of malleus become injected and later, there is a variable hue of redness of the whole membrane. Even in catarrhal inflammation, very rarely is the membrane translucent enough for us to see the fine hair-line upper margin of the fluid in the tympanum. I have seen not more than 3 or 4 cases of this type showing fluid line. The process may go on to suppuration or resolve.

In the purulent type of inflammation, apart from the marked congestion and blurring of the landmarks and bulging of the membrane, sooner or later yellowish softening of the membrane takes place, the nipple like yellow projection indicating the site of perforation. Apart from pain, deafness, temperature etc. in the severer cases there is always some "mastoidism" or "early mastoid tenderness" which however disappears in about 3 to 7 days with free drainage and proper treatment. Much more severe types of mastoidism however occur in the acute congestive types, where in one particular case under my treatment it lasted for nearly 4 to 5 weeks, but eventually there was complete recovery even of hearing.

If the discharge is mucopurulent, as is commonly seen in children, it indicates that the inflammation in the tube or nasopharynx is still active and calls for treatment.

Late mastoid tenderness is of more serious import, as it is usually taken as a sign indicating extension into the mastoid, but here again the possibility of a re-infection must be borne in mind. A child of 5 years under my treatment for bilateral acute otitis media with early mastoidism, was getting better under treatment, and the tonsils were unhealthy and enucleation later had been advised. Suddenly towards the end of the 2nd week, it

got worse with temperature, severe pain, diminished discharge and mastoidism, but curiously with no symptoms referable to the throat. Examination of the throat revealed diphtheritic patch. With appropriate treatment the child recovered completely.

Differential diagnosis.—Lies between: (1) Acute otitis media. (2) Acute external otitis. (3) Reflex otalgia. (4) Myringitis. (5) Primary eczema of external canal.

These have been exhaustively dealt with in various text books and so I will deal with them very tersely. You cannot have external otitis without some pain on traction of the auricle or tragus. In reflex otalgia there is always some obvious lesion in the pharynx, tongue or teeth and the membrane is normal in colour and contour. In myringitis, there is some irritant focus in the external canal, near the drum, either fungus, ulcer, or wax, or history of irritant poured into the ear, and there is practically no deafness. In influenzal cases hæmorrhagic bullæ have been described. I have come across only one case of primary eczema of external canal and here I had the opportunity of seeing the case from start to finish. It began with severe itching in both the canals with slight desquamation and perfectly normal membranes. Soon epidermis began to exfoliate, leaving raw red areas and serous discharge, spreading the disease to the auricle, wherever it touched. Next the left drum was involved, but the right one was spared. The involved drum was œdematous and of red hue with patches of exfoliations resembling multiple perforations. Repeated examination of the discharge showed only abundant staphylococci, with a few streptococci, but no evidence of fungus or tubercle. There was practically no deafness and Eustachian tube was patent and normal. All the usual remedies failed. Staphylo and Strepto anti-virus (Glaxo) in the wet stage and later Crooks Halibut Liver oil ointment suggested by Dr. Kamath completely cured him.

Most difficulties in diagnosis arise on account of the combination of one or more of these conditions and tax our diagnostic acumen to the utmost. A pure staphylococcal discharge from external ear is very strongly in favour of its being from the external canal, but a perusal of literature on the subject shows that even this is not infallible. Skiagrams may help us a lot, but as a last resort, to treat for the more serious condition first is still the rule.

Treatment.—*Prophylaxis*:—A careful enquiry into the personal habit of the patient is necessary. Vigorous nose blowing

should be warned against and patients should be instructed to blow gently one nostril at a time or hawk back the secretions to the throat and spit. For the same reason snuffing should be prohibited, as it not only favours a chronic rhinopharyngitis but also entails vigorous nose blowing. Sticky nasal secretions can be efficiently liquefied and cleaned by the use of warm alkaline douches, if no acute inflammation is present.

Patients with dry perforations should be warned against allowing water to get into the ear during bathing or swimming. H_2O_2 drops or syringing such ears is also inadvisable for the same reason, unless means of efficiently drying the ear are at hand. Traumatic ruptures of the membrane are best treated by being left alone and protected by a plug of sterile cotton wool. In cases of acute rhinopharyngitis due to any cause, if there is any tendency for the inflammation to spread to the ear, instillations of 15% Argyrol into the nostrils with the patient in the head low recumbent position and inhalations of steam impregnated with Tr. Benzoin or Menthol, combined with sulfanilamide therapy if necessary, will effectively check the spread.

In every case of chronic rhinopharyngitis or when there are repeated exacerbations, the cause must be ascertained and treated. In children, the greater activity and vascularity of adenoid, tonsils and lymphoid tissue in the throat generally, and the short wide Eustachian tube, and feeble resistance to variations of temperature and humidity—all these make them more liable to suffer from frequent attacks of cold and otorrhœa. It is equally, if not more important, however, to remember that at the bottom of all this, the real underlying factor, may be the frequent gastro-intestinal upsets of children, leading to deficient assimilation and elimination and consequent avitaminosis, leading to development of epithelium, of poor infection resisting power. In cases with such a background removal of adenoids and tonsils alone will give a temporary relief at the best.

In adults, apart from rectifying the local condition in the nose, throat or sinuses, a general examination with a view to find out any devitalising factors, such as diabetes, anaemias, gastro-intestinal disorders etc. should be made and treated appropriately.

General :—During the acute stage of otitis media, the nasopharyngeal condition should be dealt with conservatively, the acute ones out of necessity and chronic ones for choice. Only very minor surgical procedure such as puncture and lavage of

the antrum etc. are permissible. Such operations as removal of septic tonsils and adenoids should not be undertaken during the acute stage of otitis media.

The systemic conditions such as anaemia, diabetes etc. should be treated along with, and sulfanilamide therapy instituted, as most of the middle ear infections are strepto or pneumococcal. Of these preparations, I personally favour M. & B. 693, the only drawback being the nausea and vomiting it causes. This can to a large extent be prevented by the patient taking the tablet with a dose of Glucose and Soda Bicarb. In the severer cases of acute otitis media the patient should take rest in bed and bowels opened.

Local Treatment :—Of all the numerous ear drops the most efficient are Otalgan and Glycerine Carbolic 5%. Cases of acute catarrhal otitis media rarely require paracentesis, as most of them can be aborted by the frequent use of these drops instilled warm.

Operation.—In cases of suppurative otitis media if the membrane has not yet been perforated, a paracentesis is advisable. In the majority of such cases showing yellowish bulging and discoloration, no anaesthetic is necessary for paracentesis, as the softened membrane is not very sensitive. Anyway the sensibility of the membrane may be tested beforehand with a blunt probe very gently. Though in the large majority of cases the natural perforation is adequate for purposes of drainage, a few cases however do occur, where paracentesis has to be done to promote drainage, as the opening is too small. In the early stages, the discharge is usually copious and has therefore to be cleaned frequently and dressed with gauze or cotton wicks soaked in Glycerine Carbolic, lightly packed into the meatus, one end resting against the perforation. With such dressing frequent syringing is really necessary. The discharge rapidly thins out and subsides and after the ear is dry, catheterisation or politzerization and ear massage can be employed to restore complete hearing. In all but the mildest cases, I usually advise injection of Collosol Iodine, during the stage of resolution with the hope of completely restoring hearing and prevention of fibrosis.

In cases of acute congestive otitis media, if there is no appreciable relief within 24 hours by conservative measures, I straightaway advise and do paracentesis. In these cases we can

expect nothing but free haemorrhage. A general anæsthetic like Ethylchloride is necessary. The canal is at first cleaned and dried with spirit, the membrane is decongested with adrenalin and then when the patient is under the anaesthetic, an incision is made in the posterior half of the membrane from below upwards, and then prolonged backwards in a Y-shaped manner into the postero superior meatal-wall to open up the subperiosteal space which is in direct continuity with the submucous space in the tympanum. Daily ear dressings are made with strips of warmed Glycerine Carbolic Mag-sulph gauze. Except this variation, the rest of the treatment is the same as that of other varieties of acute otitis media.

When mucosus otitis is suspected, a culture should be made from the discharge, as soon as possible after the membrane ruptures or is opened, and no time should be lost in opening the mastoid. It is extremely important to recognise as such acute exacerbations of a chronic otitis media, for here, the margin of safety to prolonged conservative treatment is very limited. In many cases, no doubt, there is a definite history of chronic otorrhœa, but here again, in cases of attic disease, with Shrapnell's porforation, the discharge may be so little, and may so efficiently dry up and the deafness may be so insignificant, that the patient will maintain, that he never had any discharge or deafness in that particular ear. In chronic cases with bone necroses, the first line of defence—mucous membrane—is broken through in places, the depth of bone necrosis cannot be easily estimated beforehand, and therefore we have to be very careful in unduly prolonging conservative treatment. In fact, such cases are quite unsuitable for conservative treatment.

If in spite of efficient conservative treatment on the lines, the symptoms persist, the question of drainage through the mastoid should be seriously entertained. In absolute indications like mastoid, Zygomatic or Berfold's abscesses, or suspicion of intracranial complications or radiographic evidence of mastoid disintegration or mucosus otitis etc. there is no choice at all. The question is how long can symptoms like pain, copious purulent discharge, temperature, deafness or mastoid tenderness, be allowed to persist, after efficient treatment and free tympanic drainage ? Undoubtedly quite a good number of cases can be pointed out, where such stormy symptoms have persisted more or less unabated for 3 to 4 weeks and eventually recovered with complete hearing. The accepted view is that unless these

symptoms show some progressive dimunition, within 3 to 5 days after free tympanic drainage, it is not advisable to take the risk, but advise drainage through the mastoid, as the results, both on the restoration of hearing and cure of suppuration are excellent. Under conservative treatment, eventual cure may occur, but very often with fibrosis and sacrifice of a variable amount of hearing. Few cases will retain perfect hearing if carefully treated. Most of them pass on to the stage of chronic otorrhœa, with attendant dangers,—loss of hearing, intracranial complications etc. In some, the membranous tympanum recovers with comparatively good hearing, but with a smouldering disease in the attic cases of Shrapnell's perforation.

Finally, before closing, I want to discuss with you, for proper elucidation, one question which has been puzzling me all these years. What is the previous history, or rather the clinical picture during the acute stage, of a case, which eventually comes to us with Shrapnell's perforation ? Was the original acute attack, catarrhal or suppurative, and was there any perforation of the membrane, and which was the path of infection ? To make things clear, I wish to review some known facts. In chronic otorrhœa, without bone disease, the whole of the vibrating membrane may be destroyed with the exception of (1) cartilaginous tympanic ring, (2) Shrapnell's membrane and (3) that part of the membrane which covers the handle of the malleus. These escape because they share the blood of the underlying bone. In Shrapnell's perforation, however, the head of the bone itself is diseased and so the membrane is destroyed. Clinically what we find is in reality the mouth of a small sinus leading to the diseased focus in the bone. In the large majority of Shrapnell's perforations I have seen, the membrana propria appeared practically normal, normal in colour and contour, with no evidence of previous scar and with very good hearing more or less, which means again that inner wall of the tympanum also has not been affected to any appreciable extent. What sort of inflammation was present in the tympanum, before the disease localised itself in the attic and discharged itself through the membrana flaccida ? In view of the good hearing and normal appearance of the drum, it could not have been a suppurative inflammation at all. Perhaps the disease might have by adhesions localised itself in the folds of the attic, broken through later, destroyed bone and also the membrana flaccida which shares its blood supply. I am interested to know what your views are.

Discussion

(After the paper was read on 13th August, 1939.)

Dr. Varadarajan, M.D., M.R.C.P., remarked that acute otitis media was a fairly frequent complication of pneumonia especially in children. It occurred during the course of typhoid also. He wanted to make sure and so he called the otologist early enough. What was the earliest indication to show that this complication was occurring? Finally he also wanted to utter a word of caution regarding the indiscriminate use of Sulfanamide preparations. Evil effects were common enough and he doubted their efficacy especially in pneumonias.

Dr. Royen wanted to emphasize the occurrence of acute otitis media in children. The thicker drum in children does not easily bulge or perforate and the little infant is hardly able to localise pain. It may put its hand against the affected ear. He wanted to strongly recommend an otoscopic examination in every case of suspected meningitis, and also during the course of pyrexias of doubtful origin, pneumonias etc. Regarding Shrapnell's perforation he was of the opinion that every such case was not associated with caries of the ossicles.

Dr. Cherian remarked that some otologists contended that there was no such thing as a Shrapnell's perforation. An extreme indrawing of the membrane produced the appearance of perforation. But, of course this view had been widely refuted. He was not in the habit of prescribing Sulfanilamide preparations frequently, as he had also come across undesirable effects. Regarding prevention of acute otitis media during the course of other fevers, he agreed with the instillation of 15% Argyrol drops into the nasopharynx.

Dr. C. V. C. Rao said that treatment of 'otitis media' with Sulphanilamide preparations, though not the end all and be all, is worth trying and if it shows no effect in 3 or 4 days, it is not likely to be of much use. Though 'otitis media' is a frequent complication of many acute fevers, it is a separate entity by itself and requires special handling whether it occurs alone or as a complication.

CASES AND COMMENTS

Pseudo-Hydrophobia

BY

Rao Sahib M. G. Ramachander Rao, M.B. & C.M.
Chief Medical and Sanitary Officer, Puducottah.

NADIMUTHU, aged 14, a Non-brahmin boy of Tirumayam, was given a full course of antirabic treatment some 3½ years ago, due to a rabid dog bite. He had no symptoms of hydrophobia after the treatment till 29-6-1938. On the 29th afternoon, while he was in his class, he suddenly mocked at his class mates and began to bark like a dog. He even bit one of his friends. He was immediately taken home. Even at home he continued barking. His parents were in a fix. Thereupon he was brought and admitted in the General Hospital on 1-7-1938.

Examination.—The patient's appearance was dull and the patient was constantly moving his lower jaw as if he were biting something. Pulse, temperature, and respiration were normal. When the Medical Officer in charge brought a cup of water before him, he began to bark, which made him diagnose as hydrophobia. As usual he was admitted in the hospital for treatment. In reply to instruction for vaccine in this particular case, the Director at Coonoor instructed that vaccine treatment was no good for this case at this stage. The symptomatic treatment given to him was as follows :—

On 1-7-1938 he was given the following mixture :—

℞	Chloral Hydras	...	grs.	xxx
	Pot. Bromide	...	grs.	xxx
	Tr. Card Co.	...	♏	xxx
	Aqua Chlorof.	...	℥	iii

Ft. Mix. one. oz. T. D.

The patient could take liquid food—all hot—from the beginning ; but was terribly afraid of cold water.

Diet :—Barley water, gruel kanjee and milk. The patient had an undisturbed sleep.

On 2-7-1938 patient was put on the same mixture and diet. But the least sight of water frightened him and made him perspire, with symptoms of difficulty in breathing.

On 3-7-1938 the same mixture and diet were continued. He expressed a desire to drink hot water which in turn he took without trouble. He slept well that night.

On 4-7-1938 the same mixture was given. At his request he was put on reduced rice diet, milk, bread and hot kanjee. He slept well. But the fear for seeing cold water was persistent.

On 5-7-1938, 6-7-1938 and 7-7-1938 he was on the same diet, with the following mixture :—

℞	Chloral Hydras	...	grs. x
	Pot. Bromide	...	grs. xv
	Tr. Card. Co.	...	♏ xxx
	Aqua Chlorof.	...	℥ iii

On 8-7-1938, from 4-30 p. m. to 6 p. m. there was a good shower of rains. At 4-35 p. m. he bit suddenly one of his relatives who was near by and showed a tendency to bite anyone who approached him. By 7-30 he was put on the very same mixture. (increasing the dose of Bromides and Chloral as on 1-7-1938). He slept well the rest of the night.

He was quite well on 9-7-38. On being questioned of his action on the previous day, he answered that for the time being he was not in his full sense and that the chillness of his body due to the rain made him fear as if some misfortune would happen to his life.

He was quite well on the 10th. On the 11th the dose of Bromide and Chloral Hydras was reduced as on 5-7-38. From 11-7-38 to the end of 14-7-38 the same mixture and diet were repeated. The dread for cold water still continued. On 15-7-38 the medical officer in charge of the wards, offered him a cup of cold water, as a sort of trial, which the patient drank freely without any sign of difficulty. On the same evening there was drizzling and the patient was quite well and felt no perturbation as he did on 8-7-38. His habits were quite normal.

On 16-7-38 he was put on the following mixture.

℞	Pot. Bromide.	...	grs. xv.
	Mix. Carminative.	...	℥ iii.
	One. oz. T. D.		

He slept soundly. On the 17th, at the request of the patient for discharge, I asked him to bark for which he told me that he could not do so, and that what all he did once were done when he was in a state of unconsciousness. From 15th to

17th he took cold water freely and his usual diet of rice and curry. He was accordingly discharged at 10 A.M. on the 17th and he was advised to continue the same mixture and to attend the hospital once in a week to note his further condition. He was attending the hospital every week for about 2 months. I learn he is keeping good health.

In the light of these symptoms, the case was diagnosed as pseudo-hydrophobia ; for true Hydrophobia always ends in death.

I wish to hear more about such cases from my brother medical men. Pasteur Institute, Coonoor, was consulted about the treatment of this case. They said that vaccine treatment was no good for a case of Hydrophobia,but did not tell us whether vaccine in this case, diagnosed as pseudo-hydrophobia by us, was good or not.

Specific Osteomyelitis (Syphilis)

BY

Rao Sahib M. G. Ramachander Rao, M.B. & C.M.,
Chief Medical and Sanitary Officer, Puducottah.

Name and Age.—Govardhanan, 4 years ; *Race or Caste.*—Hindu, N. B. (Male Child) ; *Residence.*—Nil. ; *Occupation.*—Nil. ; *Admitted.*—5-5-1938 ; *Discharged.*—Cured on 15-7-38.

Disease.—Specific Osteomyelitis (Syphilis) ; *Duration.*—Of one week (swelling in the leg).

Skiagram dated 31-5-1938. No. 396.

SPECIAL REPORT.—*Tibia* :—Lesion on the metaphyseal side of the epiphysis. Extensive involvement of the periosteum. Patchy destruction of the cortex and medulla. No sclerosing osteitis or sequestrum. *Fibula.*—Extensive periosteitis ; *Humerus* —The lesion is similar to that of tibia.

H. B. Index during admission 75%. Child fairly nourished. *Urine Examination.*—Reaction slightly acid. S. G.—1018 ; Albumen.—Nil. ; Sugar.—Nil. ; Phosphates—Nil. ; Bile.—Nil.

Admitted for.—Inflammation at the lower third of left leg.

Family History.—Parents give a previous history of syphilis before the child was born.

Previous illness or injuries.—The child had malaria 6 months back after a trip from Madura which lasted for a fortnight.

History of present illness—The child had a fall a week back. Since then the parents noted a swelling at the lower third of left leg which became very painful with high temperature.

Condition on admission—The child was admitted for a painful swelling at the lower third of left leg of a duration of one week with a temperature 103·5°. Pulse 126. R. 36. The swelling was uniform throughout from the ankle involving the whole of the lower third of leg ; hot and very tender with a history of trauma, the child having had a fall a week back.

Local condition.—Three days after admission there was fluctuation in front and lower part of left leg which was incised under Chloroform. There was thick pus of a light yellow colour and the bone underneath was found bare. The child was put on a mixture containing Cal. Lactus and Diaphoretics. Prontosil Tabloids ½ twice daily and Cod liver oil one tea-spoonful once a day. Injections of intramuscular Iodine i. c.c. and Col. Calcium with Ostelin. D. ⅛ c.c. were also given alternately. After about a fortnight a swelling appeared over the left shoulder and upper part of the left arm which gradually grew worse, the child unable to raise the extremity. The temperature ranging between 99° and 103 . A course of anti-pyo-Vaccine Bruschetenis was also tried with no good result.

A skiagram was taken on 31-5-38 which showed the case as one of specific osteomyelitis (although the child did not show any external symptoms of congenital syphilis, the parents admitted a previous history of syphilis). The child was then put on a mixture containing Pot. Iodide and Cal. Lactus ; Hydrag. Cum. Creta as powders and Bismostab injections, after which the child gradually began to improve and was discharged as cured on 15-7-38. During the convalescent period the child had a rise of temperature preceded with rigors coming on alternate days, which was controlled by Quinine mixtures, since the child had a previous attack of Malaria six months back.

A Case Report

BY

Dr. M. Ratnavelu, L.M.S., M.R.C.S. (ENG.), L.R.C.P. (LOND.), F.D.S. (LOND).

Madras.

HEREWITH I record an interesting case of pulmonary tuberculosis with complications as laryngitis, sinus in right axilla and fistula-in-ano with the kind permission of Dr. K. Vasudeva Rao, M.D. ; M.R.C.P., T.D.D., Superintendent, Govt. Tuberculosis Sanatorium, Tambaram. My thanks are due to him for kindly permitting me to publish the case report.

Male patient, M.R. aged 37, was admitted in Govt. Tuberculosis Sanatorium, Tambaram on 22-2-39 and discharged on 4-9-39 considerably improved. Weight on admission was 106 lbs. and at the time of discharge 128 lbs.

Complaint :—cough (duration : five months) ; sinus in right axilla (2½ months) ; hoarseness of voice (2 months) ; fistula-in-ano (1½ months).

Family history :—Patient's sister died of pulmonary tuberculosis in 1909.

Previous history :—Patient had an attack of influenza lasting for a fortnight in August 1932. Used to have frequent attacks of nasal catarrh in the winter season in 1937-38.

Onset and course of illness :—Had the first attack of cough in Sept. 1937, which persisted throughout the cold weather for 4 months. On clinical examination of the chest, there was consolidation in right lung and he was in the 2nd stage of pulmonary tuberculosis. Sputum was negative for T.B. Took "*Scott's Cod liver oil Emulsion*" and recovered completely from the severe, harassing cough within 4 months.

Patient got relapse of cough in Sept. 1938 at the onset of winter season and the cough persisted in spite of treatment with "*Scott's Cod liver oil Emulsion*" and "Tussipect Syrup". Gradually the patient got worse with severe harassing cough and his general vitality, energy and strength deteriorated ; developed complications, as cold abscess in right axilla in October 1938, which was incised under gas and oxygen on 9th December 1938, having been mistaken for a pyogenic abscess. The pus was sent

for culture. In spite of daily aseptic dressings, the incised abscess persisted as a sinus in the right axilla. The voice became hoarse in the middle of December 1938 and the patient had complete loss of voice on 1st January 1939. For 1 month, the patient was only able to whisper. He developed an anal abscess on 9th Jan. 1939, which burst on 11th January, resulting in fistula-in-ano. He suffered a great deal from the anal abscess till it burst, as he had pain and difficulty in sitting, walking, micturition and defaecation. The pain was excruciating while coughing.

Symptoms of present illness.—Patient has all the typical symptoms of tuberculosis, such as the distressing cough, loss of appetite, extreme emaciation, vomiting, giddiness and slight rise of temperatue. He had lost 10 lbs. during the 1st attack of cough in the winter of 1937. During the second attack, the patient lost 24 lbs. His sputum is thick, yellowish white and nummular and teaming with tubercle bacilli on 12.2-39.

Physical signs :—Patient's general intelligence is good. His development and general condition are fair ; temperature varies from 100° to 101°F ; has slight P.A.; has hoarse voice. Laryngitis + +. Shotty matted glands are palpable in the neck and axilla. B.P. on 26-6-39 is 122/80. Clinical examination of the chest on 24-2-39 shows cavity in right upper lobe and the findings are marked in the attached chest chart.

Inspection :—There is slight diminished movement and wasting on right upper part of the chest in front.

Palpation :—Right side moves same as left side. V.F. is slightly increased on right upper part of chest in front.

Percussion :—There is dullness throughout on right side of chest in front.

Auscultation :—V.R. slightly increased on the upper part of right side in front and back.

Bronchial breathing on right upper lobe in the back. Harsh breathing in the upper part of right side in front. Broncho-vesicular breathing in the lower lobe in front and back with moist rales.

There is harsh breathing in the upper part of left side in front and back. There is broncho-vesicular breathing in the middle lobe on left side in the back and weak breathing below in the back.

Laryngoscopic examination.—On 3-1-39. Larynx shows severe congestion and œdema of the vocal cords with no ulceration. On 17-2-39, Larynx shows congestion and 2 small nodules are seen on the posterior aspect of false vocal cords. On 7-8-39, the Larynx has regained its normal lustre and colour and no nodules are seen on examination.

Bacteriological examination.—Sputum was teaming with T.B. (+ +) from 12-1-39 to 24-3-39. From 24-3-39 to 7-6-39 sputum shows T.B. +. From 7-6-39 till now, sputum is free from Tubercle bacilli. Sputum was examined once in 2 weeks.

Haemoglobin percentage on 22-6-39 was 65% and on 2-9-39—85%

Complement fixation test :—14-3-39. Polymorphs (Schilling's) V.B. 212.

Ratio between small and large mononuclears L : M : 71 : 29.

Sedimentation Test.

	1 hour	2 hours	24 hours.
14-3-39	80	102	128
15-4-39	68	95	116
27-5-39	23	50	115
18-7-39	40	72	123
4-9-39	25	54	86

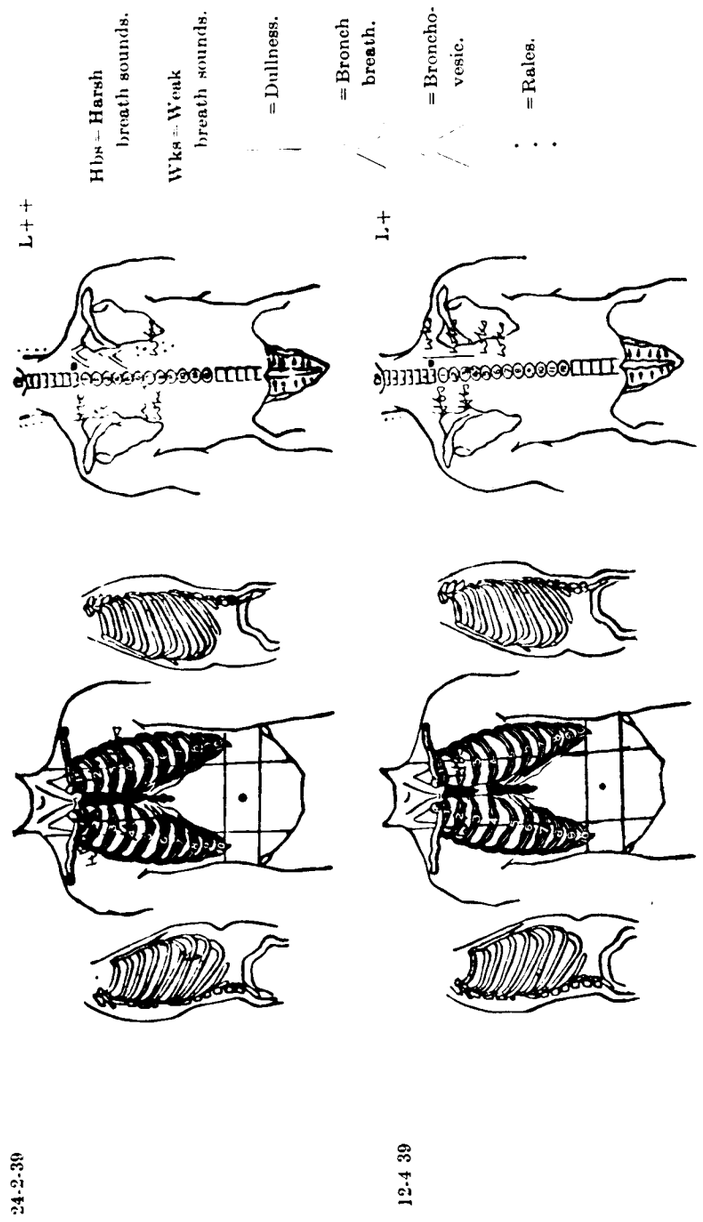
Treatment.—Patient was started with initial artificial pneumothorax on right side on 1-3-39 with 250 c. c. air after preparing the patient in the morning with soap and water enema and cleaning the right side of chest with soap and water and painting the part with Tincture of Iodine. With A. P., patient gradually increased in weight and his appetite improved considerably ; sputum became less in quantity, the character of the sputum changed from nummular thick variety to a thin frothy one, and the temperature became steady within 2 months after starting the treatment and was within 99°F. Palpable glands in the neck and axilla completely disappeared on 26-6-39.

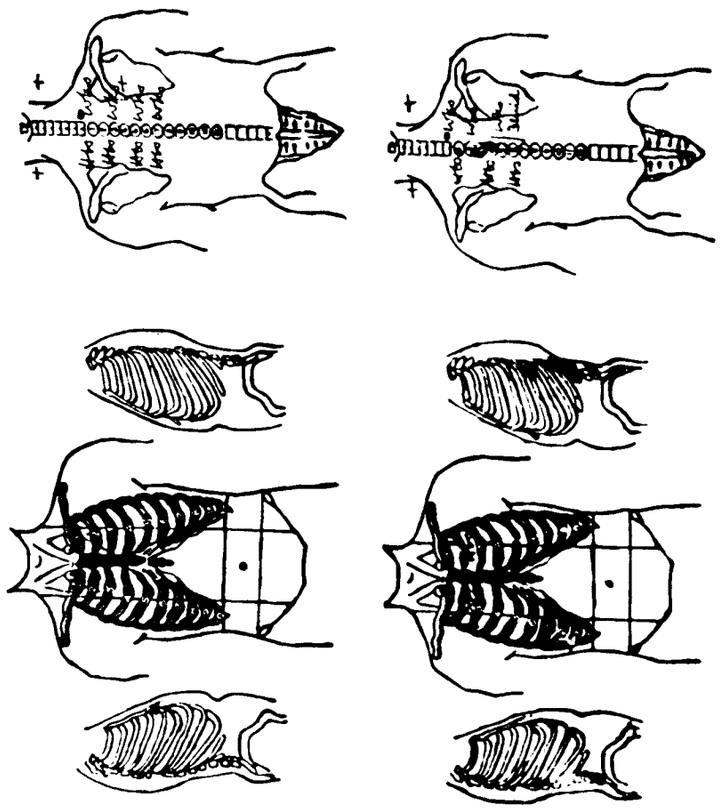
Pneumothorax Chart is recorded below.

Date.	No.	Pressure				Quantity of air	Complication.
		Initial		Terminal			
1—3—39	Initial	— 8	— 6	— 6	— 2	250 c.c	
3—3—39	2	— 9	— 7	— 6	— 3	350 c.c	
6—3—39	3	— 7	— 4	— 6	— 3	400 c.c	
10—3—38	4	— 10	— 5	— 6	— 3	450 c.c	
15—3—39	5	— 4	— 2	— 0	+ 2	500 c.c	
22—3—39	6	— 8	— 6	— 4	— 0	600 c.c	
29—3—39	7	—10	— 8	— 3	— 0	600 c.c	
5—4—39	8	— 9	— 6	— 3	+ 2	600 c.c	
17—4—39	9	—10	— 6	— 4	— 0	600 c.c	
26—4—39	10	— 10	— 3	— 3	+ 2	650 c.c	
8—5—39	11	— 8	— 2	— 3	+ 4	700 c.c	
19—5—39	12	— 6	— 2	— 2	+ 4	700 c.c	
2—6—39	13	— 9	— 6	— 5	— 2	750 c.c	
21—6—39	14	— 8	— 5	— 6	+ 4	750 c.c	
7—7—39	15	— 7	— 2	+ 10	+ 14	700 c.c	Effusion
28—7—39	16	— 9	— 7	— 2	+ 8	700 c.c	Effusion
18—8—39	17	—10	— 2	— 2	+ 8	500 c.c	Effusion

For Tubercular laryngitis, Menthol 5 grs. in 1 oz. of Parolene was daily instilled by nasal method. Hoarse, feeble voice gradually changed and the voice has regained the normal tone and pitch within 2 months after starting Menthol and Parolene instillation. Complete silence was observed during the treatment to give rest to the larynx.

For fistula-in-ano and sinus in right axilla, daily aseptic dressings were applied till 1-7-39 with no signs of healing. The dressings were soaked daily with pus. From 1-7-39, gauze dipped in Garlic juice and absolute Alcohol (1 in 10) was applied to both. Within 2 weeks after starting Garlic juice in Alcohol dressing, sinus in right axilla healed completely. The fistula-in-ano has begun to show signs of healing, when it is being plugged daily with the gauze soaked in Garlic juice in Alcohol. At the time of discharge, the fistula has healed only half and it





26.6.39

23.8.39

A Case Report—*By Dr. M. Ratnavelu.*

still communicates through a tiny hole with the anus; through this hole fæcal matter trickles down on pressure. Clinical examination of the chest was done periodically on 24-2-39; 12-4-39, 26-6-39 and 23-8-39 and the findings are marked on the attached chest chart.

X-Ray Report.—12-1-39. Right upper lobe completely involved by a caseating type of affection. No suggestion of cavity formation. Fibrosis right base. A few glands calcified at left hilum. Glands + right hilum. No fluid in pleural cavity. Heart normal in appearance.

20-2-39. Upper half of right lung shows, fairly dense deposit with large cavity in the first 2 spaces in front. A large patch at the extreme base. Right dome of diaphragm is raised and oblique. Left hilum shadow is well marked with diffuse infiltration in lower two thirds. Ring like shadows in the lower half of right lung; widening of the ring like shadow.

11-3-39. Fairly good collapse of the right lung, cavity closing.

29-4-39. Fairly good collapse of the right lung; cavity practically closed. Thin band of adhesion in the second space in front. Left lung practically clean.

8-7-39. Partial collapse of right lung. A thick band of adhesion at the second space in front. Effusion to the level of 6th rib front.

12-8-39. Practically same as before.

Radiological and screen examinations were done periodically to note the improvement during artificial pneumothorax treatment. Screen examination confirms X-Ray findings.

At the time of discharge, patient was free from cough and sputum, temperature remained normal, his voice was normal and his appetite good, general health improved considerably and his weight increased by 22 lbs. He was advised to continue A.P. for a further period of 18 months once in 3 weeks.

Infectious Jaundice (Weil's Disease) in Calcutta

BY

S. K. Sircar & K. Ghose,

(Department of Pathology, Calcutta Medical School Hospitals)

It is an acute febrile illness associated with jaundice and high mortality first described by Weil in 1886, and has since been known as Weil's disease. In 1915 Inada and other Japanese investigators described the Leptospiræ icterohæmorrhagiæ, as the causative organism of the disease and this was confirmed in Germany in the same year.

The existence of Weil's disease in India was discussed by Knowles (1928) and other workers, but in no case so far recorded the causative organism could be demonstrated with certainty by Laboratory methods. During recent years it has become possible to detect the delicate Spirochæte (Leptospiræ) in the blood stream, urine and in various viscera of the infectious Jaundice cases that occurred sporadically in Calcutta and its suburbs since 1937. The demonstrations of the causal organisms, Lept. icterohæmorrhagiæ were recorded for the first time in India by Dr. B.M. Das Gupta and Col. R. N. Chopra in 1937 at the Calcutta School of Tropical Medicine.

Epidemiology. In Japan the disease has a definite seasonal incidence, occurring as a rule, in the months of September to November. In Europe it occurs most in the summer months. In Calcutta it has occurred sporadically in the different parts of the city and in the months of August, December, January and April. In the Andamans it is prevalent during the south-west monsoon and the cases are confined to adult males engaged in outdoor occupations.

Transmission.--In other parts of the world the infection occurs naturally in a high percentage of rats, even in region in which human infection is rare. The rats apparently remain healthy, but the organisms are demonstrable in the urine. The natural reservoir of the organism is the rat. Man is secondarily infected by contact with soil or food which is contaminated by the urine of the affected rats. It has been demonstrated that the Leptospiræ can penetrate the skin even when there is no apparent abrasion although it is believed by many that it is the usual path of infection. It is a recognised fact that the disease is particularly

prevalent in wet areas and it is possibly associated with the Leptospiræ in the water supplies and stagnant ponds. It has been suggested that a water-sodden condition of the skin facilitates its penetration by the Leptospiræ. Infection may also occur through the digestive tract. With regard to the cases that occurred in Calcutta, there is no evidence of the victims coming in contact with the infection by river-bathing or by contact with polluted water. The theory of water-borne infection, specially of sporadic cases, is not therefore established. The cases that were recorded in Calcutta by Dr. Das Gupta and seen by us, were all living in rat-infested houses. The infection might have been acquired by contact with the urine of the infected rats. But at the same time it is a curious fact that the presence of natural Leptospiral infection in the rat population of Calcutta has been found to be of rare occurrence (Knowles and Das Gupta 1932). The agglutination test of the rats' serum against the local human strains were found invariably negative. The outbreak of the disease in Calcutta was not confined to the people of particular occupation and no two cases occurred in the same house nor in near about places. The cases that were admitted in the Carmichæl Hospital for Tropical Diseases up-to-date were not of the bhadralok class but amongst the carpenter, cook and servant etc. In 1938 we got a case in a private house in Central Calcutta. He was a high class Brahmin young man. Recently Dr. U. P. Basu of the Medical College read a paper in this connection in the Calcutta Medical Club and he recorded three cases which occurred one after another in a Jewish family in Calcutta. He points out the infectiveness of the disease and he is of opinion that some blood-sucking insect may be responsible for the propagation of the disease, as the rats of the above houses were examined for the organism and the sera were tested against the local strains but nothing were found. The question as to the true relationship between the Leptospiræ of water-supply, the Leptospiræ of rats and the Leptospiræ of Weil's disease is at present still an unsettled problem. Definite evidence of the transmission of the Leptospiræ from the mother to the embryonic guineapig has been obtained and is shown by the presence of the organism in the section of the fœtal liver (Das Gupta 1939). During the world-war the organism was found in epidemics of the disease among the soldiers.

Morphology.—This organism is the type species of the Genus Leptospiræ, first described by Noguchi. These organisms

are not so distinctly blood parasites as are those of Relapsing Fevers, but are intermediate between them and the tissue spirochetæ. They vary considerably in size 8 to 24 μ by .25 μ. The body gives the impression more of being twisted upon itself like a thread of cotton. When seen under dark-ground illumination it sometimes looks like a chain of small bright beads but on altering the focus slightly, continuity is established. One or both of the ends frequently show characteristic hooks or loops. There are no terminal flagella. They are actively motile in addition to the direct progression. There are very rapid rotations on the long axis of the body. When only one end is hooked, progression is in the direction of the straight end. This parasite has been cultivated by Noguchi on solid media, *e.g.* Blood agar or Gelatin. It is also successfully cultivated in Fletcher's media which is composed of decomplemented rabbit's serum, water and a small quantity of agar ph 7·4 to 7·6. The optimum temparature for growth is from 25° to 30°C.

Staining Reaction.—Generally speaking, they are more difficult to stain than Bacteria. The failure to stain with the Methylene Blue is due to the absence of nucleoprotein. For the demonstration of Leptospira in the films the Fontana method of silver impregnation modified by Tribondeau is most useful.

Young guineapigs are particularly susceptible to the disease and die within 10 or 12 days with characteristic disease and pathological lesions. The tissues are bile stained and the pleural and peritoneal surface are dotted with hæmorrhages. The liver is enlarged and teeming with organisms. The virulence of the organisms is easily lost but can be restored by passage through guniea pigs.

Immunity.—By the end of first week of the disease, antibodies become demonstrable and with their development there is a decrease in the number of the organisms in the body and in their infectivity. Convalescent serum will protect gunieapig from a fatal dose of the Leptospira. The immune serum contains a lysin which causes the breaking up of the organisms in the animal body (Pfeiffer's Phenomenon) and also *in vitro* if fresh serum is used.

Symptoms.—The incubation period is from 5 to 6 days both in man and experimental animals. Ths onset is acute, with rigor, vomiting, headache and abdominal pains, and intense general aching especially of the lumbar region, cramps in the calf muscles and congested conjunctivae. Marked jaundice is a constant feature and is noted within 72 hours from the onset. Bleeding from the gums, epistaxis, melaena and patches of haemorrhages under the skin were seen in some cases. A few fulminating cases occurred with delirium and terminated fatally.

The pyrexia is of an irregular type, between 103°-105° F, falling by lysis about the 10th or 11th day. A few cases were recorded in Calcutta in which temperature came down on the 17th day. There is usually a secondary and terminal rise of temperature lasting 3 to 9 days (Weil's crisis). Convalescence is established in the 3rd week.

The urine is highly coloured, containing albumen and bile. The blood urea is usually raised. The Leptospira is demonstrable in the urine from the 10th day onwards and may persist as long as 100 days. Constipation is the rule ; the faeces are pale in colour. The pulse is slow and the blood pressure is low. Total leucocyte is increased, generally between 10 to 12 thousands. In one uncomplicated case the leucocyte count was 25,000 per cmm. Polymorphonuclear leucocytosis is always present with a shift to the left. The Van den Bergh reaction of the serum gives immediate direct reaction due to the gross damage of the liver cells by the Leptospira. In rare cases the Widal reaction becomes positive in low dilutions. This may be explained by (*a*) the presence of natural agglutinins in the individual cases which shoot up a bit high due to a sudden stimulation by a fresh infection or may be an anamnestic type of reaction and (*b*) the presence of bile in the serum helps the easy agglutination against typhoid group of organisms.

Martin and Pettit recognised the following clinical forms of the disease :—

(1) Cases with grave icterus.

(2) Cases of the true infectious type with the febrile recrudescence. (*a*) Benign catarrhal, (*b*) Prolonged febrile, (*c*) Meningeal, (*d*) With nervous syndrome, (*e*) Pulmonary.

In Calcutta a few cases of the group (1) occurred in 1937. But in the recent years cases were mostly of type (A) of group (2) except two cases of Dr. Basu which were of the grave icterus type. Typical pulmonary and meningeal type cases were neither seen nor recorded so far in Calcutta.

Diagnosis. It is not possible to arrive at a definite diagnosis by clinical methods only. This disease bears certain resemblances to catarrahal jaundice, syphlitic disease of the liver and malaria. The fever must be distinguished from that of relapsing and yellow fever and the Leptospira from Spirochæta Recurrentes though at present rare in India. But in the Tropics, fevers such as typhoid, influenza, rat-bite fever, Para B and jaundice may occur as complications. So, Laboratory diagnosis is essential.

Laboratory Diagnosis.—The icterohaemorrhagica can be found in the blood during the first few days of the disease. Microscopical examination of blood either by dark ground illumination or by smear of stained films have no practical value. Cultural examination of blood is very satisfactory and taken on or before the sixth day of the disease gives 80 to 85 per cent. positive results. 0·5 c.c. of patient's blood is to be inoculated into 7 c.c. of Fletcher's medium and the work is kept for 7 to 10 days at 37°C. Examine the culture from the 7th day onwards under dark ground illumination. It is better to inoculate six media with varying amount of blood from 0·2 cc to 1·5 cc. This will avoid contamination.

Animal Inoculation. Intraperitoneal inoculation of 3 c.c. of patient's blood into a young guineapig (100 to 180 gm) will demonstrate them in the peritoneal fluid. Examine the peritoneal fluid after 3 days. It is of no value after the week of illness. Some animals after inoculation give positive results very late sometimes far beyond the usual fatal period. In that case the spleen and kidney smear should be examined for the Leptospiræ. This is possible when the animal passes to a 'carrier' condition (Das Gupta 1938).

Urine.—The urine from the 5th to 8th day is said to give an intense green reaction when one or two drops of acetic acid are added. From the 15th to 25th day of illness direct examination of centrifugalised deposit show a fair number of Leptospiræ. Specimens should be collected aseptically for the culture and examination of the deposit. In one of our cases Das Gupta detected the organisms in the 19th sample of urine.

Agglutination Test. An agglutination test for this disease has been devised by Martin using a culture of the Leptospira grown on a solid medium. It occurs in titre of 1 in 500 to 1 in 1,000 and even as high as 1 in 30,000. The specific agglutinin

appears in the serum as early as the 12th day of illness and persists for as long as one year or more. Agglutination test must be done with several strains and specially with local strains. In one of Dr. Das Gupta's cases, the serum reacted with a rat strain isolated from a field rat in Samarang (Java) in a high dilution. The patient showed all the important clinical signs of Weil's disease but the agglutination test was negative with the local strains.

Pathology—The liver from the beginning is affected showing only little destruction of the parenchyma; later there is extreme cellular degeneration and localised destruction of glandular tissue. There is moderate fatty degeneration of the liver. The Leptospiræ are present in enormous numbers in the secretory cells of the organ. The spleen is enlarged and the glandular substance is soft. Generalised enlargement of the lymph glands and hyperplasia of the mononuclear cells have been noted. Kidney shows haemorrhages in the intertubular tissue. There are haemorrhagic patches in the lungs.

Treatment.—*General*:—Rest in bed and flushing out of the bowel by repeated small doses of Calomel and Normal Saline with 5 to 10 per cent glucose intravenously. The diet must be liquid.

Anti-serum Treatment.—In the first week a polyvalent immune horse serum is the most promising line of treatment. The B.C.P.W. have prepared an efficient serum from the local strains. 20 c.c. at least should be given at each injection at intervals of 6 to 8 hours for at least four days in successsion. It is still under trial in Calcutta. But there are evidences in other countries to show that the serum treatment lowers the mortality of the disease. It is of no value to give serum after the first week when extreme jaundice and symptoms of uræmia have supervened. When anti-serum is not available, serum of patients convalescent from the disease has been injected in daily deses of 30 c.c. to 40 c.c. intramuscularly.

Drugs.—Treatment by Salvarsan is unsatisfactory. Weil's disease is in fact the only Spirochætal infection that does not yield to Arsenic. Hexamine has been recommended and Sodium Tartrobismuthate has given good results when injected subcutaneously. Seiffert has recommended injection of a compound known as Bismuth-Tatren A + B.

Prophylaxis.—The prevention of Weil's disease would seem to consist in the drainage of infected areas and the suppression

or exclusion of rats. In Japan prophylactic vaccination with killed organisms has been tried with apparently good results.

Our thanks are due to Dr. B. M. Das Gupta of Calcutta School of Tropical Medicine who very kindly took much interest for the investigation of our cases that occured in Calcutta and suburbs. The senior writer (S. K. Sircar) had the opportunity of seeing the cases recorded by Dr. B. M. Das Gupta in the Calcutta School of Tropical Medicine, during his (S. K. Sircar's) post-graduate training in the above institution in the year 1937. Our further thanks to Dr. Santi Ram Chatterjee, Teacher of Pathology, Calcutta Medical School for his constant encouragement and valuable suggestions.

Bibliography :

1. *Indian Medical Gazette, (January 1939)* *Page 28.* *D. M. Das Gupta.*
2. ,, ,, ,, *(Feb. 1939)* ,, *88.*
3. ,, ,, ,, *(April 1939)* ,, *220.*
4. ,, ,, ,, *(Aug. 1938)* ,, *448.*
5. ,, ,, ,, *(Oct. 1937)* ,, *610.* *Das Gupta & Chopra.*
6. *Manson's Tropical Diseases, (New Edition).*
7. *Knowle's Protozology. Page 570.*
8. *Steel's Bacteriology. (New Edition).*
9. *Principles of Bacteriology and Immunology. Topley and Willson.*
10. *Parasitology. (New Edition) Hegnan.*
11. *Journal of Laboratory and Clinical Medicine, 1939.*

When writing to advertisers, please mention the "Antiseptic"

When writing to advertisers, please mention the "Antiseptic"

The Antiseptic

Estd. 1904.

A Monthly Journal of Medicine and Surgery.

Editors: Dr. U. RAMA RAU, M.L.C., & 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.

Vol. 36. | NOVEMBER, 1939. | No. 11.

EDITORIAL

Obstetric Shock: Its Causes, Recognition and Management

SHOCK can be considered one of the most confusing syndromes encountered by the clinician in all branches of medicine. This syndrome is recognized to be a group of symptoms and not a disease, and whenever it occurs is a serious and often fatal condition characterized by vasomotor collapse, drop in blood pressure and consequent failure of the circulation. This failure results in a stasis of the blood in the capillaries, transudation of plasma into the tissue spaces, deficient oxygenation of tissues and diminution of blood volume. The heart in shock is well able to perform its function. However, the physical and physio-chemical changes will eventually cause impairment because of the extra strain placed on it by its endeavour to overcome the deficient circulation. Weakness of the heart beat is due to reduced inflow from the veins and not to an essential cardiac deficiency.

Shock or its equivalent, by whatever name the era in question gave it, has been known since man came on the earth. Hippocrates mentions about the "bodily ailment" that we know as shock and called attention to the facial expression—the hippocratic facies—which is a typical example of medical shock. However, post-war period was the real period where a large mass of reliable information was compiled through the co-operation of American, British and French surgeons and physiologists

who all together laid the real foundation of our present day ideas of the shock syndrome. It is still however in a state of more or less confusion in the minds of most physicians.

Dr. Harvey B. Matthews M.D., in his Presidential address before the Section on Obstetrics and Gynæcology at the Ninetieth Annual Session of the American Medical Association, published in the *Journal* of the American Medical Association, gives a very interesting account of Obstetric shock, its causes, recognition, and management. We would advise our readers to peruse that exhaustive article from which we have taken materials for this note.

Clinicians agree on the signs of shock. They are as follows: Prostration is evident; the patient is profoundly depressed, weak and restless. The pulse is rapid, feeble and of small volume. The extremities are cold and the body temperature is low. The face is drawn, ashen or livid in colour, anxious in expression and moist with cold sweat. The eyes are sunken and surrounded by bluish rings, producing the classic "hippocratic facies". Thirst is incessant, but attempts to relieve it are ineffective because of vomiting. The fluid vomited is often in excess of that swallowed and contains small brown flocculi. Perspiration is profuse and diarrhœa may be present. The respirations are shallow and interspersed with deep sighs. The blood pressure declines progressively. Urination is scanty or suppressed. Consciousness is retained until finally there is loss of sensitivity, of responsiveness to stimuli and of reflexes. Unconsciousness or coma precedes death. It should be noted that sometimes a marked and rapid increase in temperature—agonal fever—precedes death.

For the successful treatment of shock, the physician should not wait for the development of this clinical picture. Waiting is disastrous. Treatment to be effective must precede the development of the clinical manifestations described above.

Shock occurring in obstetrics, is no different from surgical medical or experimental shock. Its recognition and treatment present the same identical problem as other types of shock. In recent years there has appeared, particularly among the French and German observers, the idea that the mechanism of the production of obstetric shock is different from other varieties of shock; but the preponderance of evidence is still against such a view. The obstetric patient is more susceptible to shock, as a result of mild trauma, hæmorrhage and infection, because of the physiologic changes coincident with pregnancy, labour and the postpartum period.

The treatment of obstetric shock is mostly preventive. All hæmorrhages should be promptly controlled. The probable or possible development of shock can be anticipated by any physician and it may be possible to obviate this cause; otherwise measures should be directed towards preventing or minimizing any degree of circulatory inefficiency. Any therapeutic agent available for use as a preventive measure is worthy of consideration. Dextrose is such an agent and has been spoken of as the "universal therapeutic agent", for its many varied use in general medicine, surgery, pediatrics and obstetrics and gynaecology. It may be used prophylactically to prevent shock or therapeutically during shock, for it is a food for all the vital organs, particularly the liver and the heart muscle; it requires no digestive processes to prepare it for absorption, it is spontaneously and completely metabolized to carbon dioxide and water; it promotes diuresis and combats acidosis and it temporarily raises the systolic blood pressure and improves the quality and reduces the rate of the pulse.

The effects of general anæsthesia as contributory to shock are well-known. Severe physical strain may be sustained without apparent evidence of circulatory deficiency. But with anæsthesia or during an operation, shock may develop.

Prophylaxis, it is clear, is the bulwark against shock or conditions leading to shock and every physician should appreciate more keenly than has hitherto been done; for the old provreb that "An ounce of prevention is worth a pound of cure" is very true in shock.

For many years physicians have noted the weak pulse, low blood-pressure and other evidences of failing circulation in shock. Long ago it was demonstrated that this deficiency is not of cardiac origin and that fact has been verified. Notwithstanding this knowledge, many still attempt to secure slower, stronger pulse and improved heart action by digitalization of patients who are shocked and moribund. Such attempts show a simple childlike faith in the omnipotence of drugs. Equally illogical is the attempted treatment of shock with vasoconstrictor drugs such as Epinephrine. Apparently, some have not realised that in shock the arteries are not relaxed but are contracted. Not only is this Epinephrine useless, but it has grave potentialities if given in excess of physiologic doses. Shock can be produced in normal animals by the prolonged effects of Epinephrine. One must therefore be very careful in using these drugs. Evidence has been given indicating that Adrenal Cortical Extract, given by

injection, aids in preventing shock. The use of Pitressin has been suggested because of its effects in producing contraction of the capillaries. On theoretical grounds such a substance might be useful in restoring normal tonus to capillary endothelium which has become relaxed, provided the endothelium has retained its capacity to respond to such stimuli. In many instances, however, it fails to accomplish this end.

Morphine, however, in sufficient doses should be used in shock to relieve pain and allay restlessness. If bleeding is or has recently been marked, it should be given to quiet the circulation. When marked cyanosis is present, however, some sedative other than Morphine is indicated.

Many writers advocated the use of Caffeine and a few believe that Strychnine is beneficial. It is not certain whether these are based on sound experience. Under conditions of warfare, hot coffee and tea were used with benefit in preparing men suffering from wounds, cold and exhaustion for operation. One, however, would not expect them to produce lasting improvement in the failing circulation of shock.

Various mechanical means for aiding the return of venous blood have been employed. The most common of these is the Trendelenburg position. Elastic binder, and sand bags to the abdomen are measures that have been suggested. These recognize the fact of the existence of low venous pressure and attempt to raise it by external pressure. This reasoning, however, is not sound and does not take into consideration the fact that blood is not pooled in the veins but in the capillaries.

Another factor which is not taken into consideration is the factor that stasis of blood in the pulmonary circulation is an important feature. This cannot be beneficially affected by these methods either. Sand-bags have a further disadvantage of hindering respiration. Any condition that limits respiration lessens the delivery of oxygen and accelerates the development of shock. Mechanical aids therefore to combat the effects of low venous pressure are of very doubtful value.

Heat should be employed externally in every case of shock in an effort to improve peripheral circulation. No patient in shock can be successfully treated unless body temperature can be raised to within normal or nearly normal levels. Excessive heat, on the other hand, is contra-indicated because it causes a loss of water and chlorides as the result of sweating.

The main factors in the mechanism of shock are, the loss of blood volume and the disparity between it and the volu

capacity of the vascular system. The restoration of this blood volume is therefore a most logical and beneficial measure. The permeability of the capillaries has not been increased, the loss of fluid may be made up and the circulatory efficiency restored by introducing saline solution. Low blood volume due to hæmorrhage may be effectively restored by this means alone, provided the total hæmoglobin has not been reduced below one third of that normally present.

From extensive laboratory and clinical research, it is known that the ideal intravenous solution in the treatment of shock should act:—(1) by increasing the blood volume in the cardiovascular system without overloading the heart: (2) by providing easily accessible nourishment for the tired out myocardium and liver; (3) by helping restoration of circulation in general; and (4) by tiding the patient over the critical period of shock, dehydration and acidosis, profound toxæmias and critical infections until transfusion and other suitable therapeutic measures can be instituted. It would also seem that the intravenous addition of large quantities of fluid of any nature, except perhaps blood, is inadvisable and often dangerous, for it might well mean the addition of an insurmountable load on an already impaired circulation and weakened myocardium, which might result in cardiac dilatation and failure.

The ideal method of treatment is therefore to introduce some fluid into the blood stream that will cause an increase both in blood volume and in blood pressure. To accomplish this result, blood and its substitutes have been successfully employed. Whole blood is the ideal therapeutic agent for increasing the blood volume and blood pressure. It is the best method of treating shock due to hæmorrhage. As an emergency measure however, in the absence of blood or because of delay in obtaining the proper donor, it is necessary to use a substitute for blood in order to tide the patient over the critical waiting period. The results, however, following the use of most of the substitutes have not been very encouraging. Isotonic Saline solution, has been shown to be of little practical value. Weak solutions of Dextrose have not proved to be very efficient. Solutions of Acacia and Acacia with Dextrose have their adherents.

Dr. Matthews gives us his method of treating obstetric shock. Fearing the use of large quantities of fluid intravenously in "shocked cases", Dr. Matthews and his associates have been using from 50 to 200 c.c. of a 50 per cent solution of Dextrose with excellent results. In cases in which acute shock was not the

primary indication, 300 c.c. of a 25 per cent solution in Saline has been employed. These workers have been giving these injections of Dextrose before and after operation and during labour merely as a prophylactic measure. They have been giving Hypodermoclysis of physiologic solution of Sodium Chloride immediately following the intravenous Dextrose in quantities from 2000 to 5000 c.c. in twenty-four hours.

In acute ante-partum haemorrhage, abortion, postpartum hæmorrhage and tragic ectopic gestation, the writers have found remarkably good results with the introduction of 100 c.c. of a 50 per cent solution of Dextrose which raises the blood pressure from 20 to 50 mm. within a period of five minutes.

Anoxia in the blood and tissues is a factor of the utmost gravity in the operation of the vicious circle of shock. The author and his associates have been giving Oxygen inhalation in conjunction with other means. Oxygen helps to counteract anoxia before the circulatory deficiency becomes irreversible. The use of Oxygen should be done early, for if it is done after the blood-pressure has declined seriously and the patient is obviously in a critical state, it will be futile.

In conclusion, we would like to quote Dr. Matthews whose words seem so true when he says that 'real progress in the prevention, recognition and management of shock lies not only in cultivating the art of obstetrics but in the study of the biologic principles that concern reproduction, function, nutrition, metabolism and the repair of tissues and in the thoughtful application of this knowledge'.

Our Felicitations to Dr. B. C. Roy

It is with unbounded feelings of joy and pride that we have perused the recent Press News from New Delhi that Dr. B. C. Roy has been elected President of the Indian Medical Council—the first non-official President of the said Council—in succession to Col. E. W. C. Bradfield, I.M.S. The choice is the happiest that could ever have been made, for Dr. B. C. Roy combines in him both the highest nationalist spirit and the highest proficiency in Medicine and there is no doubt that a complete national outlook will hereafter pervade the atmosphere of the Indian Medical Council and he can be trusted to sow the seeds of nationalisation of the Council which was all these years a close preserve of conservative elements presided over by an official President. Words fail us to say more of Dr. Roy, as our readers know more of him and his work in the field of medicine and politics than we can describe.

We offer our hearty congratulations to Dr. Roy on the honour that has been conferred upon him by his Medical compeers and wish him success in his new sphere of activity.

GLEANINGS FROM MEDICAL PRESS

Medicine and Therapeutics

Genito-urinary Infection in Childhood.—*By Dr. Wilfrid Sheldon* M.D., F.R.C.P. (*B. M. J.* Sep. 9th '39).

As pus cells may occur in a normal urine, Dr. Sheldon quotes Dr. A. Dickie's observations which have made her conclude that urine containing *more than one cell per field* (with a high power lens) in boys and *more than two cells per field* in girls was abnormal. More than half the cases of pyelitis (" pyelonephritis" according to Dr. Sheldon) occur during the first year after birth. This high incidence is probably connected with the fact that this is the age when gastro-enteritis is most common and there is frequently a history of some bowel upset immediately preceding the onset of pyelitis. Though there is a preponderance of female cases in the period after infancy, during the first year or two, boys are affected almost as often as girls. In the newborn there is actually a majority of cases in boys.

In *the neonatal cases*, the onset may be vague and restlessness, vomiting, diarrhœa, oliguria or collapse may occur initially. Almost always the temperature is raised. *Collapse* and *convulsions* are to be regarded as bad signs as they indicate a severe infection. Repeated vomiting, unhealthy stools and a stationary weight in an infant should arouse a suspicion of urinary infection. In infants, a pyelonephritis frequently occurs as a secondary infection—secondary to respiratory infections, gastro-enteritis, skin infections, etc. Vitamin A and C deficiencies probably play a part in promoting urinary infection.

In the *treatment of acute pyelitis* in children, alkalis such as citrates bicarbonates should be given *throughout the twenty-four hours* to render the urine alkaline. Doses such as 10 grs. every 3 hours day and night, for an infant and four times this dose for a child of 6 or 7, are often required, the dosage being controlled by testing each specimen of urine with litmus. Complete cure can usually be obtained and the alkalis do no harm to the children, except producing an occasional diarrhœa. Even this can be lessened if bicarbonates and citrates are used in a mixture instead of relying on citrates alone. Cases, with [illegible] abnormalities, congenital or otherwise, may prove resistant to alkali treatment. Mandelic acid and Sulphanilamide sterilize the urine even in the presence of such an abnormality and hence this may be missed. The best procedure is to treat with alkalis

first. Special urological investigations should be carried out if the case proves resistant to this treatment. Then the resistant cases should be treated either with Mandelic acid or Sulphanilamide.

In treating *chronic pyelitis*, the type of infecting organism and any abnormality of the urinary tract must be ascertained. Surgical intervention should be undertaken if necessary. The soluble but unpalatable *Ammonium Mandelate* and the insoluble but tasteless *Calcium Mandelate* are generally used. Ammonium mandelate, 26 grs., Liquid extract of Liquorice 5 ms., Elixir of gluside ½ ms., Aqua ad one dr., is not an unpalatable mixture. At one year, 2 teaspoonfuls of the above mixture and double this amount for a child of 10 years, can be given. If the urine is not sufficiently acid, Ammonium Phosphate in the form of a mixture e.g., Ammonium Phos 7½ grs., Liquid extract of Liquorice 5 ms. Syrup of lemon 15 ms. and water to 1 drachm, is indicated. 2 to 6 teaspoonfuls a day may be necessary. B. Coli and Strep faecalis infections respond favourably. Staphylococcal and B. proteus are not destroyed. About 70% to 75% are cured. *Sulphanilamide* is most effective in a slightly alkaline urine and is potent against B. Coli and sometimes B. Proteus. Str. faecalis is disappointing. For an infant 6 months old, 0·25 gms (¼ tablet) 6th hourly, and at one year, 4th hourly, can be given. In the second half of childhood, 0·5 gm. may be given every 4 hours. The Alkali treatment, the Mandelic acid therapy and Sulphanilamide therapy should be continued for a week after the urine is sterile.

Advances in the Medical Treatment of Congenital Pyloric Stenosis—*By Dr. Reginald Lightwood*, M.D., F.R.C.P., (*Practitioner*, September 1939.)

Before Atropine was used, the medical treatment of congenital pyloric stenosis consisted essentially in gastric lavage, small and frequent feedings, and careful nursing. In 1922, Arne Johannesen initiated treatment with *Atropine Sulphate* in Copenhagen. His treatment consisted in giving one drop of 1 in 1000 Atropine Sulphate, seven times daily before feeds. If tolerated, two drops were sometimes given but never more. The treatment was continued for two or three months. Dr. Lightwood used a more dilute solution, 1 in 5000 and prescribed 5 to 10 drops per feed. The results of Atropine treatment were satisfactory.

Eumydrin (Mythyl Atropine Nitrate), which is fifty times less

poisonous than Atropine Sulphate, seems to have been first used by Usener (1926). It has out-dated Atropine Sulphate in many centres. In Copenhagen 2.5 c.c. to 5 c.c. of 1 in 10,000 solution is given ½ hr. before each of seven feeds. Mild toxic symptoms such as pyrexia or a "flaying red" of the skin, quickly disappear if the drug is omitted for two feeds. Monrad believes that occasionally a baby may have an idiosyncrasy to Eumydrin. If the drug is given to a dehydrated baby with poor renal excretion, fatal toxic symptoms or paralytic ileus may occur. It is safe to begin with 2 c.c. doses ½ hr. before every feed and work up to 4 c.c. or 5 c.c. Largest dose necessary is about 8 c.c. The relief of vomiting without signs of intoxication determines the amount of individual requirement. Provided projectile vomits are stopped and the weight is increasing, it is unnecessary to be alarmed if vomiting of small amounts continues.

Dehydration should be overcome before Eumydrin is started. If the starting dose is 2 c.c., increase it every 2nd or 3rd day till vomiting is no longer projectile and frequent. Continue the dose for a few days, after which if vomiting is still occurring, increase the dose further. When vomiting has ceased and while no toxic symptoms are evident, continue the same dose until the infant is free from vomiting for 3 to 5 weeks. Subsequently, gradually reduce the dose, until the drug is stopped. If while reducing the dose, projectile vomiting returns, return to the previous dose. The younger the baby, the longer the course of treatment.

As Eumydrin is unstable, the solution should be prepared fresh every 3 or 4 days. A tablet of Eumydrin (0.001 gm.) dissolved in 10 c.c. of water makes a 1 in 10,000 solution.

Feeding and careful nursing are important. Success is enhanced if breast-milk feeding is possible. As soon as the vomiting is controlled, a full correct feed for the expected weight of the body may be given. Stomach wash-outs are seldom required.

"When we come to compare surgical treatment with modern medical treatment, it may be said that, given the best possible accommodation and nursing, there is nothing to choose between the results to be obtained except that surgery produces an earlier cure."

BOOK REVIEWS

A Text Book of Medical Treatment—*By Various Authors, Edited by D.M. Dunlop* B.A., M.D., F.R.C.P., (EDIN.), *L. S. P. Davidson* B.A., M.D., F.R. C.P., M.R.C.P., *J. D. McNee*, D.S.O., D.Sc.., M.D., F.R.C.P. (LOND.), Edinburgh: E. & S. Livingstone. Indian Publishers: Messrs. Butterworth & Co. Ltd. Calcutta.

Price: Rs. 16-12-0.

This book on medical treatment will be greatly appreciated by senior medical students and practitioners. Most of our present text books on Medicine contain a meagre reference to treatment of disease while every one of them deals exhaustively on the ætiology, symptomatology, pathology etc. of diseases. Although to medical students appearing for their qualifying examination, clinical examinations, pathology, etc., are more essential than actual treatment of the condition, yet, after qualifying, his difficulties are many and hence treatment of patients is as much important to a practitioner as pathology etc. is for a student.

This book is bound to fill this great want and will be found very helpful. The book is exhaustively written; yet, it is concise and up-to-date. Stress is laid on details and methods of treatment employed.

There is no doubt that this volume will be welcomed by all our readers as a good, up-to-date, reliable treatise on treatment of diseases.

Physiotherapy in Medical Practice—*By Hugh Morris*, M.D., D.M.R.E. 1939, P.p. 276. London: Edward Arnold & Co., Price: 12/6 net.

This is mainly intended for the practitioner who wants to know what he can expect from electro therapy and who prefers to prescribe this treatment to be given to his patients.

The opening chapter deals with a discussion on the physical principles of electricity, and the various types of currents used in medical therapeutics with their effects on the body. The use of high-frequency currents, diathermy, iontophoresis, electro chemical cauterization, hydro-electric baths, short wave or ultra diathermy, the ultra violet rays are all discussed. This book gives an idea to the reader what electrical and other allied physical agencies can do towards alleviation of human suffering, and it is not to be taken as a text book dealing exhaustively on Physiotherapy. The initial knowledge, however, that is necessary for a general practitioner on physiotherapy is amply given in this. It will be found useful for the practitioners and senior medical students.

The Essentials of Modern Surgery—*Edited by R. M. Handfield-Jones*, M.C.M.S., F.R.C.S., *and A. E. Porritt*, M.A., M.C.H., F.R.C.S. 1938, Pp. 1,126 with 501 illustrations. Edinburgh: E. and S. Livingstone. Price: 30/-

This book contains the essentials of the whole field of Surgery. Special branches of Surgery are written by surgeons of repute dealing in their respective specialities. *Bones* and *Joints* by E. P. Brockman, the *Ear*, *Pharynx* and *Oesophagus* and *Larynx* by Lionel Collidge, *Chest* by Tudor Edwards, *Abdomen* by Gordon Taylor, the *Brain* by A. Dickson Wright etc., to mention only a few writers.

Surgical anatomy, physiology etc, are dealt with wherever necessary, while clinical examinations and special examinations are discussed fully on subjects concerned. Being a work of various authors it is quite as bulky as all other books on surgery and the chapters are of varying interest and voluminous. The illustrations are numerous and more than enough to impress the matter in the text, on the minds of the readers.

Though fairly big it is written clearly and completely, and we really admire the mode of presentation of the text.

Details of operative technique are omitted. The book is sure to give the student and readers necessary grounding for the proper understanding of the clinical aspects of surgery.

We gladly recommend this book as one of the trustworthy text books and we wish it will soon gain the place it so richly deserves. The make up and printing are good.

Handbook of Bacteriology—*By J. W. Bigger*. 1939. Fifth edition, Pp. xvi + 466, illustrated. London: Bailliere Tindall and Cox. Price: 12/6.

Since the publication of the last edition, much advance has been made in the science of bacteriology. In the present edition such of those new materials as are sound have been incorporated to bring the new edition up to date. The size of the book in consequence has not, however, increased, and this has been accomplished by a careful revision of the text, and rigorous excision and condensation of less important matter.

The chapters that have undergone a complete change are those on Antiseptics, Immunity, Streptococci, Food poisoning, Dysentery Bacilli, Undulant fever and Tubercle-bacilli. This edition, which is the fifth, is sure to be of much use to the students and those engaged in Bacteriology and we have no hesitation in saying that it would enjoy the same popularity that it has already gained.

Practical Physiological Chemistry for Medical Students—*By G. M. Wishart, D. P. Cuthbertson and J. W. Chambers.* 1938 2nd edition, Pp. 128. Glasgow W2. John Smith & Son (Glasgow), 28 Gibson Street, Hillhead. Price: 4/-

This new edition does not materially depart from the plan of the first and presents a course of Practical Chemical Physiology to a large class of students whose time is limited to two hour period.

It is primarily intended for the needs of medical students and therefore the clinical aspects have been stressed both in choice and material and in the general treatment. To the medical students it will be found invaluable. The inter-leafing will help the students to jot down their observations and such other notes that may be found necessary from time to time.

X-Rays and Radium in the Treatment of Diseases of the Skin —*By George M. Mackee,* M.D. 1938, Third Edition, illustrated with 308 engravings, 31 charts and coloured plates, Pp. 830. Philadelphia: Lea and Febiger. Price: $ 10.00.

This is an exhaustive treatise on the use of X-rays and Radium in the treatment of skin diseases. The first edition of this book was published about 20 years ago.

It was thought some years ago that these physical agents could be used with benefit in a good many skin affections not amenable to other methods of treatment; and treatment of various skin affections with X-ray was very popular. It was soon discovered that their use in dermatology was not without any risk and careful follow-up of cases showed a great deal of damage to the part exposed if not to the life of the individual. Subsequent studies on these rays proved beyond doubt that they exhibit a deleterious effect on the individual treated and those handling these agents. Today we find that such treatment requires the help of a specialist, to administer these agents in such a way that the bad effects are kept at a minimum. This third edition is really a new book. Most of the chapters have been entirely re-written, a few have been revised, and is the outcome of nine collaborators, all well known in their speciality in the United States.

About XXV chapters are devoted to a discussion on the physical property of X-ray radium, pathology, and general therapeutic conditions. The remaining seventeen chapters contain the use of X-ray and radium in various affections. The book is an authority on X-ray and radium treatment of skin diseases and we recommend it to all our readers.

Aids to Public Health—*By Llywelyn Roberts,* M.D., D.P.H. 1938 4th edition, Pp. vii+263 Illustrated. London: Bailliere, Tindall and Cox. Price 4/.

This is one of the volumes of Students Aid series. There have been so many advances in the branch of medicine during the last few years. The present edition has therefore undergone complete revision, much new matter being added and text re-arranged so as to make it up-to-date. In addition to the usual subject matter, the chapter on 'Precautions against Air Attacks' will be appreciated at the present moment and will be found useful by those interested in Public Health. This volume like its companion is written by one with high professional attainments, and must therefore be accurate and authoritative.

Surgical Applied Anatomy.—*By Sir Frederick Treves, Bart,* Revised by Lambert Rogers, 1939 10th edition (Revised) Pp. 748. London: Cassel & Co. Price: 14/ net.

This is a well-known book on Surgical Anatomy and is in its 10th edition. It is nearly five years since the ninth edition was published, and during this period there have been several changes in the application of Anatomy to Surgical practice, and these changes have been included in the present edition. There have been certain alterations, deletions and additions to make the work uptodate.

Needless for us to say anything by way of review of this useful book but to reiterate that this book is a mine of information. We are sure that the present edition would enjoy the same popularity amongst its readers as all its predecessors.

Chronic Diseases of the Abdomen.—*By C. Jennings Marshall,* M.S., M.D. (Lond.) F.R.C.S. (Eng). 1938 Pp. 247. London: Chapman and Hall. Price: 25 *sh.* net.

The diagnosis and treatment of chronic symptoms of the abdomen are oftentimes difficult and exacting and unless one has the experience and patience to elicit and interpret correctly the physical findings it becomes extremely baffling. The author has given in the book comprehensive consideration to the important question of clinical experience, with reference to various symptoms in the abdomen.

The book is divided into two parts. The first part gives in detail the clinical methods of examination of an abdominal case, and stresses the usefulness and value of accessory means of investigations such as, Instrumental, Pathological and Radiological etc. The second part treats about symptoms taken one after the other as pain, discomfort distension, etc. The book abounds in practical details and is written in a lucid manner and practitioners

senior students and post-graduates will find a mine of information regarding chronic state of abdomen. The make up is good, and the addition of valuable Radiographic reproductions enhances the value of the book. We recommend it to all our readers.

The Government Indian Medical School Magazine—Volume I, No. 1. Aug. '39—Published by the Secretary, Editorial Board, Government Indian Medical School Magazine, Kilpauk, Madras.

It gives us very great pleasure in welcoming the first issue of the Government Indian Medical School Magazine. Though it is now 15 years since the school was started, this magazine, is still timely and opportune and it speaks volumes to the enthusiasm and enterprise of the students of the Indian Medical School and the sympathy and support given by its distinguished Principal.

It is claimed that the justification for adding one more to the innumerable journals scattered throughout our country is the fact that this journal,like its school, devotes itself to the study of not only Ayurveda, Siddha, or Unani, but of Western medicine as well. The evolution of an Indian system of medicine by a happy blending of both the Indian and Western systems and the rich treasures of both systems being put together into a form and shape is the object of this magazine and in the achievement of this noble object, the Editor will always find in us a true friend and a help-mate.

This volume contains a message from the pen of the first principal of the Government Indian Medical School—Capt. G. Srinivasamurthi, B.A., B.L., M.B. & C.M., whose untiring zeal and enthusiasm for the cause of Indian Medicine contributed not a little to the success of this institution. The annual report of the institution published in this issue, gives a clue to the readers of the usefulness of this institution and its various needs and drawbacks. Among other interesting articles worth mentioning are those on "Study of comparative medicine" by V. K. Venkataswami, M.B.B.S., F.I.M., "Process of digestion and assimilation in Ayurveda", by V. Narayanaswami, H.P.I.M., "Toxic Amblyopia" by M. A. Nair, M.B.B.S., D.O. (OXN.), D.O.M.S. (LOND.), Z.O. & L.O. (VIENNA), "Whither Scientists?" by S. Balasundaram, and "Bharata Khanda prefers Ayurveda" by Vaidyaratna Pandit M. Doraiswami Iyengar. The printing and get-up of this journal have been well-done. We wish the journal a long and prosperous career.

CORRESPONDENCE

Dr. Debiprosad Chatterjee, L.M.F.., *Regd. Medical Practitioner, P. O. Kandara, Burdwan, writes* :—

Causes of Hiccough with some points of discussion in a case of Hiccough. Dr. V. R. Karkare published in the July, '39 issue of 'The Antiseptic'.

Hiccough is a sudden chronic spasm of the diaphragm accompanied by a spasmodic closure of the glottis which produces the characteristic sound.

In most cases it is transient and of little importance but it is of grave prognostic importance when it sets in as a complication during the course of a disease.

Inflammation of or pressure on the phrenic nerve or reflex through the vagus nerve often initiates the process in adults.

Detailed causes of hiccough are noted below :—

(1) The condition starts very early and may be seen in breast-fed babies and is probably due to over distension of the stomach after feeds and swallowed air.

(2) Inflammatory—it is a common symptom and evil omen seen particularly in affection of the abdominal viscera—gastritis-peritonitis, hernia, intestinal obstruction, appendicitis, suppurative pancreatitis, and in the severe forms of typhoid fever and tuberculosis.

(3) Irritative—as in the direct stimulation of the diaphragm after the ingestion of hot irritant and spicy food, in diseases of the œsophagus, pleura and pericardium near the diaphragm and in many conditions of gastric and intestinal disorder more particularly those associated with flatus.

(4) Toxic—in toxic states of pregnancy such as hyperemisis gravidarum,eclampsia etc.,in some general diseases such as gout, diabetes, chronic nephritis.

(5) Neurotic—in neurosis, hysteria, epilepsy and chorea.

(6) Reflex—in some organic diseases of the nervous system such as meningitis, tumours of the brain, encephalitis and often in shock.

Besides all those that have been mentioned, there are the idiopathic and epidemic cases. Epidemic hiccough is a nervous form of hiccough and has been regarded as a form of encephalitis lethargica. The condition may persist without intermission for several days.

In all cases attempts should be made to investigate and detect, if possible, the primary causes and when found, it should be properly dealt with.

In this case of Dr.Karkare I have one question to put whether he is of gouty constitution or not? Men of gouty constitution who generally suffer from gastric and intestinal disorders though not always felt are often troubled with this symptom.

During my practice, I have met with such cases who were treated with sedatives and antispasmodics.When these treatments

failed hiccough was generally stopped by inducing vomiting by giving Zinc sulph by mouth or Aponorphine Hydrochlor parenterally.

If the case of Dr. Karkare does not fall in the above category it might be due to idiopathic or neurotic type.

Stoppage of hiccough in this case was partly due to previous treatment and nature in the meantime tried to remove the cause and lastly sudden action of violent vomiting totally ended the trouble.

References :

1. *R. N. Chopra—A Hand book of Tropical Therapeutics.*
2. *Osler and McCrae—Practice of Medicine.*

QUERY

B. P. Mohindra, L.M.P., L.M.F., *State Medical Officer, Kengtung (S.S.S.) Burma, asks* :—

Will you or any of your readers kindly advise me treatment and cause of the following case ?

"An Indian, aged 25 years, male, suffered from Acute Gonorrhœal Urethritis in the beginning of May, 1938. He was treated by one of my colleagues with special Mixed Gono Vaccine (B. C. P. W.), two injections only, Alkaline Diuretic mixture and urethral irrigation from the 2nd day of appearance of active discharge. Urethral discharge disappeared in a week's time. A month later he started having acute, spasmodic attacks of pain in the Perineum shooting to both testes with a varying frequency of 3 to 10 times a day. Each attack lasted a few minutes and usually came in after an act of micturition. He was under treatment by various local quacks for about 3 months without any relief. He resorted to my treatment in the 3rd week of February, 1939.

Clinical examination revealed slightly enlarged, tender prostate. No gonococci detected on smear after a prostatic massage and no stricture urethra after sounding. Repeated a smear after a prostatic massage 24 hours after an intramuscular injection of Aolan 5 c.c. It showed a few gonococci.

DIAGNOSIS :—Sub-acute Gonococcal Prostatitis. Treatment instituted was the following :—

(1) Mist Alk. Diuretic with Hyoscyamus and Belladonna : (2) Hot rectal irrigations once a day for 10 days : (3) Gonoderm (P. D. & Co.) in weekly doses of 0.05 c.c. to 0.5 c.c. intradermal injection—total being 10 doses.

Results :—(*a*) Tenderness and enlargement of prostate disappeared. (*b*) No gonococci detected on prostatic massage or sounding or after Aolan injection. (*c*) Frequency of pain reduced during and a fortnight after treatment but has taken a similar course since then. Salicylates and Iodides were tried but without any effect.

INDEX TO ADVERTISERS. NOV. '39.

When writing to advertisers, please mention the "Antiseptic"

Regd. No. 9 M. 429. DECEMBER, 1939 Vol. XXXVI No. 12

The Antiseptic

A Monthly Medical Journal

Edited by

Dr. U. Rama Rau, M.L.C. & U. Krishna Rau, M.

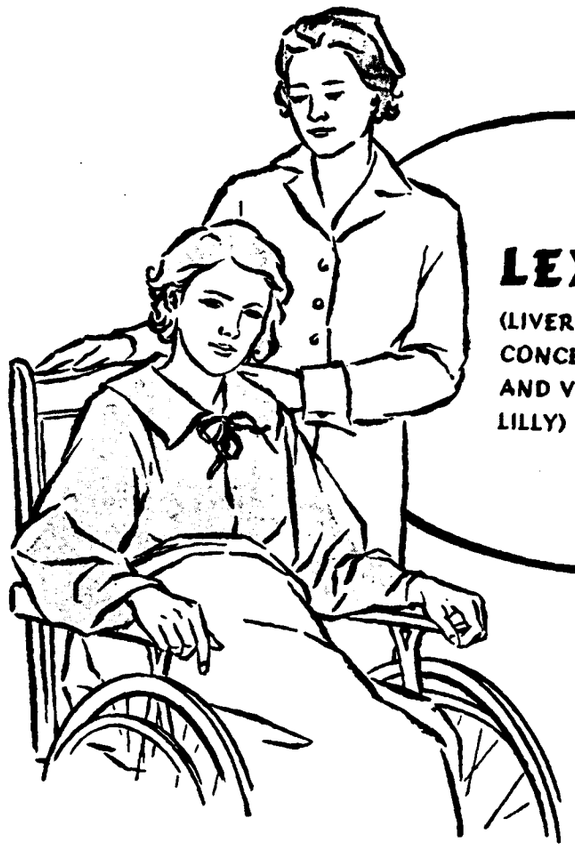
CONTENTS.

Editorial and Publishing Offices: 323, Thambu Chetty Street, G. T., Madras.

London Office: 34-40, Ludgate Hill, E. C. 4.

Subscription Rs. 5. Foreign 10 sh. a year. Post paid. Single Copy As. 12—in advance.

Index to Advertisements, see page 46.



LEXTRON

(LIVER–STOMACH CONCENTRATE WITH IRON AND VITAMIN B COMPLEX, LILLY)

'LEXTRON' is effective in many types of anemia. Not only will it cause remission in pernicious anemia, but also is effective in the anemias caused by blood loss, deficient diet, or pregnancy. All of the factors required to stimulate regeneration of red blood corpuscles and hemoglobin are conveniently supplied in these pulvules (filled capsules).

Each pulvule contains:
Liver-Stomach Concentrate.0.455 Gm. (7 grs.)
Iron and Ammonium Citrates Green.....0.2 Gm. (3 grs.)
Vitamin B_1.....15 International Units
Vitamin B_2.....20 Sherman Units

Distributor:
KEMP & CO., LTD.
BOMBAY, CALCUTTA, DELHI, NEW DELHI

Lilly
ELI LILLY AND COMPANY
INDIANAPOLIS, INDIANA, U. S. A.

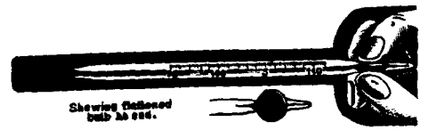
ZEAL'S

CLINICAL THERMOMETERS

THE REPELLO (REGD.)

A 30-second pushed back in an instant.

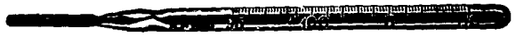
GUARANTEED ACCURATE

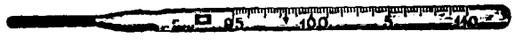


NO SHAKING DOWN REQUIRED

NEW IMPROVED LENS FINDER

THE ORIGINAL AND RELIABLE MAGNIFYING CLINICAL ON THE MARKET

IN FOCUS  GUARANTEED

OUT OF FOCUS  ACCURATE

REGISTERED TRADE Z MARK

THE SQUARE MARK ENGRAVED ON THE LENS FRONT LOCATES THE MERCURY COLUMN IMMEDIATELY

BEWARE OF IMITATIONS

REGISTERED TRADE Z MARK

G. H. Zeal Ltd., Morden Road, Merton, London, S.W. 19, Eng.

THERMOMETER MANUFACTURERS.

Established 1888 **Cables, Zealdom Smith, London.**

ALBULACTIN

HOLLAND IMPORT

The Problem of Infant Feeding solved:

"The addition of Albulactin to diluted cow's milk renders its gastric digestion nearly equal in time to that of human milk, i.e. the motor activity is the same whether the infant is fed by the mother or by cow's milk plus Albulactin."

Archiv f. Kinderheilkunde, Vol. 49.

The Ideal Baby Food:

"The most striking results are those in which diluted milk failed by itself, but succeeded when a proportion of Albulactin was added."

The Lancet.

Sole Agents:— **MARTIN & HARRIS LTD., Mercantile Buildings, Lall Bazar, Calcutta.**

THE CALL OF PAIN

The call of pain is seldom stilled, and relief is of primary importance to the suffering patient. The paroxysmal pain of dysmenorrhœa, the persistent and intense throbbing of migraine, the shooting pains of neuralgia, the pain in affections of the bones and joints, the pain resulting from accidents — all these, and many other conditions, yield with impressive readiness to the sedative and analgesic efficacy of Veganin. With Veganin there is no systemic disturbance, no habituation. It may therefore be safely entrusted to the patient as a dependable means of relieving and preventing pain.

A Call for Help

Veganin Tablets present acetylsalicylic acid, phenacetin and codeine in synergistic combination, whereby the individual action of each constituent is greatly enhanced.

Veganin Tablets are not advertised to the public.

Supplied in tubes of 10 and 20

A trial supply to Physicians on request.

MARTIN & HARRIS, Ltd.
Mercantile Buildings,
Lall Bazar, CALCUTTA.

Also at Bombay, Madras, Karachi and Rangoon.

VEGANIN
TABLETS

Prepared by
WILLIAM R. WARNER & CO. LTD., LONDON, ENGLAND

In Any or All of these INDICATIONS

INFLUENZA CHILLS COLDS
PNEUMONIA
LOSS OF APPETITE
MALARIA AND ALL FEVERS
DUODENAL AND STOMACH ULCERS
LIVER COMPLAINTS
INDIGESTION
CHILDBIRTH MONTHLY PERIODS
CHANGE OF LIFE OLD AGE
STRAIN OF TROPICAL LIFE
POST-OPERATION WEAKNESS

You should prescribe

A tonic which not only strengthens, fortifies and stimulates, but which is readily acceptable by the most enfeebled digestion —able to absorb entirely the gastric juice released to digest it and leaving no free acid. In short, you should prescribe Brand's Essence of Chicken—the infallible stand-by of the medical profession for over 100 years.

Brand's Essence is a practical and efficient stimulant at all times when the minimum energy can be spared for digestive effort. The ease and speed with which Brand's is assimilated are due to a complete absence of solids and irritants. Protein-sparing action takes place to a marked degree. The essence does not cause thirst and can be given at a moment's notice with a teaspoon.

BRAND'S ESSENCE OF ENGLISH CHICKEN

Agents for India and Burma:
GRAHAMS TRADING COMPANY, (India) LIMITED.
Calcutta, Bombay, Karachi, Rangoon.

When writing to advertisers, please mention the "Antiseptic"

When writing to advertisers, please mention the "Antiseptic"

For Infectious Diseases

'SEROBACTERINS'

(Mulford's Sensitized Bacterial Vaccines)

Outstanding Advantages

1. 'Serobacterins' are less toxic than plain vaccines. Local and general reactions are reduced to a minimum.
2. 'Serobacterins' can be administered more frequently and in larger doses (as to bacterial count) to stimulate maximum immunity response.
3. In most cases 'Serobacterins' confer almost immediate onset of active immunity, without 'negative phase'.
4. 'Serobacterins' give excellent results even in sub-acute and chronic infections.

In 5 cc. Vials.

MULFORD BIOLOGICAL LABORATORIES

SHARP & DOHME

PHILADELPHIA, U.S.A.

VOLKART BROTHERS

Sole Importers for India Burma Ceylon:

Bombay Karachi Calcutta Madras Colombo.

The Most Recent Advance in the Treatment of

SYPHILIS

THIO-SARMINE

Di-sodium-dioxy-diamino-arsenobenzene-methylene sulphonate, B.R.I.

Purest Sulpharsenobenzene Compound Prepared for the first time in India

LOW TOXICITY
CHEAPEST IN PRICE
POWERFUL SPECIFIC

IN THE TREATMENT OF SYPHILIS

In all Stages of the Disease
WITHIN THE SHORTEST TIME.

Details about its use and reports of cases treated successfully with the drug are sent free on application to:—

The Brahmachari Research Institute

82-3, Cornwallis St., P. O. Shambazar,
CALCUTTA.

TRIPATHI'S GUIDE

To the Young Medical Jurist.

(Cloth-bound, 432 pages, Price Rs. 3, postage extra.)

Chiefly intended for the use of the Senior Medicos preparing for the qualifying Examination in Jurisprudence and Toxicology, the Rising Medical Novitiate, and the growing Legal Practitioner, to serve as a guide on matters of medico-legal interest regarding a variety of crimes of everyday occurrence, and highly praised by the Medical and Legal Men and the Medical Press.

The Medical Times, London:—This is quite a unique book. For revision purposes, just before examination, it will be found extremely helpful. As a Guide to the young Practitioner in medico-legal matters, it will prove to be thoroughly reliable.

Col. A. Hooton I.M.S. S.G. with the Govt. of Bombay:—I think it is a useful summary of the subject. I shall have much pleasure in commending it to the notice of Dispensary Medical officers.

Col. C. R. Bakhle, I.M.S. I.G. of Civil Hospitals Punjab:—I have brought it to the notice of the Medical officers in the Punjab as a useful work for Sub-Assistant Surgeons.

To be had from:—**Manishanker H. Tripathi,**
Hon. Assistant Surgeon, Jamnagar, Kathiawar.

Alembic ALCALZIUM

WITH IRON & VITAMIN 'D'

ALEMBIC CHEMICAL WORKS Co. Ltd.
Bombay, Baroda, Madras, Calcutta.

The Antiseptic

Estd. 1904.

A Monthly Journal of Medicine and Surgery.

Editors: Dr. U. RAMA RAU, M.L.C., & 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.

Vol. 36. DECEMBER, 1939. No. 12.

ORIGINAL ARTICLES

Appendicitis in Children*

BY

Lt. Col. A. N. Palit, O.B.E., M.C.O.G., F.R.C.S., (EDIN.), I.M.S.

Calcutta.

THE commonest cause of acute abdomen in children is appendicitis: next comes intussusception and as the usual age of incidence for the latter is from 6 to 18 months, the appendix remains the offending organ in over 75 per cent of cases of acute abdomen.

Acute appendicitis may occur at any age, but is commoner in older children. It is very difficult to diagnose the condition in infants and younger children and hence many cases are missed and that is why the surgeon in this country sees so few of such cases.

It may be taken as an axiom that **the younger the child, the worse the prognosis.** Upto two years of age, the mortality rate after operation is said to be 40 per cent, and in the first five years 15 per cent.

The reasons for the high mortality are many: late diagnosis and operation; use of cathartics; anatomical facts peculiar to children such as their walls, abundance of lymphoid tissue; deficient powers of the omentum and peritoneum to form adhesions quickly and effectively; low resistance; easily developed acidosis and low surgical resistance.

* Specially contributed to 'The Antiseptic'.

(*This high mortality should however never be allowed to be put forth as an excuse not to have an operation.*)

According to many authorities appendicitis in the child is usually obstructive in type.

Clinical picture.—*First Stage*: Sudden severe abdominal pain round the umbilicus, followed by vomiting which is neither severe nor persistent. *There is no physical sign in the abdomen early in the disease.* Temperature is normal and there may be only a slight increase in the pulse rate.

Second Stage: As inflammation appears, the severity of the pain increases. Pain, tenderness and rigidity are manifest in the right iliac fossa. There is a rise of temperature and pulse rate and other signs of toxæmias are apparent such as dry, slightly furred tongue etc., *There is no swelling in the right iliac fossa before 36 hours.*

It must be noted that pain comes on in the beginning, "*if nausea, vomiting and fever precede pain it is probably not appendicitis*" (Murphy), and that pain never begins in the right iliac fossa. *If pain begins and stays in the right iliac fossa, this case is not one of acute appendicitis.*

Cases of concealed appendix are sometimes very difficult to diagnose and tragedies are common. The appendix may be retrocæcal, covered by the mesentery of the last part of the ilium or lying deep down in the pelvis.

In retro cæcal cases there may be diarrhœa instead of constipation and irritation of the bladder. Or it may simulate a psoas abscess or suppurating deep inguinal glands with flexion of right hip; or pain may be referred to the testicle.

In the case of the appendix lying in the pelvic cavity diagnosis may often be confirmed by a finger in the rectum.

The pulse rate keeps on rising as the disease progresses.

The temperature is seldom higher than 103° even in children. (In adults it is seldom higher than 102° in appendicitis.) *If the temperature is above 103°, it is most likely that the case is not one of appendicitis.*

Diagnosis.—In children, the diagnosis has to be made from the following conditions:

1. *Right basal pneumonia and pleurisy* which are ushered in by severe abdominal pain. The whole of the right side of the abdomen becomes rigid and most of the physical signs are not found early in the disease. Repeated examination of the chest is necessary to avoid mistakes as the abdomen has quite prbably been opened in the past.

Hurried respirations, cyanosis of lips and working of the alæ nasi are not present in acute appendicitis.

2. *Pyelitis*: the initial pain is not central. The temperature is higher and there are urinary symptoms. The urine shows B. Coli.

3. *Meckel's diverticulum.*—Inflammation of this diverticulum is difficult to diagnose, but the treatment is the same. Melæna is a common symptom not present in appendicitis. Both the diverticulum and the appendix should be removed in these cases, after perforation has occurred, pain and rigidity disappear and the patient feels better. Beware of this serious pitfall.

Treatment.—The only treatment for acute appendicitis in children is operation, whether the disease is discovered and diagnosed on the first or on the fifth day. In children the disease seldom resolves as in adults and pus formation is seldom localised into an abscess. Gangrene is commoner. The reasons for these have already been detailed before.

The death rate in cases operated on during the first twenty four hours is practically nil; the rate steadily rises upto the fifth day when it shows a decline. (due perhaps to localization in the case of older children).

The best anæsthetic is Gas and Oxygen: in any case, Chloroform should never be used.

The best *incision* in a child is the right paramedian, but in a late case when abscess is expected incision should be made over the spot. Choice of incision has a direct bearing on mortality.

No raw peritoneal surface should be left after the operation.

Lastly, there is the very important question of *drainage.*

The rule in children is *when in doubt, drain*; whereas in the adult the rule is *when in doubt, do not drain.*

The peritoneum of a child cannot effectively deal with infection like that of an adult; hence, to be on the safe side, *drain in all doubtful cases.*

Pain in the Diagnosis of Gastro-Duodenal Ulcers*

BY

J. M. Pacheco de Figueiredo,

Medical College, Nova Goa.

A POINT generally accepted in gastro-duodenal pathology--an in terrogation well directed, furnishes for the diagnosis, far more precious elements than the physical examination. Palpation with a minute search for the painful points, percussion and even auscultation does not furnish that wealth of symptoms and signs which are to be found, with extreme frequency, in the examination of the diseased heart or lung. It is, of course, obvious, that we do not speak of emergency surgical cases in which the existence of the swelling or muscular rigidity in themselves impose a diagnosis, a prognosis and a treatment. We refer to those numerous cases of medical nature, which, at interrogation however less methodical, leads us, at every step, to ascertain the old diagnosis which the routine does not abandon—the dyspepsia.

We know very well that the laboratory, especially the study of the gastric chemistry and the X ray examination, affords valuable help to the practitioner.

But we cannot always avail ourselves of these tests either for want of local means or financial means of the patient. The rural practitioner can never expect to have, for his diagnosis, the help of laboratory elements which the city practitioner has easy access to. Hence arises the necessity of availing ourselves of interrogation of the subjective signs and specially of the symptoms of pain, because, according to Prof. Gosset and Gutmann, in epigastric pathology, in the majority of cases, at the end of interrogation well directed, the diagnosis is already concluded and the other diverse methods will only serve to confirm the same. This is the fundamental point which we insist upon, with our students of medical clinic when dwelling upon, principally, gastro-duodenal ulcers.

A Clinical Case as an example.—In 1938, I had occasion to study, with my student E. Dias, the following case:

Patient—40 years old, was admitted into the Hospital. He complained of an acute pain as if pierced with a dagger from

* Specially contributed to "The Antiseptic".

the front in the direction of the back, in the epigastric region; vomiting and constipation with alternate attacks of diarrhœa.

Personal and family history :—Of no importance.

History of the present illness :—It was three years since he had been suffering from acute pain in the epigastric region radiating to the back, 3 hours after meals. The pain was so violent that it compelled the patient to lie on one side (lateral decubitus) curving the back, with the legs and thighs drawn up and with the knees pressing the epigastric region. The quotidian rhythm of the pain was nearly unalterable and was as follows :

The patient awoke with a slight pain which was relieved by the first meal (tea); it reappeared again 3 hours after and vanished after the mid-day meal (rice) ; it returned again after 3 hours—this time with violence—and ceased only after a cup of milk which he took before retiring to bed or as often happened after one vomiting or diarrhœic defæcation. At a late hour in the night, he was obliged to wake up by a *sudden pain* accompanied with *hunger* which used to diminish or pass off shortly after drinking some cups of water. These daily painful crises did not occur on all days. There were times in the year when the patient felt quite all right. In the beginning the periods of ease lasted some weeks or even months. Now, however, the periods of pain last 15 to 20 days and those of ease hardly 4 to 5. He had melæna several times, but hæmatemesis never.

Examination of the patient :—Lean, hollow cheeks, sunken eyes and the face indicating great sufferings. The patient was lying on the left side, with the legs and thighs drawn up and the knees pressing against the epigastric region.

Digestive tract :—Tongue furred, teeth carious, appetite increased at certain periods of the day. Pains in epigastric and duodenal areas. The cholecystic and Mc.Burney's points, painless. Liver and spleen normal. Constipation with diarrhœic crises.

Cardio-vascular system :—Of no importance.

Respiratory system :—Normal.

Genito-urinary tract :—Normal.

Laboratory examination : *Urine*:—*Colour*—Normal ; *Reaction*—Acid ; *Density*—1012 ; *Glucose*—Nil ; *Sediments*—Urates and phosphates.

Blood : *Percentage of Hæmoglobin*—60% ; *No. of Red cells*—3,400,000 ; *No. of White cells*—6,300.

Differential count : — *Neutrophiles*—64 ; *Lymphocytes*—27 *Eosinophiles*—0 ; *Mono*—5 ; *Abnormals*—4.

Kahn's Test :—Negative.

In the case we have described above, we were forced to admit that the wealth of subjective symptomatology does not correspond to the signs found in the physical examination. What were we dealing with—an ordinary hyperchlorhydric dyspepsia, or an appendicular dyspepsia or a gastro-duodenal ulcer or cholecystitis ?

First of all, it would be well to prepare a scheme of the symptom " pain " based on the works of Gutmann on the dyspeptic day and on the dyspeptic year.

1ST TYPE :—Pains without periodicity during the year and without rhythm during the day.

(1) Quotidian pains and during the whole day—these pains are characteristic of extra-visceral lesions. (Perivisceritis, ulcer or cancer with extra viseral connection).

(2) Quotidian pains or irregular ones that escape all systematised description (Nervous).

2ND TYPE :—Pain without clear periodicity during the year and in clear post-prandial rhythm during the day (hypo or hypersthenic dyspepsia).

3RD TYPE :—Pains of evolution clearly periodical during the year.

(1) Patients suffering for short periods of about 3 days, separated by intervals of many weeks or months. These painful crises of 3 days accompanied by nausea are characteristic of cholecystitis. The beginning is sudden and its appearance affected with the alimentary regimen (indigestion of fatty foods) and among women coinciding with menstruation. Pain is in the vesicular point (sign of Murphy) with slight jaundice and fever, the vomitings not always stopping the pains.

(2) Patients suffering for periods of nearly 3 weeks with long and clear periods of freedom from pain. This manner of suffering, writes Gutmann, is peculiar to duodenal ulcers and ulcers of the stomach. It is the most important, the most constant and the most notable characteristic which no other disease shows. The idea of periodicity of the pain in gastro-duodenal ulcers, introduced by Soupolt, Moynihan and Gutmann undoubtedly represents a valuable element never to be despised by clinicians. The period of pain has a sudden beginning and end. These intervals of ease give an impression of cure but it is

only apparent as is shown by the radiogram. In the course of some weeks or months of complete ease, the new period of pain will commence. It is on the basis of these elements that a practitioner should diagnose the existence of an ulcer, belonging to R.X. its localisations. In the meanwhile, there are some elements which, if absolute, supply us, indices on the localisation of the ulcer :—

(*a*) In each patient with an ulcer, the time-table is always fixed. A pain which lingers long is rather in favour of an ulcer of small curvature.

(*b*) The rhythm of 3 periods (food, ease, pain-food, ease, pain) is frequent in duodenal ulcers while, the rhythm of 4 periods (food, ease, pain and ease) appears to be of gastric ulcers (Moynihan).

(*c*) When the crises of pain follow regularly and exclusively at night, one may think of gall-bladder. Hunger-pain coming in the evening is an ordinary symptom of hypersthenic dyspepsia, appearing during the night and awakening the patient is very common in duodenal ulcer (Gutmann).

With these data, let us now analyse the symptom " pain " of our patient :—

1. *Nature of pain* :—Acute piercing pain radiating to the back.

2. *Attitude of the patient* :—Lying on the left with the back bent, the thighs and legs drawn in and the knees pressing against the epigastric region.

3. *Quotidian rhythm of the pain* :—Pain. 1st meal (tea)-ease-pain. 2nd meal (rice)-ease-pain. 3rd meal (milk)-ease-hunger-pain. Ingestion of water-ease-morning pain.

4. *Annual rhythm of pain* :—Periods of pain followed by intervals of ease each time less.

5. *Alleviation of pain* :—The patient feels relief from pain, 1st after the ingestion of foods, 2nd after vomiting, 3rd after an attack of diarrhœa.

Diagnosis.—Duodenal ulcer.

The diminution of intervals of ease indicates the tendency to periduodenitis.

The patient was radiographed. The radiogram showed the existence of cholecystitis which had no clinical repercussions, duodenal ulcer (niche of the face with aspect of trifoil's leaf and periduodenitis (*Vide*-the X-ray picture).

Once more, we have confirmed the words of Ramond : " In the gastro-duodenal ulcers, the *anamnesis* is everything and the physical examination is nothing."

Gastro-Intestinal Factors in the Commoner Skin Diseases*

BY

P. Bhaskara Rao, M.R.C.S., (ENG.), L.R.C.P., (LOND.),

Madras Medical Service,
Civil Assistant Surgeon, L. F. Hospital, Ramachandrapuram.

THE skin is the largest organ in the body. It is of high lineage. The skin and its appendages arise from the ectoderm and share with the highly organised central nervous system a common parentage. It not only forms the covering for the rest of the organs but is also the first line of defence for the safety and protection of the rest of the body.

The skin is very vulnerable, as it is the organ that first comes into contact and conflict with the outside world. It is subject to injury both from external and internal factors. Some of the factors are gastro-intestinal in origin, and may be due to digestive disturbances caused by insufficient or imbalanced or improper food. The damage inflicted by these factors is both physical and mental—the results being visible on the skin. It is difficult to enumerate all diseases of the skin, that may be the result of or found in association with disturbances of the alimentary tract. I shall, therefore, mention only a few conditions where the cause and effect are fairly constant, or at least appear together frequently enough to assume a more intimate relationship than mere coincidence. For purposes of this paper it is most convenient to consider the disturbances according to the age as in infants, young adults and adults, though obviously, there is bound to be some over-lapping.

Sex.—There does not appear to be any special consideration shown to the fair sex in this context or contest, both sexes suffering alike.

Children are particularly susceptible to skin diseases of gastro-intestinal origin such as urticaria, erythema, and eczemas. The gastro-intestinal factor in the breast-fed new born is practically negligible. Those that are denied this asset of breast-feeding, naturally share the same disturbances as older or weaned children. One of the most common troubles is eczema—varied in its causes, and protean in its manifestations. Apart from

* Specially contributed to 'The Antiseptic'.

other causes, it is well known, that cows' or even buffaloes' milk causes eczema of a very severe and persistent type due to sensitisation. It is said, that asses' or goats' milk is less liable to cause this trouble. One variety of "Napkin" irritation, is doubtless due, to the acid stools in summer or green or infantile diarrhœa (infantile erythema). In the next class of patients, as also to some extent in the previous class, the skin troubles which are the result of administration of mercury salts (Crude) either as prophylactics or curative measures for all infantile maladies by the ignorant public in this country, are too-well known to the profession. They can produce everything from simple erythema and stomatitis and gingivitis to cancrum oris. Intestinal parasites are next in importance as causative agents. They produce urticaria etc.

Young Adults.—One of the most distressing, and sometimes disfiguring, conditions which cause a lot of mental, if not physical suffering, in the sensitive, is acne vulgaris. The misfortune is that just at a time, when the young folk are attaining puberty and are beginning to be "self conscious"—and "sex conscious"—and would like to appear at their best, they get this trouble. Amongst other things, over-indulgence in fatty and carbohydrate foods—in a word, in those with "a sweet tooth"—such as creams, cream-crackers, chocolates, pastries and puddings, intensifies this disease, though some authorities doubt it. (Cranford and Swartz, quoted by Sutton and Sutton.)

Adults.—Over-indulgence in spicy foods, resulting in torpid liver, and chronic constipation are fairly common causes for skin diseases. The remote effects of focal infections must be remembered and are produced in two ways: (1) Systemic invasion by the microbe and (2) Absorption of toxin.

When the focal infection is acute, and the associated cutaneous manifestations are also acute, as in scarlatina or measles, the relationship between primary infection and the subsidiary expression through the skin is readily accepted, but in chronic conditions, the relationship is more often difficult to determine.

Exciting.—*Toxic*:—(1) Chemical Agents, (2) Allergens, foods and other agents, (3) Bacterial products, (4) Intestinal parasites.

Metabolic:—Nutritional.

Toxic substances of a chemical nature may affect the skin, following ingestion. The manner of action is by no means understood fully, and individual sensitivity is highly variable.

In some cases like Bromides, Iodides etc., when taken by the mouth, irritation is produced, while they are excreted through the skin glands. Other substances alter the vascular endothelium to produce urticaria or purpura, while still others affect the vasomotor apparatus.

Protein Substances Causing Anaphylaxis or Allergy.—The investigations of Von Pirquet, Major, Nobel and others would indicate that anaphylaxis plays an important part in skin eruptions of various acute exanthemata. A great variety of diseases formerly classed as food intoxications, or as idiosyncrasies to certain foods are due to this phenomenon. In some instances, allergens affecting the skin are absorbed through the colon (Schloss and Worthin), or via the respiratory route (Sulzberger). In general, allergens that damage the epidermis are fat-soluble and produce vesiculation, while those to which the corium reacts are water soluble and evoke wheals (Urbach).

Sensitisation is sometimes due to most diverse substances—as cat-dandruff (Duke), silk (Clarke and Mayer), fish glue (Duke and Stofer), absorption of hæmatoma (Rosch), food as it exists in the natural state or to some product elaborated during its digestion or putrefaction in the alimentary canal (Duke)—combinations which are capable of innumerable alterations and all of which must be taken into account. Row found that food allergy is a cause of abdominal pain and gastro-intestinal symptoms causing urticaria, angioneurotic œdema, eczema, migraine etc.

Many cases of eczema also suffer from gastro-intestinal disturbances. Spiethoff found that in 54% in adults and 52% of all infantile eczema, there are recognisable gastro-intestinal disturbances of various kinds. These probably act in two ways: (1) By disturbing the vaso-motor system and producing constant or intermittent flushing of the face (as in Acne Rosacea), (2) or by interfering with the nutrition of the skin. This again may be done in two ways, either directly through the action of the absorbed substance on the skin, or indirectly through the stimulating or depressing action of the intestinal toxin upon one or other of the endocrine glands. The effect of intestinal toxæmia on the thyroid is well known.

In the past, anæmia of young girls was being treated by the free administration of purgatives. Sir Andrew Clark recognised the large bowel as a potential source of hæmolytic poisons. Later, Sir Arbuthnot Lane has indicated a series of symptoms

which may arise from chronic intestinal stasis—some of them manifesting themselves in the skin. For example, he says the complexion is muddy and pale, dirty, there is a tendency to dirty yellow pigmentation under the eye-lids and that the skin of the axillae and the nose and the ears are often bluish, the skin and the back of the upper arms is coarse, that hair becomes prematurely grey,and in women,there is proneness to develop hair on the chin and cheeks-and that all these symptoms may disappear after colectomy or ileo-colostomy. More recently still, the work of Barber, Lesley Roberts, and Danysz tend to show that any focus, from the alveolar sulcus to the anal orifice, may be the site of a focal infection responsible for the lesions on the skin, and in many cases the dermatosis clears up after eradication of the focus. The focal infection need not even be locally active, to produce remote effects. They may produce obscure skin lesions by damaging the walls of blood vessels or the skin cells or the hair bulbs.

In acne rosacea, we find dyspepsia and constipation. Achlorhydria has been alleged to be common in these cases but is denied by others. Marked sub-acidity is not an invariable feature.

Anomalies of Pigmentation.—One disease in this class, the ætiology of which is still very obscure is leucodermia. My observations in this disease, which extend to a period of some years, lead me to assign to the gastro-intestinal factor, a prominent place in the list of probable accessories, if not causative factors. Amœbiasis has been suspected and in some cases Emetine Hydrochloride injections do good. It is just possible, that water may be the carrier of some kind of toxin—animal or chemical—which accelerates the condition and intestinal auto-intoxication and stasis probably assist the above factor. Cornbleet finds that pigmentation in the skin increases when vitamin-C. depots are depleted and that the pigment seems to anchor the vitamin in the skin. Lack of vitamin-C accelerates the production of the pigment. I may add that this is in conformity with my own observation also. People taking a mixed diet appear to be less prone to leucodermia and pure vegetarians seem to suffer more.

Pellagra, though not very common in South India—deserves to be mentioned. In addition to a symmetric dermatitis, the patients usually present a definite diarrhoea—passing foul-smelling semi-digested matter. In mild cases, there may be

constipation. The oral mucosa is usually inflamed, often ulcerated and foul, and the tongue is swollen, red and dry. Colpitis and vulvar dermatitis are common in females. Emaciation, dehydration and weakness vary in proportion to the severity of the gastro-intestinal symptoms. Garrot considers pellagra, a disease of poverty in high percentage of cases and due, in the remainder, to dietary idiosyncrasies and eccentricities, food fads, obsessions, and alcoholism and sometimes to diseases of intestinal tract.

Alcohol.—A word about alcohol is not out of place. Alcohol tends to aggravate most skin diseases-partly because of its dilating effects on skin vessels, and partly perhaps, as it promotes absorption from the alimentary tract of protein fractions which should not normally be absorbed. Sweiezer emphasises the important relationship existing between chronic alcoholism and pellagra.

A few words on the treatment of the Gastro-intestinal factors are indicated. Roxburgh says, "patients love to be dieted, but I am not convinced, that food and drink have in general, the great effect on skin diseases, which is often ascribed to them." There are, however, particular conditions, in which diet has definite influence as in acute urticaria.

A salt-free diet is sometimes useful in eczema (Roxburgh). The Indian system of medicine also advocates a salt-free diet, as being helpful, in the treatment of skin diseases. As for intestinal antiseptics, no such thing exists to completely sterilise the gastro-intestinal tract—probably fortunately. A few drugs in common use,such as Hydrargyrum Cum Creta and Salol are useful. Kaolin and some proprietary preparations like Kaylene and Kaylenol are useful in suitable conditions to keep down the putrefaction (Toxæmia) in the gut (or Gutter !). Butter-milk is a valuable addition to the diet and will probably do more good in an all-round way than many drugs. Most patients are disappointed without their bottle of medicine or packet of pills and latterly, no physician is considered "modern", if injections do not form part of the treatment. I believe that many of them are not necessary. Some of the most widely used such as Calcium, are, except in a very limited field, almost useless. Roxburgh says that he cannot remember seeing any patient improved, in the slightest degree by taking Calcium, for any skin condition-a view probably shared by many dermatologists but expressed by very few. Barring a few drugs like Mercury and Arsenic, either as

Fowler's solution, or as Donovon's solution, and Iodine, and a few gland products, like thyroid and adrenalin, there is really no need to stuff the unfortunate patients with drugs of doubtful value. External treatment is often all that is required, though of course, obvious internal derangements, as of the gastro-intestinal tract, should be attended to.

Lastly, what we need is more knowledge, and less of empiricism and the child-like faith that there is a drug for every symptom and disease. I cannot close this article better than in the words of Mackenna: "It will be readily understood that in the doctrines of focal sepsis and sensitisation to foreign proteins we may have found a clue to the ætiology of many skin conditions, whose precise cause has hitherto been obscure. But caution is necessary. We must not be too ready to explain all conditions that baffle us, by appeal to the bio-chemical reactions, that in themselves are obscure and still the subject of controversy, but by exact observation and careful accumulation of facts, we may ultimately reach certainty."

Dermatology is the youngest of the specialities, but is growing fast, and ere long, will take its rightful place, on well established scientific data, amongst the sister branches of medicine.

References :

1. *Richard L. Sutton, M.D., F.R.S., and Richard L. Sutton Jr. M. D.*—"*An Introduction to Dermatology*".
2. *A. C. Roxburgh.*—"*Common Skin Diseases*".
3. *R. W. Mackenna.*—"*Diseases of the Skin*".
4. *Sir Malcolm Morris.*—"*Diseases of Skin*".
5. *R. N. Chopra.*—"*A Hand Book of Tropical Therapeutics*".

A Few Practical Points on the Use of the Ophthalmoscope*

BY

Dr. K. S. Ghaswala, L.M.S., M.O.S.

Ophthalmic Surgeon, Bombay.

THERE are three methods of using the ophthalmoscope :—

I. Direct Ophthalmoscopy.
II. Indirect Ophthalmoscopy.
III. Retinoscopy, or Shadow Test.

I. In making the **Direct Ophthalmoscopical Examination,** the following points are to be observed :—

1. Use the *small concave tilted mirror* of the ophthalmoscope with the tilted side away from the eye under examination: *i.e.*, if the right eye is under examination, the tilted side of the mirror must be on the left of the patient.

2. Keep *the light* a little behind and above the shoulder corresponding to the eye to be examined.

3. *The observer* must be very close—a few inches to the patient's eye.

4. Ask *the patient* to look over your shoulder at a distant object, so as to have his accommodation relaxed ; at the same time the observer also must relax his own accommodation which in the beginning can be done by using A—2D or—3D lens behind the mirror of the ophthalmoscope.

5. *The examiner must sit* on the same side and use the same hand to hold the ophthalmoscope as the eye to be examined, *e.g.* when examining the right eye, the observer must sit on the right of the patient and use the ophthalmoscope with his right hand, and vice versa.

II. **In Indirect Ophthalmoscopy,** observe the following points—

1. Use the *large reversible concave mirror* of the ophthalmoscope.

2. Keep *the light* close to, and on a level with the patient's *left shoulder.*

3. *The observer* must sit two feet away from the patient and sit rather obliquely.

Both in the Direct as well as in the Indirect methods, *three things are to be examined* :

(1) THE DISC:—To examine the disc, ask the patient to look inwards.

* Specially contributed to 'The Antiseptic'.

(2) THE MACULA:—To examine macula, ask the patient to look in the centre of your forehead.

(3) THE PERIPHERY OF THE FUNDUS:—To see the periphery, ask the patient to look to the extreme right, left, up, and down.

What is to be observed :—(1) THE DISC : — (*a*) *Shape ;* circular or oval as in astigmatism. (*b*) *Colour;* rosy in normal cases, white, as in optic atrophy: waxy, as in retinitis pigmentosa. The normal disc is rosy, paler than the rest of the fundus, with the nasal side redder than the temporal. (*c*) *Physiological cupping* ; this never goes up to the margin, whereas, the pathological cup always extends to the margin of the disc. (*d*) *Vessels* ; arteries are less broad and less dark than veins; they have a broader, well defined, and more continuous *light stripe* along their centres than the veins. Arteries do not pulsate. In retinitis, the vessels become dilated and tortuous; in atrophy they are thinned out. (*e*) *Edge of the disc* is clear and well-defined, especially its outer side. The edges become blurred in neuritis. (*f*) *Surroundings of the disc* ; *Tubercles*, which are roundish, ill-defined, yellowish bodies ; *Hæmorrhages*, bright or flame-like blotches, red in colour; *Exudations*, white patches covering retinal vessels.

(2) THE MACULA :—This is darker than the rest of the fundus and devoid of blood-vessels and surrounded by halo of reflected light. The fœvea is in the centre of this and is paler and often glitters.

(3) THE PERIPHERY:—In *retinitis pigmentosa*,we find bone-corpuscle–shaped pigments at the extreme periphery which go on extending centralwards as the disease advances, until, we find the pigments extending as far as the disc in very advanced cases. *In disseminated choroiditis*, white patches surrounded by black pigments are seen at the periphery.

III. **Retinoscopy or the Shadow Test.**— 1. *Use either plane or concave mirror;* plane is generally used and is preferable.

2. Keep *the light* as in Indirect Ophthalmoscopy, or just above the head of the patient.

3. *The observer* to sit at a yard's distance from the patient.

4. *The patient* to look far away over the top of observer's head.

5. *To examine*, move the mirror in the horizontal and vertical meridians, when you will observe the following:—

6. *With plane mirror, the shadow* moves in the same direction as the movement of the mirror, in cases of emmetropia, hypermetropia and low myopia (less than one dioptre) and in the opposite direction in cases of myopia of more than one dioptre.

7. *With Concave Mirror*, the opposite of above.

8. If the shadow moves differently in opposite meridians, there is astigmatism.

Gonorrhœal Proctitis*

BY

T. P. Tiwari, L.M.P.

Asst. Medical Officer, Dhamtari, C. P.

GONOCOCCAL involvement of the rectum is an event of not quite common occurence. The tightly contracted sphincter ani together with the squamous type of epithelium lying external to it constitutes a fairly effective protection against the entry of gonococci which thrive only on mucous surfaces. Instances, however, do sometimes occur when they succeed in reaching the rectal mucosa after a triumphant crossing of the anal barrier and this happens more commonly in females (with an existing genital infection) anatomical conditions in whom are particularly favourable for such an extension. Gonococcal proctitis is sometimes also seen in persons who are accustomed to the perversion of passive sodomy.

The chief symptoms of gonorrhœal proctitis are tenesmus, pain and burning about the anus which increase on defaecation. The patient may pass blood and pus along with the stools which not infrequently leads to an erroneous diagnosis of colitis or even dysentery. The anus on examination is usually found eroded and fissured and a proctoscopic examination reveals the rectum to be in a state ef œdema and infiltration. The mucous surface looks red and swollen and almost invariably shows a large number of small ulcers.

These signs and symptoms are not necessarily severe in every case and occasions are not wanting when they are extremely mild and as such are often ignored for quite a long time by the patient. This results in the disease becoming chronic and more strongly resistant to the treatment that may be adopted subsequently. The mildness of the symptoms may also be sometimes instrumental in misleading the physician, who may fail to recognise the true nature of the disease, and may unwittingly withhold the appropriate treatment. It is, therefore, extremely important for the physician to keep this disease in mind in dealing with conditions associated with rectum and anus. A thorough and careful examination of the parts must be undertaken to exclude such diagnostic errors as inflamed piles and simple anal fissures. A smear should be obtained in all doubtful

* Specially contributed to 'The Antiseptic'.

cases and examined microscopically. Gonococci will often invariably be found in all true cases of gonorrhœal proctitis.

Treatment.—Treatment of this condition is carried out on lines similar to what one usually adopts in treating a case of genital gonorrhœa. The two chief principles of treatment *e.g.* effective drainage and stimulation of individual resistance should always be strictly adhered to. If the disease be recognised in its early stages and if the local condition be still very acute, the patient should be put to bed and kept on a light nourishing diet. Bowels should be kept open but drastic purgatives should be avoided. Mineral oil laxatives are best for the purpose. The anal area should be kept clean by frequent washings with a mild antiseptic lotion and hot fomentations should be applied for the relief of pain. Suppositories containing from ½ to 1 grain of powdered Opium can also be employed for inducing local analgesia. After a few days when acuteness of the condition subsides, treatment should become more energetic and cleansing enemas consisting of a 10% solution of Soda Bicarb or Normal Saline should be given two or three times a day. 1:10000 solution of Potassium Permanganate can also be used for this purpose with advantage. This cleansing should then be followed by instillation of 1 to 2 ounces of 20% solution of Argyrol or 1:1000 of Acriflavine. 2 to 5% solution of Neoreargon is another very good solution which can be advantageously employed for this purpose. If the ulcers are found to be more resistant on account of chronicity of the case, more concentrated solutions of silver nitrate should be had recourse to in dealing with them. Actual cautery can also be employed with success in suitable cases.

The local treatment should further be supplemented by a course of vaccine which increases the general resistance of the patient and helps him in overcoming the disease more easily. Sulphonamide derivatives which were originally introduced as specifics against streptococcal infections have by now been proved to be panacea for many if not all evils. I have given them to a large number of patients suffering from gonorrhœa and the results have always been very satisfactory. The average dose for an adult consists of 3 grams of Sulfanilamide per day divided into 6 parts and administered every four hours. Gonococcal inflammation of the rectum can also be successfully treated now with the help of this wonderful chemo-therapeutic agent and I would like in this connection to put in a strong word in favour of Albucid-Scherring and M. and B. 693.

Some Clinical Aspects of Paranasal Sinusitis*

BY

C. V. C. Rao, (DIPLOMAS OF VIENNA),

Eye, Ear, Nose and Throat Surgeon Broadway, Madras.

I PROPOSE to deal in this paper with a few points of practical importance in our practice with regard to paranasal sinusitis, acute and chronic.

Headaches.—As this is one of the most common symptoms, I would like to say a few words about it. Location of headache alone is not typical of sinus trouble. When headache is of a wandering type, sinus trouble may be excluded. On the other hand, localised headache, always appearing on the same spot, is strongly suspicious of sinus trouble, although it gives no indication about the particular sinus. Generally, the spot for frontal sinus headache is inner angle of the eye and supra-orbital notch. For antrum trouble, it is infra-orbital place. For antrum ethmoid trouble it is lachrymal bone. Sinusitis of antrum group, generally produce anterior or frontal headache, while headache due to sinusitis of posterior group, is posterior or occipital. Headache at night is never common in acute empyema. The night headaches are usually suspicious of lues or rheumatism. Headaches in sinusitis, usually start about half an hour after getting up from bed in the morning and last for about three hours and disappear. The peculiarity of this type is, it starts promptly at the same time every day and lasts for the same time. At a later stage, it starts a little late but lasts for the same time. This is a good sign and indicates that the sinus is improving.

Diagnosis.—I do not propose to deal with the diagnosis of a typical case of acute empyema, as it is sure to be mistaken with one sided purulent discharge neuralgia, history of acute cold, congested middle turbinals, etc. But I would like to say a few words of caution. Headache may be mistaken for facial neuralgia—or the case may be mistaken for purulent rhinitis. If the discharge in the nose is wiped out, it takes longer time to appear again in purulent rhinitis while it can be seen in a few minutes in the middle meatus, in sinusitis. When the case is not a very acute one, having diagnosed sinusitis, we have to decide which sinus

*A paper read at the meeting of the Association of Laryngology and Otology, Madras, on 20-10-'39, and specially sent for publication to 'The Antiseptic'.

or sinuses are involved. The general rule is if pus is seen in middle meatus, the anterior group is affected and when pus is seen in superior meatus, the posterior group is affected.

In chronic sinusitis of antrum group, the turbinate bulla and uncinate process are hypertrophied while in posterior groups, the hypertrophy is in the region of olfactory area and tuberculum of the septum and pus is seen on posterior rhinoscopy. If it is antrum group that is affected, we have to find out which one is diseased. This is done by me in the following way, which is called an exclusion test :—

First, I wash antrum through puncture under inferior turbinate and if pus is found in the washings ninty-nine per cent of antrum is diseased or it may have come from other sinuses. Even if antrum is diseased, other sinuses also might have been diseased. So after washing antrum, I wait for half an hour and if pus is then found in middle meatus, it means that it is from ethmoid or frontal, then probe frontal ostium, and if it is not possible, wait a couple of days, resect anterior end of middle turbinate, wait for four days after this, and then probe frontal ostium. Next wash frontal sinus and if pus is present after half an hour in middle meatus, ethmoid is diseased. If washings from frontal show pus, it is also diseased. Ethmoid is never washed and it is a crime to do so. By the peculiar situation of the ostium, antrum infection is more common and further in antrum infection, other sinuses can be free, while if frontal or ethmoid is infected antrum is also more often involved.

While with the above procedure, it may be possible to diagnose a case of sinusitis, it should be remembered, it is not always so easy. Hence it is necessary to bear the following in mind :—

A case of chronic sinusitis may not show any pus in the middle meatus, when the anterior drainage is blocked by bulla or middle turbinate. In these cases pus can be seen by posterior rhinoscopy—if the nose is examined early in the mornings before the patient blows his nose, a drop of pus may be seen in chronic sinusitis. We may have to deal with cases where no pus is seen and to diagnose sinusitis in that case, we have to rely on other methods. A nasal polyp or hypertrophied turbinate is a sign of sinus trouble.

Transillumination helps to find out the condition of the antrum and frontal. We must watch for the illumination below the lower lid and not in antrum area.

X-ray will help to diagnose the case but to have the correct idea.

it must be done before turbinectomy. It can help you to decide whether there is actual inflammation of lining membrane of the sinus and if there is free exudation within the cavity. The presence of pus, or hyperplastic thickening in the sinus or even of polyp formation, can also be determined.

Transillumination and X-ray, while of great diagnostic help, when positive, cannot be relied upon entirely when negative. Sometimes, it is necessary to be guided by other signs and symptoms in the neighbourhood, and elsewhere, like nasal chambers, pharynx, eyes, ears, head and face, lower respiratory tract and digestive tract and general signs of ill-health, in estimating the extent of sinusitis in chronic cases. Sinusitis invariably exists on the side to which septum is deflected.

A Word about Dental Empyema.—Empyema of antrum due to dental trouble gives out very bad odour; generally the 5th and 6th teeth are responsible. Patient gets worse pain at nights. Dental cysts also cause empyema of antrum. The cyst at the root of the teeth spreads up into the alveolus, thus expanding slowly and a swelling can be noticed. When this cyst is infected, it spreads to antrum.

Treatment.—Needless to say that the treatment consists of three aspects. Prophylactic, treatment of causes and treatment of the diseased area proper.

Prophylaxis :—When we visualise the anatomical distribution of the mucous membrane of nose and throat which is almost continuous with that of the sinuses, it is easy to understand how inflammation of any part of it, can easily spread to the other parts. In fact when there is an acute rhinitis, the sinuses are also affected to some degree. Naturally when rhinitis subsides, the other sinuses also are expected to get alright. But it need not always be so. Sometimes, infection can linger there and produce sinusitis, even when the causal rhinitis seems to have improved. Hence rhinitis, however mild, ought never to be neglected and if it persists a little longer, attention should be directed to sinuses. If lay people are sufficiently educated in the evils of a neglected cold and if they are impressed how dangerous it is to neglect proper treatment of a nasal cold, the cases of sinusitis can certainly be reduced. Further proper care of infants and children will do much to prevent sinusitis in later life.

Treatment of Causes :—I do not propose to go into details about this except mentioning that attention should be paid to

factors like allergy, syphilis and tubercle and any other causes leading to the general breakdown of health.

Treatment Proper:—In this connection I cannot do better than quote the words of Dr. Harold Barwell who sums up the whole treatment in the following lines: "To my mind the essential point is to secure unimpeded and usually permanently unimpeded drainage of the affected cavity into the nose".

Every one agrees that that should be the aim, whatever may be the treatment adopted. The treatment of sinusitis may be divided into general, local, medical, simple surgical, active surgical and causal.

General treatment consists of medicines like Pot. Iodide to help to liquidate the nasal secretions, to enable free flow into the nose, and remedies to combat the breakdown of general health.

Local Medical:—Here are included Adrenalin, Ephedrine, etc., to shrink the engorged mucous membrane of the nose and inhalations like Menthol in Spirit, Tr. Benzoin Co. and nasal sprays.

Simple Surgical consists in Catheterisation, puncture and lavage, suction, and displacement method of Prœtz—to the last of which I am quite a stranger. The above treatment suffices in most of the acute inflammations. The sinuses participate in production of secretion in acute Coryza and it is only when the outflow is impeded by swelling of the mucous membrane at the ostium, or in the nares, that the symptoms of the sinusitis are manifest. In the milder grades, rest in a warm room and mentholised steam inhalations, and the introduction of Adrenalin tampoons, will suffice to effect a cure. In other cases, except when it is very acute, puncture under the inferior turbinal with Lichturitz trocar and washing the cavity with mild saline is indicated. Generally the relief is felt in one or two washings with an interval of 2 or 3 days. Six to eight washings may be required for complete cure. If no improvement is felt or seen after two washings, or if there is a history of previous attacks or one suggestive of latent chronic disease, the surgical methods will have to be resorted to. In the acute frontal sinusitis with much pain, if steam inhalations and Adrenalin fail, amputation of the anterior end of middle turbinal will usually give relief. After the acute stage, a frontal canula may be passed and the cavity washed. Even in most of the chronic cases, intranasal methods are worth trying like enlarging the opening to frontal sinus, by removing the antrum ethmoid cells, paying special attention to the cells beneath the Agger nasi. Failing all this,

the external operation of Killian or some of its modifications, will have to be resorted to.

Before going to the active surgical methods, I wish to mention a few words about *antrum puncture* and irrigation. Although puncture invariably is a simple process, it can prove to be a dangerous one, if one is not careful. The correct place for puncture, according to Professor Hagek, is the highest point of inferior meatus, about 3 c.m. from anterior end of inferior turbinate. We can then avoid the veins in the region of the nasal duct opening and as well as the arteries of inferior choncha. The chief mistakes likely to occur are, puncturing anteriorly, when the needle gets in canine fossa and there may be unpleasant hæmorrhage. The other and most dangerous one is pushing the needle into orbital floor. This can only occur when the operator loses his bearings and the sensitiveness to the feel of the trocar. Sometimes we may enter the pterygopalatine fossa. The free movement of the distal end of the trocar in the antrum is a too clear sign, for any surgeon to miss, while the fluid is being injected, it should not cause the slightest pain to the patient and must flow out freely through the natural ostium. If patient complains of pain, especially in the region of the eye, it is a sign that something is wrong somewhere and the trocar must be adjusted. If the fluid is getting back into the throat, it means that the trocar is not in the antrum. If fluid is not returning, it can be one of two things : either the ostium is blocked by a polyp inside antrum, in which case it is to be sucked up through the same route and a radical is indicated here or there may be periosteal infiltration inside antrum.

Active Surgical :—When the above local and medical and simple surgical treatments fail, an active surgical is indicated and in most cases, the following may be sufficient, this consists of permanent intranasal opening in the lateral wall of the nose, under anæsthesia. The anterior end of inferior turbinal is amputated, if the nose is cramped and if there is no sufficient room. An antrum burr and Hartmann's forceps are all that are required. After deflecting the mucous membrane, an opening is made and enlarged with Hartmann's forceps. The opening must be as large as possible, removing as much of the antronasal wall and as far down as possible. There is not much to be done in the way of after-treatment, except instilling a few drops of H_2O_2 into the cavity daily and if there is much putrid matter or bad smell in the nose or mouth, the nose may gently be washed with warm saline, but not before the lapse of three or four days. After a week, the patient may be given nasal alkaline to wash his nose.

Caldwell-Luc.—This operation through canine fossa will have to be resorted to in cases where the skiagram shows polypoid growths in antrum or partitions subdividing antrum, in cases with foul discharge after extraction of tooth, where fragments of loose bone are suspected in antrum or in cases where the nose is full of polyp and foul discharge. Since this operation is very well described in text books, I can pass over.

A word about operations on ethmoid. I must confess of very little experience of this. Still, I would like to quote the very valuable hints given by Dr. Herbert Tilley in one of his lectures published in the Journal of Laryngology and Otology, for the benefit of those, that might not have read it. He says that he follows the following rules :

(1) To procure effective ischaemia by the preliminary application of Cocaine and Adrenalin.

(2) As far as possible, endeavour to see the diseased area during operative manipulations. If bleeding be so profuse as to prevent this, further interference should be postponed for a week or ten days when reactionary swelling and œdema will have subsided. Such reactions are more obvious, if suppuration be present.

(3) In all ethmoidal operations the following is a golden rule :—" strive to preserve and keep in view, the attachment of the middle turbinal to the 'lateral mass' ", and to work on its external aspect. By so doing, you will minimise the chances of damage to the cribriform plate and the dural sheaths of the olfactory nerve expansions, both of which are in intimate relationship with the meninges.

(4) No packing should be placed in the operated area of ethmoid because free and spontaneous drainage is the paramount object aimed at. Post operative hæmorrhage is rarely a serious complication.

Posterior Sinusitis.—I do not propose to deal with this in any detail, except to suggest the above general and local medical treatment, failing which, some sort of operative interference may be necessary. Much is of course written about the connections of eye troubles with chronic sinusitis especially sphenoid.

It is not possible of course to deal with that here, at any length. But one thing can be said that due to close proximity of nasal sinuses to eye and its appendages, the infection of the former is bound to have some effect on the latter. In other words, in cases of eye trouble, the ophthalmic surgeon will do well to keep in mind the possibility of sinusitis being the cause and should try to exclude it. The infection can spread directly, by obstruction or infection,by inflammatory extension or reflexly. When diseases like conjunctivitis, orbital cellulitis,lachrymation, retro-ocular phlegmon, chronic blepharitis, phlyctenular keratitis, asthenopia and diminutions of fields of vision, ptosis, blepharospasm etc., are traced to sinusitis,an ophthalmic surgeon can easily appreciate the importance of my above caution.

Finally, one should not forget that on account of the close anatomical relationships, a focus of sepsis in the higher sinuses can spread to brain and its meninges and to the contents of the orbit, that the purulent discharge may find its way into larynx, trachea and lower air passages with evil results or that it may be swallowed with a sequence of gastro-intestinal disorders, carried by blood stream or lymphatics, the toxins etc., may produce lesions in the joints, in the cerebrospinal nervous system or a general toxæmia. The sinus trouble is frequently allied with mental disorders and treatment of sinuses has brought about improvement in the mental condition.

This paper is by no means an exhaustive survey, which can best be found in any text book, but only an attempt to briefly touch upon a few practical points as they strike me, in the hope of arousing discussion and eliciting the views of others, to our mutual advantage.

Discussion

(After the paper was read on 20th October, 1939.)

Maxillary Sinusitis in Children

Remarks by V. R. Kamath, M.B., B.S., D.L.O. (ENG.)

It has become increasingly evident to me, during the last few years, that maxillary sinusitis in children between the ages of two and twelve, is exceedingly common, though the diagnosis may be easily missed, unless one bears the affection in mind and looks out for it. Most of the E. N. T. Surgeons, dealing with a large number of cases in hospitals, will no doubt agree with this view, but I feel that the general practitioner should be made aware of the high incidence of paranasal sinusitis in childhood, in order that he may co-operate with the specialist in the early diagnosis and efficient treatment of a condition responsible for much suffering and even loss of life. Mollison, E. N. T. Surgeon in Guy's Hospital, has reported that 20% of children with septic tonsils had antral infection ; and a similar figure is arrived at by Lowndes Yates of Central

London Throat, Nose and Ear Hospital. Higher percentages are to be found in the literature ; for instance, Cantor (in the *Medical Journal of Australia*, 1935) records that no less than 67 .. of his patients in Melbourne Children's Hospital were found to have sinusitis.

Symptoms.—Nasal sinusitis in children is generally so insidious in its onset, and the symptoms it produces are so much applicable to other well-recognised conditions, that the parents are likely to overlook the symptoms and the medical man equally liable to misinterpret them. The child who is "always having a cold," or who "goes from one cold to another," who breathes noisily, has become listless, and "does not take its food properly", is more often than not, suffering from nasal sinusitis. "Frequent cold" is a composite term, used by parents to indicate nasal obstruction, rhinorrhoea, cough, recurrent fever, sore-throats, and bronchitis, in various combinations. These are the commonest symptoms and manifestations of sinusitis in children. The aversion for food is no doubt due to the constant swallowing of pus and mucopus from the nasal cavities, as the young child does not know to blow his nose or to expectorate. Actual pain and headache are rarely complained of by these patients, and epistaxis, crusting in the nose, and fetor are among the less common symptoms.

Appearances and Signs.—1. An eczematous condition, or rather, an excoriation of the skin at the entrance of the nose and of the upper lip, has often drawn my attention to the pus in the antra. I do not, of course, consider this to be pathognomonic of sinus disease, but it is frequently a pointer.

2 Rhinoscopy reveals (after a careful and gentle cleansing of the anterior nares by cotton swabs) the presence of thick pus or mucopus in the middle meatus. Contrary to what may be expected by general practitioners, the examination of a young child's nose for pus in the middle meatus is very easy, requiring only gentleness and persuasion on the part of the examiner, and only a head-mirror and good illumination in the shape of accessories. A nasal speculum frightens the child, especially if used unskilfully, and is fortunately rarely necessary. The mucosa of the nasal cavities may be pale, congested, shrunk or swollen. Polypi are very rarely found, though the prominent inferior turbinates are commonly mistaken for them.

3. Since reading Maud Loeber's article in the *Journal of Pediatrics* (November 1932), I have been impressed by the frequency of the sign she describes as pathognomonic of paranasal sinusitis in children, namely, a roughly triangular swelling beneath the outer third of the lower eye-lid. Observant parents may give a history of such a swelling appearing now and then, coincident with "bad colds", or the sign may be present when the child is brought for examination during such an exacerbation of the subacute or chronic maxillary sinusitis. I have sometimes wondered, however, whether the sign is not more often an accompaniment of ethmoidal suppuration than merely of antral infection.

4. Skiagrams of the antra, properly taken, are valuable, especially in doubtful cases. In straightforward cases with pus in the middle meatus, confirmation by X-rays is not required except as a preliminary to surgical intervention, when the anatomy of the antra may be studied with advantage by the help of skiagrams.

Differential Diagnosis has to be made chiefly from : 1. *Adenoids.*—This is the commonest pitfall, because the symptoms of the two conditions largely overlap and, besides, the tonsils and adenoids may be really unhealthy on account of the sinus suppuration. Rhinoscopy is the surest aid in diagnosis, and the sinusitis should always be given preference as regards treatment even if the tonsils and adenoids also are diseased. In many cases, the clearing up of the antral infection restores the nasopharyngeal lymphoid tissue to its normal

size and functions; on the other hand, the removal of tonsils and adenoids in the presence of nasal sinusitis does not generally influence the latter condition favourably, and may even be attended by sepsis and lung complications consequent on the nasal secretions draining along the pharyngeal walls.

2. *Allergic rhinorrhoea*:—This equivalent of asthma is frequently found in children with an allergic family-history. The symptoms are not in any way characteristic except that sneezing may be dominant in the list. Rhinoscopy shows the peculiar pale sodden appearance of the mucosa, and of course, no pus in the middle meatus. I personally place the greatest reliance, however, on the family-history, personal history (of eczema, urticaria, Besnier's prurigo etc.) nasal smears, and eosinophilia.

3. *Foreign bodies and rhinoliths*, accompanied by purulent rhinitis, may be mistaken for sinusitis, and *vice versa*. The careful use of a probe will usually obviate any doubts.

Congenital Syphilis:—The parental history, the presence of other stigmata, and particularly the evidence of bone-destruction in the nose, differentiate syphilis from simple sinus suppuration. The Kahn and Wassermann reactions confirm the diagnosis.

Treatment.—1. *General treatment* is of the utmost importance. Fresh air, good food and adequate exercise serve to increase the resistance to infection, and are especially useful in nasal conditions. P. Watson Williams subscribes to the view, put forward by Paton, that excessive consumption of sweets results in dietetic and vitamin deficiency and thus favours the catarrhal state. Cutting out chocolates may well prove to be the turning point in the course of a chronic nasal sinusitis. Vitamins A and D may be administered with benefit, irrespective of whether their deficiency in the diet, is suspected or not. The only drug that I prescribe for internal use is Crookes 'Collosol Manganese Oral,' which, in my opinion, is almost a specific for paranasal sinus infections which do not demand surgical procedures. Children should be prevented from coming into close contact with adults suffering from nasal sinusitis; I have observed more than once that two or more children have developed sinus infection soon after the mother suffered from an acute maxillary sinusitis.

2. *Local*.—(*a*) Medical—In the vast majority of cases, instillation of suitable drops for an adequate length of time, combined with general treatment, suffices to bring about permanent cure. I wish to put in a plea for the rational choice of drugs to be prescribed for nasal instillations, and the giving of detailed instructions to the patients with regard to their use. Most of the proprietary preparations contain too much of Menthol which, though it may be gratifying during a casual acute rhinitis, is unsuitable when prolonged nasal therapy is indicated as in sinusitis, and especially so in children. The ideal "nose drops", to my mind, should consist of a half to one per cent solution of Ephedrine in aqueous normal Glucose solution, along with vitamin D. This can be easily and cheaply prepared, and should be used three or four times a day for about a month in the average type of case. Glucofedrin (Parke Davis & Co.) is an elegant preparation fulfilling most of the above requirements. Regularity, and adequately prolonged use of nasal instillations are, however, as important as the actual preparation that is employed. Argyrol (10 to 20% solution) is very good, but is apt to be messy and is not much liked by children.

(*b*) Surgical:—This aspect of treatment has been dealt with by the previous speaker. I would only add that antrum puncture and lavage may be necessary in a certain number of cases, in children, and is not particularly more difficult or dangerous than when carried out on adults, provided the usual precautions and correct technique are adhered to. Radical operative procedures are rarely, if ever, indicated.

Rare Case of Lipoma of Tongue—*By Appu Mudaliar.*

No. I. Shows the anterior part of the tongue with the tumour outside the mouth and left lingual artery operated and tied in the left digastric triangle.

II

No. II. Shows the right lingual artery tied and the tumour removed and the line of incision on the right side well in view. On closer examination left side line of incision is also seen.

III

No. III. Shows tongue after resection of anterior half with the tumour—with its maximum protrusion.

CASES AND COMMENTS

A Rare Case of Lipoma of Tongue

BY

K. S. Appu Mudaliar, M.B., B.S.,

Civil Asst. Surgeon, Chidambaram.

ANNAMMAL, aged about 30 years — female—an inhabitant of Valasipet—was admitted into Government Hospital, Chidambaram, on 16-8-1939, for a swelling of the anterior portion of the tongue and inability to close the mouth.

Local Examination.—The tumour was globular in shape, occupying the anterior half of the tongue—uniform in size with a soft fluctuant feel—tumour is said to have grown to the present size of an orange in the last 2 years. There were a few ramifications of blood vessels over the swelling—more marked on the sides of the tumour.

Movements of the tongue were not impaired, tongue with tumour could be protruded in and out, and movement of tongue from side to side was not lost. There was no salivation—no pain, no glands in the neck. Feel of the tumour was more like that of a cyst.

Diagnosis.—Either a cyst or a simple tumour of tongue.

Cysts.—One of the three varieties. 1. Sequestrum dermoid. 2. Tubulo-dermoid. 3. Parasitic cyst.

1. *Sequestrum Dermoid* :—Common in the anterior part of the tongue and generally between two Hyo-glossus muscles.

2. *Tubulo-Dermoid*:—Generally, in the posterior part of the tongue near foramen cæcum and due to retention cyst from thyro-glossal duct.

3. *Parasitic Cyst* :— Tinea echinococcus cyst.

Simple tumours :—Simple tumours are rare in the tongue—Lipoma — Fibroma — Chondroma — Localised Lymphangioma—Myoma and Neuro-Fibroma, have been described.

Diagnosis rested between cyst, sequestrum dermoid and echinococcus and lipoma.

Operative Treatment :—Left lingual artery was dissected and tied in the left digastric triangle under Hyo-glossus muscles on 23rd August, 1939.

After a period of 8 days, when the sutures were taken off—patient was anæsthetised with C_2 E_3 and right lingual artery was tied in the right digastric triangle and the incision closed and the mouth was well opened with gags and by dragging on the tongue—with the help of deep silk suture—anterior half of the tongue with the tumour was removed by a V-shaped incision and the edges of V were united by deep cat-gut sutures.

The woman made an uneventful recovery and was discharged on 19-9-1939. At the time of discharge, movements of the tongue were almost normal. She could articulate but the speech was not very clear. She could protrude the tongue—the apex touching the internal surface of the lower incissor tooth.

Pathological report from the Pathologist, Medical College, Madras—LIPOMA.

Case is reported because of its rarity.

A Case of Torticollis

BY

D. Das, L.M.F.,

Formerly, Senior House Physician, Chittaranjan Hospital, Calcutta.

Janipur P. O., Nadia, Bengal.

TORTICOLLIS or wryneck is stiffness of the neck, with the head drawn down, chin towards one shoulder and occiput to the other. Sternomastoid is usually contracted but other muscles, *e.g.*, trapezius and deep cervical muscles may take a share in the chronic and spasmodic varieties. It can be classified on its etiological basis as follows :—

I. *Congenital.*—Chronic, usually arising due to malpresentation in uterus, or injury to sternomastoid during birth.

II. *Acquired.*—

(1) Acute or Rheumatic.

(2) Functional—Hysterical or Spasmodic.

(3) Organic.

(*a*) *Superficial*—due to :—

(i) Enlarged inflamed glands beneath the sternomastoid.

(ii) Cervical cellulitis.

(*b*) *Deep*—due to :—

(i) Cervical caries.

(ii) Retropharyngeal abscess.

(iii) Rheumatic spondilytis.

(iv) Syphilis of cervical spine (Jubby).

(v) Osteochondritis juvenilis of cervical spine.

In private practice, torticollis is a common occurrence to deal with, specially during the winter season. In the moffussil the attending physician usually forgets to investigate the case thoroughly and hurries on to diagnose almost every case as rheumatic. It is really very difficult to investigate such a case properly in country places, where radiology is not available at present. Still I like to draw the attention of my readers, to the fact that if he remembers the possibility of so many deep cervical lesions that may be responsible for wryneck, he will surely take such a case very seriously, and if required, he shall transfer the case to a radiological department for confirmation of his probable diagnosis.

Now, I wish to narrate a case of torticollis, which had as its etiology a rare condition of the cervical spine, namely, 'osteochondritis juvenilis'. This disease is very rare and so little is written about it in text books. Its etiology, at present, is still a matter of dispute. But fortunately, prognosis is not so serious, as in cervical caries.

My patient was a Hindu girl of 7 years.

Precious History :—She had previously suffered from occasional attacks of malaria : No history of rheumatism nor of congenital syphilis could be elicited. She had had no exposure to cold or drought before the onset of torticollis.

Onset:—On the 11th of June, 1934, she was suddenly attacked with severe acute pain, in the left side of the neck : all on a sudden, the neck became very stiff and tender. Her head was bent to the left and her chin was turned to the right and was elevated. Her tongue was protruded and saliva was trickling down. She became quite helpless with severe neuralgic pain. She could not move her neck or head, because of severe stiffness and tenderness. She refused to take any food or drink and was compelled to take to her bed. From the 12th June, her temperature used to run above normal—between 99°F. to 100°F.

Local physicians examined the case and told her relatives that it was simply of rheumatic origin. They prescribed for her Iodides and Salicylates by mouth, and local massage with Iodex

cum Methyl Salicylas. But no improvement was seen. I was called in to seen her on the 26th June. I took the history carefully and on local examination, I found that the other cervical muscles, besides sternomastoid, especially the trapezius, had become somewhat tender and stiff. No tenderness could I elicit by downward pressure on the head. But she felt pain on pressure over the 3rd and 4th cervical spinous processes. Superficial cervical glands along the side of the starnomastoid, as well as the submaxillary glands were enlarged and tender. I came to the conclusion that some inflammatory condition was buried under those stiff muscles.

I prescribed Antiphlogistin for local application and Calcium Lactas grs. v—B.D. and Iodides with Sodii Salicylas (nat.) per mouth. She was given a Saline purge on every alternate day. On the 4th of July, I found that she was improving. Whether it was due to sub-acuteness of the disease or not, I cannot say, but I found that her tongue was back in the normal position, saliva ceased to wet her clothes and the temperature became normal. Acuteness of that neuralgic pain had decreased to some extent and she could, with some difficulty, take her food also.

Keeping in mind the possibility of a deep-seated lesion, I insisted that the patient should be taken to Calcutta for a radiological examination. At the Chittaranjan Hospital, Calcutta, a skiagram of the affected region was taken. This showed a very rare and curious change. The bodies of the 3rd, 4th and 5th cervical vertebræ with their intervertebral discs, were found to undergo an inflammatory as well as a destructive change at the expense of their anterior surface. Inflammatory process was more marked than the destructive changes. This was diagnosed by the radiologist as a case of "osteochondritis juvenilis ". This rare disease, unlike cervical caries, usually affects the spinal column, below the 2nd cervical, while the first two cervical vertebræ are the usual sites for tubercular caries. Sudden onset was a characteristic feature of this disease, and helped the differential diagnosis from caries, in which the onset is usually insidious.

As to its radiological changes, infiammatory process was more marked than associated destructive changes but in caries, caseous destructive change is the prominent pathological feature. Syphilitic spondilytis and syphilitic osteochondritis were excluded by negative Wassermann Reaction.

Treatment consisted of :—(1) Local :—Rest to the part. (2) General :—To maintain Calcium and Parathyroid Metabolism.

1. Proper rest was given to the part by means of a poroplastic jacket, which extended from above the occipital protuberance to below the iliac crests. It was possible to keep the head in proper position, by means of straps attached to the upper end of the jacket.

General treatment consisted of a liberal supply of fresh milk and eggs with vitamin D preparations as *Ostelin* (Glaxo) in addition to her usual diet.

Recent work of Dr. Donald Hunter and Prof. Mellenby about impaired calcification, as an etiology to many bone diseases was seriously considered in this particular case. Willcox is of opinion, that impairment of parathyroid function and vitamin deficiency are important factors in the causation of osteitis deformans and allied conditions. So, Calcium parathyroid tablet (B. W. Co.) was prescribed, to be taken, one tablet twice daily. Impairment of parathyroid gland, whether towards deficiency or excess is not yet clearly understood as a causation of bone diseases.

One school is of opinion that hypofunction of parathyroid is responsible for bone diseases, while Collip and his collaborators were able to show that administration of excess of Parathormone caused loss of calcium from the skeleton. So, as suggested by my Professor, Col. K. K. Chatterjee, F.R.C.S., my patient was given dried spleen extract in order to maintain the equilibrium.

My patient was under this treatment for nearly six months. Then another X-ray plate was taken. I noticed that the inflammatory process had subsided by this time and that the destructive changes had been replaced by new osseous tissue. That there was no ankylosis, was proved by her ability to move her neck freely all directions as we normally can do. Within these six months, she was free from all subjective symptoms. She was then allowed to move about, without the poroplastic and advised not to put any strain on her neck.

She has been enjoying good health for nearly 4 years now.

I offer my sincere thanks to my learned professors, who took much trouble in regard to this case and taught me a goodldeal on this new subject.

An Interesting Case

BY

Dr. H. C. Sheth, M.B., B.S.,
Dohad, (Panchmahals).

A Mahomedan child, twelve months old, was brought to me on 19th Oct. 39, for fever, vomiting, and diarrhœa. The diarrhœa and vomiting stopped with the usual Bismuth mixture but the mother of the child complained that the child was very restless throughout the night and was frequently pulling the right ear. The ear was cleaned with H. O. and Glycerine Carbolic drops were ordered.

On 21st Oct., the mother went out of station with the child and I was informed the next day that the pain in the ear of the child increased so much so that the child would not stop crying even for a moment. Fomentations on the ear gave no relief. But the next day, in the morning, something whitish was seen in the affected ear. On pulling it out, it was found to be a *Round-Worm* measuring about four inches in length which was sent to me the same day.

The child was given Santonine powder and it passed three round-worms per rectum.

The interest in the case is due to the unusual exit of the worm from the ear which is rare.

The Antiseptic

Estd. 1904.

A Monthly Journal of Medicine and Surgery.

Editors: Dr. U. RAMA RAU, M.L.C., & 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.

Vol. 36. DECEMBER, 1939. No. 12.

EDITORIAL

Vitamin K

The presence of this vitamin was first postulated by Dam of Copenhagen about nine years ago. He observed, while studying lipoid metabolism on newly-hatched chicks fed on a fat-free diet, petechial hæmorrhages under the skin, mucous membranes and in other situations of the chicks' body. Further studies on this aspect of hæmorrhage revealed that a new fat-soluble factor was necessary to prevent such hæmorrhagic tendencies. This factor was named vitamin "K", from the German word "koagulation". Subsequently, Dam, Henrick, Schonheyder and Almquist, showed:

(1) that this vitamin K is present in certain green vegetables, such as alfalfa, spinach etc.;

(2) that it can be produced by bacterial action on the intestinal contents of mammals. Since the absorption can take place from the lower limits of intestines, the deficiency of this vitamin is rarely seen, unless there is evidence of faulty intestinal absorption;

(3) that it is possible to isolate this factor after a tedious chemical process in an oily form; and

(4) that chicks fed on diet—free of vitamin K, exhibited low prothrombin level which favours bleeding.

Vitamin K has been described as a fat-soluble substance, whose absence in or withdrawal from food results in abnormal

bleeding in experimental animals. Its exact chemical composition is yet unknown, but chemically active vitamin K has been obtained from putrefied fish meal and alfalfa meal. A pigment from human tubercle bacilli was isolated in 1933. (Anderson and Newman) and its chemical constitution was arrived at as 2-Methyl-3-Hydroxyl-1, 4-Naphthoquinone. Synthetic preparation of this quinone possesses anti-hæmorrhagic activity, similar to vitamin K, (Almquist and Klose). The general opinion at the present day would seem to be that vitamin K contains a quinone structure. Ansbacher and Ferrholz find 2-Methyl-1, 4 Naphthoquinone is as active as vitamin K. More recently, Mac Corquodale, Binkley—Thayer and Doisy find the structure of vitamin K molecule is 2 ethyl—3 phytyl—1. 4 naphthoquinone.

The precise site of absorption of this vitamin in the intestinal tract has not yet been known and is still under investigation. However, it may be said at the present time, that it is taken up rapidly from the jejunum while its absorption is practically nil from the stomach and colon.

Much clinical studies have been done both in the United States and in the Continent, in Copenhagen, by Dam and his coworkers since its isolation. It is now definitely known that man gets his share of vitamin K from his diet and from the bacterial activity in the intestines, and deficiency has been noticed, as previously stated, when its absorption is impeded. Absence of bile in the intestines produces faulty absorption of intestinal contents, specially the fats. Vitamin K is a fat-soluble factor, and any interference with absorption of fat produces deficiency of vitamin K. Experiments conducted to determine the effect of vitamin K and bile salts on hæmorrhagic diathesis of patients show that either bile or vitamin K alone has no action on the hæmorrhagic tendency, while vitamin K and bile salts produce immediate good results. Thus, bile and bile salts are necessary for proper absorption of vitamin K and therefore in obstructive jaundice and in cases of biliary fistula,there is a marked reduction or no absorption of vitamin K.

Recent researches have shown beyond doubt that the liver is to a great extent responsible for the production of prothrombin. In cases of gross destruction of liver cells due to disease or toxæmias, the level of prothrombin is diminished, and administration of vitamin K in such cases has no effect.

In cases of cirrhosis of the liver or in severe hepatitis, vitamin K has no action, as the site of production of prothrombin itself viz., the liver, is badly damaged. Thus, the integrity of

the liver cells is an important factor in the utilisation of vitamin K.

The use of vitamin K in Hæmophilia, thrombocystic purpura is not attended with any success.

Although low prothrombin level has not so far been demonstrated in patients with diseases of intestinal tract, yet cases are on record which showed definite vitamin K deficiency, resulting from inadequate intake of food, abnormal or insufficient intestinal absorptive surface or both.

As regards its therapeutic efficiency, it has been proved of value in the treatment of hæmorrhagic diathesis of jaundice. The exact dose of vitamin K to be administered is still undetermined. So far, workers in different clinics. with different preparations have been using varying amounts of vitamin K, having for their guidance the rate of increase of prothrombin level in the blood plasma. The rate of increase of prothrombin plasma level with the administration of vitamin K, varies in different cases. The rise may be appreciated within 2 hours after administration and the maximum response is obtained from 3 days to a week. The level of plasma prothrombin level must be the guiding factor, especially in post-operative treatment of gall-bladder diseases.

R. Hugh, Butt, Albert Snell and E. Osterberg of Rochester, have conducted experiments to determine the reliability of vitamin K concentrates in the control of bleeding of jaundice patients and also to establish standardised methods of the preoperative and post-operative treatment of such cases.

It has been observed all over the world that the mortality in surgical treatment of jaundiced patients has been high due to post-operative hæmorrhage. Such hæmorrhages are not the result of any lack of calcium, bilurubin, platelets, fibrinogen or thromboplastin, but it is due to want of one substance namely prothrombin. For proper balance of this substance in blood, vitamin K, a fat-soluble factor. is necessary, which is utilised by the liver towards the normal maintenance of plasma prothrombin level.

The exact composition of this substance has not yet been known. However. it may be defined as a physiological complex (Patek and Taylor). capable of forming thrombin necessary for coagulation of blood. Until vitamin K is isolated in a pure form, it is not possible to explain with any precision how vitamin K influences prothrombin.

The deficiency of this vitamin can be determined in cases of obstructive jaundice and biliary fistulæ and the best means of

identifying these is by two stage technique of titration of prothrombin as used by Warner, Brinkhous and Smith, which gives the exact measure of the deficiency. S. E. Ziffres, C. A. Wen, Haffmann and A. B. Smith, have developed a simpler technique, similar in principle to Quick Test, which can be mastered easily and done at the bed-side. For a detailed description of this method, we refer our readers to page 381, Volume 113—No. 5—July '39, of our distinquished contemporary, *The Journal of the American Medical Association.*

The data obtained in this test are :—

(1) clotting time of normal control.

(2) clotting time of patient's blood and the clotting activity in percentage is calculated as represented by the formula :— $\frac{\text{Clotting time of normal control}}{\text{Clotting time of patient's blood}} \times 100$

These authors give values of 40 per cent or less as detected from the test as the usual limit of hæmorrhage in obstructive jaundice and biliary fistulæ. Values from 40—70% are definitely in the danger zone. It must be understood that this test measures a summation of the amount of prothrombin and of its "convertibility".

Hugh R. Butt, Albert M. Snell and Arnold E. Obsterberg (*J.A.M.A.*, July 1939), for purposes of routine pre-operative treatment, divide their cases into three main groups :

(1) Those who have a normal prothrombin time,

(2) Those who have a prolonged prothrombin clotting time without active bleeding, and

(3) Those who have a prolonged prothrombin clotting time with active bleeding ;

These authors have employed the quantitative method of study of blood clotting of Warner and his associates. Prothrombin time or "Prothrombin clotting time" refers to the clotting time of recalcified plasma to which optimal amounts of thromboplastin have been added as determined by the method of Quick. The normal time varies between eighteen and twenty-four seconds.

Patients falling under No. 1, were administered prophylactic treatment from two to five days before operation. Those patients having jaundice with an elevated prothrombin time, form a majority of real emergency cases. Patients with prothrombin time of 30 to 45 seconds usually respond well to prophylactic

treatment. If the prothrombin time is longer than 45 to 50 seconds, it is advisable to administer vitamin concentrates with bile salts through duodenal tube. In such cases, 2 to 4 gm. of a water-soluble bile salt is dissolved in 250 to 500 c.c. of warm physiologic solution of Sodium Chloride and to this is added from 1 to 2 gm. of the concentrate of alfalfa containing vitamin K. This mixture is slowly administered in 30 to 60 minutes by the drip method, care being taken to keep the solution warm and well mixed. One such dose, as a rule, will bring the prothrombin clotting time to a normal value. This process may be repeated if necessary.

The problem of bleeding patients is difficult. In these cases, clots must be removed by lavage before adequate absorption of the vitamin can occur, and not infrequently gastric lavage and irrigation of drainage tubes leading from the biliary tract are required. Transfusion of blood may be necessary in a few cases to combat the shock produced by hæmorrhage and to provide a temporary supply of prothrombin.

Clinical tests and experiments have so far proved that with the administration of vitamin K and bile salts as a pre-operative measure in jaundiced surgical cases, bleeding is adequately controlled. It must not however be understood that vitamin K and bile salts are effective in all cases and the one factor which is essential for its sure action is the condition of the liver cells. If the damage to the liver cells are great, little can be achieved by giving vitamin K. Therefore, it is necessary that all other measures and methods must be employed towards restoration of normal hepatic functions, side by side with vitamin K.

We have attempted, in these few pages, a short resume of the present knowledge of vitamin K factor and its usefulness in the surgical treatment of jaundiced cases. Studies are still being carried on with this substance towards obtaining it in a pure form and much of what has so far been done on the therapeutic side will,of necessity,be changed and put on a more precise nature as to its exact action on the liver cells in activating prothrombin.

GLEANINGS FROM MEDICAL PRESS

Medicine and Therapeutics

Bronchiectasis, by Morris Tannenbaum. Diseases of the Chest, 5 : No. 6 (June) 1939.

Bronchiectasis is a condition of bronchial dilatation. Its cause is infection, which may be due to streptococci, micrococci, pneumococci and the influenza bacillus alone or in combination.

The disease may be congenital or acquired. There are two forms; saccular (resembling grapes) or cylindrical (sausage-shaped), which may appear at times as fusiform, with tapering ends (pencil-shaped). One type alone can be present or a combination of both. The site is usually in the lower lobes, but may occasionally be in the upper lobes. The cylindrical variety has thickening of the bronchial walls and the saccular variety a thinning and ulceration of the walls. Hemoptysis is more frequent in the saccular variety. Bronchiectatic bleeding is very common and varies from the slightest streaking to profuse hemoptysis. Death from this does occur, but is quite unusual.

There are also two clinical types; the wet type, which is manifested by copious sputum and clubbed fingers, and the dry type, which is the one that is masked. If drainage is free, the odor may not be objectionable, but if drainage is obstructed, then putrefaction takes place and the odor is foul. The physical signs in these cases will show variations in breath sounds with numerous coarse rales. Peribronchiectatic pneumonitis may present itself as an acute bronchopneumonia.

The dry type can be diagnosed by a lipiodol bronchogram, because physical signs are negative. The x-ray may show only a marked increase in root shadows. However, all patients whose chest x-rays show clouding of either cardio-diaphragmatic angles or haziness along the border of the heart should have a lipiodol bronchogram.

A very large percentage of patients with bronchiectasis have also sinusitis.

The treatment is not limited to one method alone but requires several procedures. The most important medical treatment is postural drainage. The patient must be told to drain himself several times daily for fifteen or twenty minutes.

Garlic by mouth and inhalation of compounds of creosote and benzoin have been used without satisfactory results. Neo-salvarsan intravenously may be used as an adjuvant early.

Bronchoscopy should be performed for diagnosis and treatment. Diagnostically, one may find evidence of stenosis or impacted foreign body. Removal of the obstruction or dilating the stenosis will help in overcoming the condition. Aspiration of pus from the diseased bronchi by bronchoscope will give more relief than all medical procedures.

Autogenous vaccine therapy is helpful and should be used. —M. Q.—*Journal P. I. M. A.*, August 1939.

When should the Blood Calcium be Determined —Prof. *F. Holz* (Berlin) states that calcium metabolism is regulated primarily by the suprarenal glands. The serum calcium is normally 9.5 to 11 mgm. percent. At the beginning of ostitis fibrosa generalisata (Recklinghausen) one finds hypercalcæmia, rheumatic symptoms, ingestion of large quantities of fluid, nephrolithic colics, later emaciation and anæmia. Hypocalcæmia may lower the capacity to work, may cause severe psychic changes, up to schizophrenic symptoms, at the beginning sometimes considered to be neurasthenia, hysteria, cardiac neurosis; paræsthesia and vasomotor disorders (necrosis of the fingers, migraine, vasomotor angina pectoris, etc.,); spasms; stiff extremities, rigidity of the region about the mouth up to tetanic spasms, epileptic fits and absences; œdema of the face and neck; bronchial asthma, spastic constipation alternating with profuse diarrhœa; certain types of chronic eczema and psoriasis, impetigo herpetiformis; characteristic opacities of the lense, which can be recognized with a slit-lamp.

If the hypercalcæmia persists, it may become necessary to remove an existing parathyroid adenoma, when it is not a case of Paget's disease or sarcoma of the bones. Hypocalcæmia may be combated with A. T. 10 (beware of overdosaging !) while controlling the serum calcium. (Munch. Med. Wschr., No. 13, 1939.)—*Ars Medici.*

Sciatica and its Treatment, by W. Harris. British Medical Journal, 2 : 1245 (December) 1938.

According to the above author the treatment of an acute severe sciatica should be complete rest in bed, with local anodyne liniments and cataplasma kaolini, and sometimes local heat by infra-red rays. Analgesic drugs must be given, such as aspirin, phenacetin, and caffeine tablets, with or without codeine or opium, and even morphine or heroin injections may be required

for a few days. Sleep may be obtained by the use of 7.5 grains of medinal with two vegenin tablets. Massage must never be used in the acute stage. Later in the more chronic state massage may help, and galvanism, diathermy, or local heat should be tried. If these fail, massive injection of the nerve or epidural injection of novocaine and saline, and extension by weights attached to anklets, with counter-extension at the axilla, should be tried. If these give only temporary relief, it may be advisable to fix a plaster from the axillæ to the trochanters so that the patient may be able to get about and attend to a certain amount of business.—I. C.—*Jour. P. I. M. A.*, Aug. 1939.

The Distinction Between Colitis Tuberculosa and Colitis Gravis (Ulcerosa).—*Colitis Tuberculosa* :—Here the ileum is involved at the same time, and the colitis is almost always secondary especially to pulmonary tuberculosis. Almost every colitis complicating acute or chronic pulmonary tuberculosis is tuberculous. The discovery of tubercle bacilli in the stool is confirmatory. Microscopically blood is almost never noticed, mucus or pus very seldom. The chief seat of the disease is the cæcum and ascending colon. X-ray examination is essential. The changes in the cæcum are : swelling, ulceration, thickening of the wall, stenosis.

Colitis Gravis :—Blood mucus and pus noticed in the stool. The whole colon is involved, especially the distal segments.

Colitis Polyposa (affecting the whole colon) is very rare in association with tubercle, while colitis gravis confined to the proximal portion of the colon is also rare.

Rectal Tuberculosis :—Undermined ulceration, stools mixed with blood and mucus, often in association with periproctitic abscesses, rectal and anal fistulæ, these are the signs of rectal tuberculosis and in this region primary tuberculosis is more frequent.—*Medical World.*

Total Alopecia in a Child.—Total alopecia in a child of five years of age developed six weeks after whooping cough and pneumonia. It is suggested that this malady accompanied by high temperatures, had provoked a toxic destruction of the hair papillæ resulting in total alopecia. This condition is to be distinguished from the milder forms of hair shedding which is so frequent and in which the hair grows again when the health is restored. Total alopecia in children is relatively rare, the causes

are not known, and the prognosis is uncertain. Disturbance of the working of the endocrine glands and of the vegetative nervous system are brought forward to explain this condition.

Artificial sunlight, boundary (Grenz) rays and X-rays are used in the treatment, as well as the judicious administration of endocrine preparations (Unden,Prolan,Thyroid).—*Medical World.*

The Syndrome of the Tensor Fasciæ Femoris.—This syndrome has been frequently observed in sportsmen by Leriche and Jung. A sudden rotatory movement of the body causes violent pain in the lower half of the vertebral column, in the glutæal region and the lateral surface of the upper half of the thigh. The pain is especially unilateral and does not become more intense on palpation, but it does on the slightest movement of the pelvis. The patient can only lie horizontally, sitting is impossible, every attempt at moving sideways is especially painful. Massage increases the pain, X-rays and short waves are of no use. The pain does not radiate along the pelvic girdle. The condition is due to a lesion of the tensor fasciæ femoris muscle, which, like the fascia itself, is hardened and contracted. Perhaps the glutæus maximus muscle is also affected in its anterior fibres. An injection of Novocain into the region of the fourth lumbar vertebra is without any effect. But if the Novocain is injected along the pelvic attachment of the tensor fasciæ femoris, *i.e.*, along the middle third of the iliac crest, the pain is relieved at once and soon disappears. Thus the malady is cured in three to four days, whereas it otherwise lasts weeks or months. Novocain injections into the thigh, at the place where the pain is most intense, do not help to any appreciable extent.—*Prog. med., VII, 1938.—Medical World.*

The Treatment of Painful Scars After Operations and Accidents.—The possible defects of a scar such as unsightliness, cheloid, hardness and pain have to be borne in mind, yet even with the most careful operative technique they cannot with certainty be prevented. Little is known concerning the causes of painful scars.

Contractiou of the scar tissue and defective blood supply are generally offered in explanation. After accidents painful scars may cause the patient to feel ill and unable to work.

Warmth, massage, baths, etc., often have no result.

The patient after operation may return to the surgeon suspecting that a nerve has been "sitched in" or a protrusion

(hernia) is appearing, or it may be suggested that a portion of omentum has been included in the scar.

The pains are rapidly dispelled by an injection of Novocaine. Too little use is made of this remedy which is of service both for painful scars following injury and those following an operation. The way in which Novocaine acts is still unknown,but it not only dispels the pain but also prevents its recurrence. The striking improvement in the local circulation that follows on infiltration with Novocaine rather suggests that the effect on the blood vessels is such that the pain is cured. In any event this simple procedure is worthy of a more extended trial in the treatment of painful scars.—*Medical World.*

Aloe Leaves for X-ray Ulcers.—Leaves of aloe vera are being used successfully in America in the local treatment of chronic ulcers. A. Loveman (Louisville) reports on several cases of X-ray ulcer which defied other methods. It acts better than a salve prepared from the constituents of the leaves. First the pains diminish and after a few weeks the ulcers heal.—*Arch. of Derm. and Syph., Vol. 36, No. 4, 1938.*—*Medical World.*

Medicinal Treatment of Ulcus Ventriculi and Duodeni.—Upon every attack of pain, rest in bed and hot compresses in the region of the stomach are to be prescribed. As nourishment, one litre of milk per day should be given. This amount should be divided into 6 equal parts and to each part, a teaspoonful of lime-water added. After the 3rd and 6th cup of milk, 1 teaspoonful of R. Atropini Sulfur. 0.005 gm., Aqu. dest. 100.0 is given. In the morning on an empty stomach, 10 gm. Bismuthum Subnitricum in a small glass of hot, sugared water is to be taken. In the treatment of the poor, the expensive Bismuthum Subnitricum is partly substituted by the less efficacious Kaolin: R. Kaolin 8.5 gm., Magnes. ust. 0.5 gm., Bismuthi Subnitr. 10 gm. Tales doses No. X. Furthermore, *R. Graulich* (Le Scalpel IX, 1938) recommends oil-and-egg-white cure, which is so greatly estimated in Germany; one beats the white of one egg into a froth and then adds a soupspoonful of Olive oil to it. From this mixture, the patient receives 1 spoonful before the noon and evening meals. One continues this treatment for about 5 days and prescribes for the next 5 days: pulverized Gelose (agar-agar) 1 gm., pulverized Gelatin 0.5 gm. Signa: cook in a half glass of water for 5 minutes over a small flame. Allow to settle sugar and drink while still

warm. If the pain continues, one must resort to Sodium Bicarbonicum and Dionin: R. Sod. Bicarbon. 1 gm., Cretæ præparat. 0.5 gm.,Dionini 0.02 gm. Tales doses No. X, Signa: during attacks of pain take 1 powder. The Sodium Bicarbonate allays the pain temporarily but induces a further secretion of gastric juice.

For injections, Pepsin and Histidine have proven of value. Pepsin is used in a 10 per cent solution with an addition of Sod. Benzoicum. Two i. m. injections per week are given, the first containing 1 c.c., the following 2 c.c. After 14 days, a pause of 3 weeks duration is prescribed. Histidine (Laristine and Larostidine) is injected daily, one ampule of 5 c.c. intraglutæally. The course of treatment includes 20 injections.

When the pains have disappeared, 3 sugared portions of milk-pap are given daily, in addition to the milk. Later on, potato puree with fresh butter can be given and then, scrambled eggs, spaghetti and sugared white cheeses. At the end of a month, cooked fish, lean ham and tender fowl may be given. Water is to be taken with every meal. At breakfast time and at 4 o'clock in the afternoon a glass of milk with a teaspoonful of lime-water is given. Every newly added dish is given but once and then suspended in order to test its digestibility. Only then is it again permitted. In general, no meat (except ham and chicken) can be taken for 8—9 months. After approximately 10 days, the patient may get up and gradually begin to work. However, physical strain is to be avoided for it can lead to a relapse. It is advisable to continue taking Bismuth or the Kaolin-Bismuth powder on an empty stomach for some months. (Journ. d. prat. No. 8, 1939; author not named.)—*Ars Medici.*

Surgery

Treatment of Furuncles of the Face.—*E. von Novak* (First Surg. Clin., Univ. of Budapest) sent a questionaire on the subject of treatment of facial furuncle to 68 Hungarian and 90 foreign surgical institutions. Of the 158 institutions, 52 advised operative and 106 conservative therapy. 13 of the 90 foreign clinics were for operative treatment, the rest for conservative; of the remaining 77, 44 are absolutely conservative under any circumstances. The conservative method thus seems to deserve preference, but operative treatment, however, may be very effective. About half the famous surgeons do decide on radical interference in progressive, severe cases. Cases that seem hopeless can at times be saved. It is important for every practitioner

to refer every *not quite mild* case of facial furuncle to a specialist. Conservative treatment in moderate and severe cases, especially incising a facial furuncle, should also be performed by a specialist. On the basis of the questionaire and personal experience the writer advises the following procedure: afebrile or slightly febrile cases ought to be treated conservatively first. An early incision must not be made. Opening encapsulated abscesses and ligating endangered or affected venous trunks also belong in the category of conservative therapy. Rest in bed, no talking and no chewing are essential conditions of such treatment. It cannot be denied that heat is efficacious; hot poultices are preferred, according to the almost unanimous opinion. Correctly administered X-ray radiation has excellent effects. Injection of autoblood and Bier's hyperæmia are rarely used. A definite conclusion as to the value of short waves is not yet possible. Insulin treatment is called for and is often successful. Severe types of facial furuncle which do not respond to conservative treatment or show irresistable progress despite conservative procedures, should be operated upon as radically as possible. In such cases electric cautery offers great advantages. Also the after-treatment, conducted according to the rigorous conservative principles, is important. Primary malignant facial furuncle is universally considered to be quite rare. As a rule malignant furuncle is due to mechanical injuries, particularly to neglect on the part of the patient, but unfortunately at times it is the result of improper management as well (small incisions, suction treatment). (Ergebn. d. Chir., 31, p. 83.)—*Ars Medici.*

Control of Bleeding Tendency in Jaundice.—During the last two years Smith and his colleagues observed about sixty cases of biliary tract disease, in most of which jaundice, together with a varying degree of prothrombin deficiency, was present. A number of these cases have been reported, and from the unreported group they cite four cases that illustrate a number of the problems which commonly arise. Evidence is reviewed to show that of patients with obstructive jaundice or biliary fistulas the bleeding tendency, so commonly observed, is due to faulty absorption of a fat-soluble vitamin, vitamin K. By suitable administration of this vitamin the bleeding tendency can be corrected, eliminating one cause of the high mortality in the surgical treatment of these patients. In order to determine the degree of vitamin K deficiency and to gauge the dosage of vitamin to be administered it is necessary to know the plasma prothrombin level, for the determination of which the authors describe a simple bedside test. Purified preparations of vitamin K may be safely administered intravenously in cases in which nausea and vomiting preclude oral administration. The test to determine the plasma prothrombin level is carried out in a small serologic test tube of approximately 3 c.c. capacity (75 by 10 mm.). Into the tube is placed 0.1 c.c. of fluid extract of thromboplastin. The tube is then filled up to the 1 c.c. mark with freshly drawn blood. To obtain prompt mixing of the blood and thromboplastin the tube is inverted once over the finger and is then tilted gently every second or two in order that the beginning of clotting may be observed. In the case of normal blood, clotting occurs within twenty-five to thirty seconds; but if the prothrombin level is low, the clotting time may be prolonged to several times this figure. By using normal blood as a standard control the patient's prothrombin activity may be expressed in terms of the normal standard. The following formula will be found suitable: Prothrombin activity (in percentage of normal) equals the clotting time of normal blood divided by the clotting time of the patient's blood multiplied by 100. The only technical feature in the entire procedure is the preparation of the thromboplastin solution. Fresh lung tissue (ox or rabbit) is cut into fine pieces and to each 10 gm. of tissue 10 c.c. of physiologic solution of Sodium Chloride is added. The mixture is stirred occasionally for the next two hours, after which it is strained through several layers of gauze. The pinkish opalescent fluid thus obtained is the thromboplastin used in the foregoing test. It keeps well for several weeks in the ice box or better still in the frozen state.—*Iowa State Medical Society Journal, Des Moines* 29: 373-426 (*Aug.*) 1939.—*Jour. A.M.A.*

Infiltration of Lumbar Sympathetic in Postoperative Phlebitis.—According to Demarez the treatment of phlebitis until recently has consisted in complete immobilization, which is prolonged until, all fear of fragmentation of the clot has been completely removed. The estimation of the duration of this immobilization is difficult, but six weeks is usually required. Such prolonged immobilization favours the appearance of grave sequels such as muscular atrophies, articular ankyloses and osseous disturbances. The author shows that great changes have been brought about in the therapy of phlebitis by giving attention to the vasomotor or sympathetic manifestations which accompany the obliteration of the vein. Among the signs which

characterize the neurosympathetic syndrome of phlebitis he mentions (1) irradiation of painful areas elicitable at the plantar point, on pressure of the achilles tendon, at the base of the trigonum femorale and so on ; (2) involvement of the vasomotor regulation, which becomes manifest by the appearance of bluish areas on the limb and by a considerable augmentation of the local temparature ; (3) disturbances in the sudoriparous and the pilomotor reflexes. Moreover, the fact that Aldrich's test is greatly accelerated at the onset of phlebitis, even before œdema is clinically perceptible, is regarded by the author as an additional sign of the neurosympathetic syndrome, for he has been able to show that anæsthetic infiltrations of the lumbar sympathetic produce an acceleration of the resorption time of the wheal. The author says that Leriche arrived at the following conception of the physiopathology of phlebitis : The phlebitic œdema is not due simply to statis but the alterations in the venous walls (inflammation or localized thrombosis) irritate the perivenous sympathetic ramifications, which elicit, by way of reflex action, vasomotor phenomena which result in an arteriolocapillary vasoconstriction. This conception of the role of the sympathetic in the physiopathology of phlebitis leads to therapeutic deductions. The majority of the vasomotor reflexes produced by phlebitis of the inferior member pass through the ganglionsof the lumbar sympathetic chain. Accordingly, the anesthetic blockage effected at this level suppresses the spasmodic accidents. Infiltration of the lumbar sympathetic deserves a trial at the onset of postoperative phlebitis. The author, after pointing out that Leriche and Kunlinum reported their first experiences with this method in 1934, describes his own observations in three cases. Discussing these cases, he stresses that the infiltration must be made at onset of the disorder, when the reflex and spasmodic phenomena predominate over the mechanical consequences of obilteration. If Leriche's method is employed early, it produces excellent results. The pain disappears, temperature decreases, œdema either does not appear or it never attains the importance which it has when the phlebitis is treated with the old method. Moreover, the member does not have to be immobilized ; the patient can get up and walk after from twenty to twenty-four days, which is considerably less than the six weeks required by the procedure of complete immobilization.—*Bulletin de la Soc. de Gynec. et d'Obst., Paris 28: 301-392 (May) 1939. Journal A. M. A. Sept. 2, 1939.*

Physicochemical Syndrome of Dermatitis Herpetiformis.—Turpin and his associates made physicochemical studies on patients with dermatitis herpetiformis (Duhring-Brocq's disease). They report studies on the hemal and phlyctenar proteins, on lipemia and cholesteremia, on the distribution of sodium chloride, and on calcium, magnesium, sodium, potassium and the alkali reserve. They found that the disturbances in the hemal proteins are profound and permanent. The hypoproteinemia is due chiefly to the diminution of the albumin content of the serum. The albumin/globulin quotient is reduced. The eugobulin of the serum is not modified. The fluid of the phlyctenae is rich in protiens. The globulin content is superior to the albumin content. Once the authors found an albumin/globulin quotient of 0.32 and another time of 0.63. The determination of the lipids of the blood revealed normal figures, and cholesteremia was likewise normal. The lipo-albuminous index was normal. The study of the effects of dechloridation and rechloridation revealed that the distribution of the chlorides and their elimination are normal. The plasmatic and urinary chlorine values do not deviate from the physiologic limits. The chlorine of the phlyctenar fluid reflects the variations of the plasmatic chlorine ; but the authors observed that the ingestion of large doses of sodium chloride favours the phlyctenar crops. The mineral equilibrium of the blood is impaired. The calcium content is reduced by diminution of the proteinic calcium. The ionized calcium is normal ; calciuria is not modified. On the other hand, kaliemia is increased and the hemal potassium calcium ratio reaches 4.1 (normal 1.8). This hyperpotassemia, jointly perhaps with the muscular disintegration and the cachexia, is accompanied by hyperpotassuria with diminution in the urinary Sodium/Potassium ratio. The hemal and urinary magnesium and sodium values deviate from the normal. The determination in the serum of the polypeptides, of urea and of the alkali reserve give normal values. The urines contain only indeterminable traces of albumin. In the course of postmortem examination the authors observed deep hepatic changes : hepatomegaly with lesions of fatty degeneration especially in the periportal region. Their results do not permit a capacity of substitution of hypoproteinemia to be attributed to the hemal lipids. They state that the observed plasmatic disturbances favour the development of an œdema, which however does not accumulate in the interstitial spaces because it is drained by the cutaneous ulcerations. In the long run cachexia develops, favoured by the

dehydration and the secondary infection; the muscular fusion is doubtless responsible for the hyperpotassemia and the hyperpotassuria. The authors think that it seems justified to group dermatitis herpetiformis with disorders that are allied to hyperallergy, such as Quincke's disease, asthma, migraine and eczema. This pathogenic conception is most in accord with the facts; the relapsing phlyctenular crops involve considerable protenic spoliation; the organism compensates the losses less well because the liver is greatly altered and not equal to its task; the albumin is replaced less quickly than the globulin, and proteinic disequilibrium is added to hypoproteinemia. The diminution of the calcemia is the result of a decrease in the proteinic calcium and does not involve the ionized, physiologically active fraction; thus the hypocalcemia leads neither to a neuromuscular excitability nor to calciuria. The authors conclude that these different metabolic disturbances deserve to be classed with the symptoms of Duhring-Brocq's disease; they represent a physicochemical syndrome complementary to the clinical signs.—*Presse Medicale, Paris.*—47 : 933-956 (June 14) 1939.—*Jour. A. M. A.*

The Treatment of thrush with Silver Nitrate.—Trousseau was the first to recommend silver nitrate therapy in thrush, and since that date several other authors have advocated the treatment. To be effective, however, it is necessary for the silver nitrate to pass into the œsophagus, and a simple measure for assuring this is recommended by Millet (*Presse medicale*, June 14, 1939, 47, 948). Balls of cotton-wool (three are sufficient) are tied round the middle with a strong thread and then soaked in a 1 per cent. solution of silver nitrate. One ball is given to the patient to suck every four hours, Vichy water being given in the intervals. At the end of twelve hours, *i.e.* after the three silver nitrate balls have been sucked, the thrush has completely disappeared from the tongue, palate, and hypothorax, and the lingual mucous membrane is clean. No difficulty as regards the sucking of the silver nitrate balls is experienced with adults; with children the balls can be sprinkled with a little vanilla-flavoured sugar or honey, and in the case of infants the soaked, flavoured cotton-wool can be placed inside a slit dummy. The method is simple and effective—there is no painting of the throat and thus no desire to vomit on the part of the patient. The ineffectiveness of merely painting the throat is stressed by the author, who states that on laryngoscopical examination of the

throats of adults suffering from thrush it is shown that the glósso-epiglottic groove is involved, and this is doubtless the case with infants, in whom painting with a laryngeal or pharyngeal swab is dangerous on account of the risk of causing a spasm thereby; also the practitioner has not always the necessary instruments at hand, and the adult patient is thankful to have the condition cleared up by a simple and painless process.—*The Practitioner.*

Intravenous Injections of Sodium Biborate in Biliary Colic.—Sodium biborate has been administered orally to relieve irritability of the urinary bladder and it has also been used in epilepsy and in exophthalmic goitre. The effects of its parenteral administration have hitherto been unknown, but recently G. Macchioro (*Minerva Medica*, April 28, 1939, 1, 410) appears to have obtained good results with intravenous injections of Sodium biborate in relieving pains due to pathological conditions of biliary tract. 10 c.cm. of a 5 per cent. aqueous solution of Sodium biborate was given daily intravenously and during the last four years forty-seven patients suffering from chronic cholecystitis were thus treated. In every case the diagnosis was confirmed by cholecystography, the majority showing evidence of biliary calculi. Of the forty-seven patients treated with Sodium biborate pain disappeared completely in twenty-eight cases, and eleven patients showed marked improvement; eight patients did not respond to the treatment. On an average six to eight injections were sufficient to obtain relief. There was an improvement in the general appearance, increase of the appetite and gain in weight. A course of twenty daily injections was usually given and if necessary repeated after an interval. During the treatment the patients were kept on a strict diet and all other drugs were eliminated. The radiological findings after the treatment remained as a rule unaltered. Immediately after the injection a sensation of heat of short duration was felt all over the body similar to that experienced after an intravenous injection of Calcium. No other untoward effects were noted, although in some cases the injections were given for a prolonged period. Great care was taken to avoid extravasation of the solution into the paravenous tissues, as this was followed by intense pain lasting several hours. The action of Sodium biborate appears to be somewhat obscure, but it is likely that the alteration of the pH values of the blood may have a favourable influence on the inflammatory condition of the bile ducts. The results seem to be

encouraging and the injections appear to be indicated in those cases in which for some reason no surgical treatment is undertaken or when pre-operative preparation is advisable.—*The Practitioner.*

The Value of the Congo Red Test in Cancer has been investigated by *W. Schroeder* (General Cancer Inst., Berlin). Since the researches of Aschoff in 1913, we are familiar with the reticuloendothelial system and the role it plays in the resistance of diseases. In seeking for a functional test for this system, the storing up ability of the reticuloendothelial cells was found to be suitable. After the first attempts with a oil emulsion, the intravenous injection of which is not without danger, it was discovered that the intravenous injection of certain dyes, especially Congo red, was practicable. The Congo red injections are also used for the arrest of hæmorrhage and cause thereby no injuries. One removes 10 c.c. of blood from the arm vein and injects intravenously immediately thereafter 10 c.c. of a freshly prepared 1% Congo red solution. This is followed, 4 minutes later, by a further puncture of 5—10 c.c. of arm vein blood. An hour later another puncture of 5—10 c.c. is made. In healthy patients, the dye content of the blood falls about 30—50% within the first hour. However, if the patient is a carrier of a malignant tumour, the storing up ability of the reticuloendothelial system is lowered and, consequently, the disappearance of the dye is greatly decreased. The investigations of the author showed that this method offers unquestionable proof for the connection between the reticuloendothelial system and the carcinoma resistance of the body. The test reacts increasingly positive in accordance with the greater extent of the tumour, its metastases and their accompanying inflammatory processes, and the more the general condition is disturbed. However, as a diagnosticum for the individual case, the Congo red test has as yet no practical value. It cannot tell us any more than what the general impression of the patient, together with the results of the clinical examination, would have already shown. (Klin. Wschr., No. 4, 1939.)—*Ars Medici.*

Treatment of Joint Injuries.—In treating joint injuries, *C. Christ* (Magdeburg-Sudenburg Hospital) writes, it is most important to prevent infection of the joint. The best care of such wounds is obviously total excision, suture and immobilization. But in cases where large defects in the skin, extensive decollement or grave destruction of bones make safe excision impossible,

treatment by Cod liver oil is justified and superior to the common therapy with Rivanol, Phenol-Camphor etc., applied up to now.

Technique. Primary excision of a wound means that the entire wound is radically cut out. Bleeding vessels are grasped with forceps and later closed by torsion; this is followed solely by skin suture. Even if bones have not been injured, immobilization is achieved by means of an uncushioned plaster of Paris cast for about two weeks; active exercises are subsequently started. If there has been an extensive loss of skin or the skin and soft parts are grossly contused, Cod liver oil treatment is indicated. Only easily recognizable parts of dirt are removed; then liquid Cod liver oil is injected subcutaneously all around the wound and into the region of the soft parts. (This procedure was introduced by Prof. Löhr at the writer's clinic and is here published for the first time.) An open joint is filled with liquid Cod liver oil. Wherever possible, a few situation sutures are made. The extremity is put into an uncushioned cast, which is immediately split, and a window is made over the wound. In the course of healing, flushing of the entire wound region usually develops on the third to the sixth day. This should not cause any anxiety and does not require that the dressing be opened. The cast remains until the wound or the fracture heals. After-treatment consists of active exercise and light massage. In cases of chronic osteomyelitis the writer is most radical and chisels out extensively. If a joint is opened up, it is filled with cod liver oil and a closed plaster of Paris cast is applied. Up to 1934 empyema of the joint was treated at the writer's clinic partly by flushing with Rivanol, partly by incision and drainage. Since then treatment exists exclusively of filling the joint with Cod liver oil by introducing it through a sufficiently wide incision and of immobilization in an uncushioned dressing.

The writer reports on 9 cases which were treated by primary wound excision. On completing the therapy 7 of the joints were completely and the remaining 2 almost completely movable. Another group of 9 patients was treated with Cod liver oil. A complete cure with but slightly limited movability was achieved in 8 of the patients; in the 9th case the leg was presumably amputated at another hospital at a later date because fistulization developed. In osteomyelitis operations the knee joint was opened 3 times, the ankle joint twice and the hip joint once. Cod liver oil treatment achieved good results and prevented empyema in all cases. The 15 patients with empyema of the joint that came for treatment, were all infected on arrival at the clinic. Here,

too, Cod liver oil therapy seems to be efficacious, since there is continuous resorption of the Cod liver oil by the synovial membranes. Satisfactory movability was achieved in some cases. (Zbl. f. Chir., No. 11, 1939.)—*Ars Medici.*

Three-Dye Treatment of Burns.—Devine describes a three-dye method of treating burns and scalds, which is of particular value for industrial and military first aid purposes, because it at once substantially relieves pain and commences a treatment which will be carried on in the hospital. In twenty-seven cases the three-dye method of treatment was used and in ten the Tannic acid or Tannic acid and Flavine method. Included in this series were patients from the bush fire areas. The three-dye mixture consists of a 1 per cent aqueous solution of Gentian Violet and of Brilliant Green, and a 0.1 per cent solution of neutral Acriflavine. The mixture is quite stable and can be kept for any length of time. The three-dye mixture is swabbed over the burnt area and no dressing is applied. No attempt is made to "clean up" the burnt area. Trauma with a nail brush or friction of any sort would be expected merely to force infected material from the surface through the coagulated area. It is inconceivable that scrubbing would serve to sterilize the area. When a large area of skin is involved, a preliminary injection of Morphine may sometimes be necessary to relieve pain centrally. When the area of the burn is not great, the local relief of pain afforded by the use of the dye is generally sufficient. Blisters on the burnt area are snipped and the deal skin is removed, and the burnt area is dapped, painted or sprayed with the three-dye mixture. A second application after about half an hour is usually given but is not always necessary. Tanning commences immediately. The tan formed is not so thick as that produced by tannic acid and it is more flexible. Delayed blisters appearing within a few days after the burn require snipping and removal of dead skin and a reapplication of the dyes. No dressings are used. Clothing is so arranged by outpatients that as far as possible no pressure is applied to the burnt area and with the same end in view, hospitalized patients are put into suitable postures and covered with cradles. Patients with minor burns merely require an occasional observation to see whether any softening of the eschar has occurred. Patients with more extensive burns require careful and continuous treatment. During the process of epithelization care must be taken, by the use of splints, to prevent contractures due to scarring. Death in the early stages is nearly always due to shock, and 80 per cent of deaths occur in the first two days. After a week the main cause of death is bronchopneumonia. With a view to the prevention of bronchopneumonia, some of the patients were allowed up early and encouraged to exercise as much as possible. In the thirty-seven cases there were two deaths, occurring in men who had been burnt by and had inhaled acetic anhydride; one was treated by the three-dye method and the other by the Tannic acid and Flavine method. Both died within two days. Of the twenty-seven patients treated by the three-dye method, none became obviously infected, one doubtfully. Of the ten patients treated by Tannic acid or Tannic acid and Flavine, four showed infection. There appeared to be no difference between the amount of shock experienced after tanning by the patients who were treated by the Tannic acid and those treated by the three-dye method. The advantages of the three-dye method of treatment that the author lists are: (1) The mixture is inexpensive and keeps indefinitely, and therefore it is always on hand for emergencies. (2) The mixture forms a coagulum rapidly and with only one or two applications, and the coagulum when formed is more pliable than that formed by Tannic acid. (3) As a result of the analgesic action of the Gentian Violet, pain is alleviated rapidly. 4. The mixture appears to be more efficient in preventing infection than Tannic acid. The two disadvantages of the method are that the mixture stains clothing and linen and in very small children and babies the coagulum formed may be too thick and it may crack at the edges—*Medical Journal of Australia, Sydney.* 1: 885-918 (June 17) 1939). *Thr' Jour. A. M. A.*

McClure and Aldrich Test in Appendicitis.—Gagliardi followed the behavior of the McClure and Aldrich test (intradermal injection of Sodium Chloride solution) in relation to a surgical intervention in forty cases of various inflammatory and non-inflammatory diseases, especially chronic appendicitis. The test was carried out in twenty cases some days after the operation and in nineteen cases some days before and some days after the operation. In all cases the test was carried out according to the original technic. Determinations of the arterial pressure were also carried out in the group. The author found that the results of the test and the duration of the wheal are not in relation to the sex of the patients, the nature (either inflammatory or non-inflammatory) of the disease, the presence of pre-edema

and the variations of the arterial pressure. In cases of inflammatory disease the results of the test are in relation to the operation. The reaction of the second test is more intense and lasting than that of the first one. In some cases in the group an erythematous reaction around the wheal developed both after the first test and after the second one. According to the author the reaction is a reaction of the skin to the injected sodium chloride solution, in the production of which vascular (cutaneous capillaries), constitutional and other non-identifiable factors are present. The occurrence of an erythematous reaction in many cases shows that the reaction is a local reaction of the skin. The reaction is of a defensive nature. The increased intensity of the reaction after the operation (as compared with the results of the test before the operation) show that the organic forces of defense (which previous to the operation were divided between the pathologic local focus and the local reaction of the skin) are entirely diverted to the skin after removal of the pathologic focus.—*Annali Italiani di Chirurgia, Bologna* 18 : 455-558 (*June*) 1939.—*Ther' Journal A.M.A.*

Warts and Moles. M. J Reuter.—Wisconsin M. J. 38 : 207 (Mar.) 1939.

Warts may be removed by fulguration. This treatment consists in the local application of the high frequency spark by a pointed metallic electrode. A stream of sparks flows from the point of the electrode into the wart. The action of the spark is caustic. The amount of destruction can be controlled, depending on the strength of the current and the duration of its application. Under local anesthesia, a few seconds application is usually sufficient. The wart becomes dry, hard, brittle and a blister forms about the border. The desiccated tissue is removed with scissors or curette without bleeding, and then the base or papillary portion of the wart is fulgurated lightly.

Annoying warts are those that occur on the bearded region. Mild fulguration is a convenient method of removal, but as they spread rapidly, repeated applications are necessary.

Moles may be removed by excision, cauterization or fulguration. Freezing with carbon dioxide snow is often satisfactory. Fulguration under local anesthesia is a very useful method. Initial treatment should be deep enough to destroy the epidermis and the superficial dermis. This insures destruction of the melanoblasts (pigment-producing cells) located at the epidermodermal junction, which are the cells concerned in the production

of malignant melanoma. Melanoma is a malignant neoplasm of melanoblastic cells and originates from the melanoblasts at the epidermo-dermal junction. While malignant melanoma may arise from a nevus, contrary to prevalent opinion it probably arises from normal skin more frequently than from a pre-existing mole.

Obstetrics and Gynæcology

Atonic Bleeding after Expulsion of the Placenta requires prompt action, according to *J. Ravina* (Paris), for there is great danger of the patient bleeding to death. A good way to stimulate the flaccid uterine musculature is to introduce one hand into the uterus and quickly remove the blood coagula while simultaneously keeping the other hand on the abdomen and massaging the uterus. It is absolutely necessary to cleanse the uterus thoroughly. If this does not arrest the hæmorrhage, drugs have to be administered. Ergot preparations and Pituitrin intramuscularly act too slowly. Prompt, sufficient contraction of the uterine muscular fibres is achieved only by intravenous injection of an ampoule of pituitary extract. In severe cases, therefore, the physician will massage the uterus in the above way while an assistant slowly injects Pituitrin intravenously. It is not always possible to find a suitable vein quickly : much time may be lost especially with obese women. Besides this, certain patients who have already lost much blood tolerate intravenous administration of Pituitrin badly. They turn pale, their pulses become dangerously slow, etc. Though this shock mostly subsides in about fifteen minutes, it is nevertheless not quite harmless. For years the writer has therefore shown preference to injecting Pituitrin directly into the uterine muscle. When the bladder is empty, it is easy to palpate the relaxed uterus under the abdominal wall and then insert an ordinary needle for intramuscular injection exactly at the midline below the umbilicus. The median line is used so as to avoid injuring any epigastric vessel, since this would cause a hæmatoma. One feels distinctly when the needle penetrates the elastic uterine muscle. A little fluid is then aspirated so as to make sure that the needle is not in a blood vessel, and finally the pituitrin is quickly injected. Here the injection need not be made slowly. Its effect is decidedly stronger than that of an intramuscular injection into the thigh or buttock, perhaps somewhat weaker than an intravenous injection, but in practice it suffices for most cases. In very severe cases both internal

massage and intravenous injection must be attempted, perhaps also injection into the muscular layer of the uterus. In one case with an extremely flaccid uterus the writer was unable to feel the musculature with the needle. He inserted one hand into the uterus and then advanced with the needle until this hand could feel the point. Before injecting, the needle was retracted a bit. However, this is a rare occurrence; generally the injection is technically very simple and may be given by any practitioner. Shock need not be feared. If the point of the needle should enter a blood vessel, the injection obviously acts as an intravenous one. Ever since the introduction of this procedure, the writer has not required a single transfusion for postpartum hæmorrhage, a measure that was formerly not infrequently necessary. (La. Medicine, No. 5, 1939.)—*Ars Medici.*

PROCEEDINGS OF CONFERENCES, SOCIETIES, ETC.

Extracts from the speech made by **Dr. Jivraj Mehta** *at the Function of Laying the Corner Stone of the Kamala Nehru Memorial Hospital by Mahatma Gandhi at Allahabad on Sunday, November 19, 1939.*

We have met here to-day to witness the ceremony of the laying of the cornerstone of Shrimati Kamala Nehru Memorial Hospital at the hands of Mahatma Gandhi. It was on the 28th of February 1936 that Shrimati Kamala Nehru breathed her last after a protracted illness. The premature death of one so full of life and vitality, whose life was devoted to the service of our motherland, plunged the entire country into deep sorrow. It was widely felt that her memory should be kept evergreen in the minds of her countrymen whom she has so zealously served, in a form worthy of her great sacrifice and service. It was under the inspiration of Mahatma Gandhi that it was decided to raise a fund of Rs. 5,00,000 with the object of erecting a memorial hospital at Allahabad. Kamalaji was particularly interested in hospital work. The Board of Trustees therefore decided after considering various schemes, to erect this Memorial in the form of a Maternity Hospital to begin with. The need for such hospitals is very great throughout the country owing to the high rate of maternal as well as infantile mortality in India.

Child-bearing exacts a heavy toll of lives in India, nearly four to eight times greater than in those countries where serious

attention is paid to the protection of motherhood. Compared to figures recorded in England and Wales in the year 1937 which are 3.3 maternal deaths per thousand live-births, the approximate record for India is 20 deaths per thousand live-births, *i.e.* six times as high as in England. In Japan, for the year 1936 the figures are 2.6 deaths per thousand live-births. With regard to infantile mortality, the figures in 1937 are 162 deaths per thousand live-births in India as compared to 58 in England and 117 in Japan for the year 1936. It is necessary to control this high rate of mortality. This can only be possible if better facilities for maternity and childwelfare services are provided throughout the length and breadth of the country than what exist at present. These services comprise the protection of motherhood during the pre-natal, natal and post-natal periods. We hope to make this hospital a centre for providing such facilities not only for the city of Allahabad but for a much wider area. We also wish to make it a centre of propaganda for the education of the ignorant suffering women who know not the advantage of medical relief which the modern medical science places at their disposal in such hospitals. The Hospital will also be a centre for training midwives who are so badly needed, specially in rural areas.

The Hospital will be a maternity hospital with arrangements for gynæcological work and will have an ante-natal out-patient department. It will be open to all communities. It will provide 40 beds to begin with, of which five will be fully paying, 7 partly paying and on the remaining 28 beds patients will be admitted entirely free of charge. Although the initial accommodation in the Hospital will be for 40 indoor patients, its building is so planned as to permit considerable scope for expansion. In future, if there is more demand and if funds permit, the Hospital can be extended to accommodate 115 indoor patients on the existing foundation. Moreover, ample space is available in the compound to construct, as and when funds permit, a large out-patient department with different sections, such as Eye, Dental, Ear, Nose and Throat, Skin and Venereal, X-Ray and Electro-therapy etc. where treatment in each speciality could be administered to both men and women patients. But this development must really rest on the lap of the future. For the present we have ventured to make the beginning with 40 beds inspite of the fact that our collections have not yet reached the proposed sum of Rs. 5,00,000 we set out to collect.

The amount so far received, along with interest accrued,

comes to about Rs. 2,50,000 i.e., half of the amount originally appealed for, which is just sufficient for the erection of the building complete with sanitary and electric fittings and quarters for the staff. The first gift came in the shape of a house with a piece of land adjoining the Swaraj and Anand Bhawans from Pandit Jawaharlal Nehru. The Trustees of the Swaraj Bhawan were also good enough to give from its vacant ground a plot of land for the proposed Hospital. The Allahabad Municipal Board, under the Chairmanship of Mr. R. N. Basu, readily agreed to give this fine piece of land measuring about ten acres, on which we are assembled this evening for the construction of the Memorial Hospital, at a nominal ground-rent of Rs. 15 per acre, per year.

For the equipment and maintenance of the Hospital, we shall have to depend on the goodwill of the generous public. The Allahabad Municipal Board have been generously making an annual grant of Rs. 2,500 since the last three years, which amount is at present utilised along with other donations and collections, towards the construction of the Hospital. The Board of Trustees have every hope that as soon as the Hospital begins to function a few months hence, this contribution will be substantially raised to anything from Rs. 10,000 a year, to meet some portion of the cost on free beds in the Hospital. It is really the duty of the Local Bodies to provide for medical relief in their area. We have, therefore, a right to expect help not only from the local Municipality but also from the District Local Board as the Hospital will render relief not only to the residents in the city but to a wider area beyond the limits of the city, particularly in cases of 'difficult labour'. We likewise hope that the citizens of Allahabad for whom the Hospital will chiefly cater will also extend their hand of help.

A Hospital of even 40 beds is not a small thing to manage and maintain. One like me, who is familiar with the difficulties of running a large hospital, shudders at the thought that on the completion of the Kamala Nehru Memorial Hospital building and other structures in the compound, the existing funds will almost vanish and the Hospital will start on its career with hardly any balance in its banking account or any endowment funds to keep it going except for the annual contribution from the Allahabad Municipal Board. I may however mention that the Board of Trustees have provided for one source of income, in that the Hospital will have five single-room wards where the ladies of well-to-do families can be attended to, on payment

of reasonable charges and seven beds in the paying wards for which relatively smaller charges will be made. The Sir Harkisondas Hospital in Bombay and the Deshbandhu Chitranjan Seva Sadan in Calcutta afford ample testimony to what extent the paying wards of an institution can help in extending medical relief to the sick poor, seeking resort to the Hospital. I have every hope that the well-to-do ladies of Allahabad and the surrounding area will patronise the paying wards of this Hospital from the very start and to that extent help in extending its scope of service to their less well-situated sisters.

There is another way in which the local gentry and the citizens of the United Provinces can help the institution, *viz.*, by endowing a free bed in the Hospital by a lump-sum donation of Rs. 5,000, a tablet being fixed over the bed in the name of the donor or in any other name at the donor's direction. In the Hospital we propose to have wards containing 3, 4, and 12 beds, respectively. Any of these wards as well as the anti-natal out-patient department and the operation theatres can likewise be named after a generous donor depending upon the amount of donation paid, say from Rs. 10,000 to Rs. 40,000 according to the size of the ward etc. I trust, generous donors would be coming forward to endow beds, operation theatres, out-patient department, or wards in this National Memorial in the memory of their beloved ones or in commemoration of some auspicious event in the family.

It goes, however, without saying that the success of the Hospital depends not only on the funds at its disposal but also on the medical officer in charge of it. We not only want a competent Lady-doctor but also a person who will be imbued with the idea of service. No appointment has so far been made of the Medical Officer on whose devoted shoulders will fall the burden of looking after the Hospital. Whoever is a Lady doctor with ample experience and ability and volunteers to take up the management of the Institution, will be rendering a distinct service in the fulfilment of the object with which this memorial is going to be consecrated.

I have given, in short, what has been done so far and what remains to be done. I have, however no doubt, that with the blessings of Mahatmaji who is laying the corner-stone of the Kamala Nehru Memorial Hospital this evening, it will not be difficult to achieve our object which is to erect a memorial worthy of the noble lady whose name it will bear. She was a

humanitarian. Hers was a life of service to her country. Let us hope that this Hospital which is dedicated to her, will prove equally useful and serve humanity in the shape of mothers' distress.

The Medical Practitioners' Association, Nuzvid.

A monthly meeting of the above Association was held on Sunday,26—11—39,at Nuzvid in the Govt. Hospital at 3-30 P.M., with Dr. C. Applachari in the chair. There was a proposal by the secretary to cut down the annual subscription to a reasonable amount in view of the fact that most of the members of the District Branch of the Indian Medical Association are paying heavy subscriptions for the latter. Then the question of holding the 6th Anniversary and its time also arose and after some discussion, the members resolved to put off the two items to the next meeting.

The clinical meeting comprised of the following case reports and demonstrations by the following members.

1. By Dr. C. Applachari :—A case demonstration of Abdominal Tuberculosis in a lady that commenced from a tubercular infection of the Appendix.

2. By Dr. N. Rama Rao :—(1) A case of 6th venereal disease. (2) A case of Raynaud's disease. (3) A case of gonorrhœal prostatitis that manifested signs and symptoms of either a vesical calculus or a polyp. (4) A case of foreign body in the throat of an infant aged 10 months, the F. B. being the silver toe-coil of its mother which was stuck up, causing suffocation and cyanosis intermittently.

After discussion of all the above cases,the meeting passed a resolution congratulating Dr. B. C. Roy of Calcutta on his having been elected as president of the Indian Medical Council, the first non-official ever elected.

BOOK REVIEWS

An Introduction to Dermatology—*By Norman Walker, Kt.*, M.D., LL.D., F.R.C.P., and *G. H. Percival*, M.D., Ph.D., F.R.C.P., 1939, Pp. 391, Tenth Edition with 102 Plates and 96 illustrations. Edinburgh : W. Green & Sons, Ltd. Indian Publishers : Butterworth & Co., Calcutta. Price : Rs. 14/-

Since the last edition, much work has been done on the Radio-therapy in skin conditions and conception of "allergy" in certain Dermatological Pollens. The new tenth edition has been completely revised and re-arranged to bring them more up-to-date. There are seven sections in the book : introduction, anomalies of sensation, anamalies of secretion, inflammation, new-growths, malformations and anomalies of pigmentation.

The illustrations are good and will be found educative. We recommend this volume to all our readers.

Treatment of Some Common Diseases Medical and Surgical --by Various Authors—*Edited by T. Rowland Hill*, M.D., (LOND.), M.R.C.P., (LOND.), 1939, Pp. 398. Edinburgh : E. & S. Livingstone. Price : *sh.* 15 net.

The object of writing this book has been to produce a volume covering a considerable range of medical and surgical subjects that would prove of value to medical men in active clinical practice, and in particular, to general practitioners. The book contains a series of monographs written by men of outstanding merit in their own specialities. There are as many as twenty-one authors who have given the readers their own experiences in treating disease conditions and hence, the book must be of high practical value to the readers.

The chapters on Anæmia, Cerebral Vascular Disease, Malignant Diseases of the Pharynx, A Problem in Practical Medicine, Obstructive Jaundice due to Malignant Disease, Enlargement of the Prostate Gland, Delay in Labour etc., are very well written and contain many useful hints. The book is well illustrated. The printing is good. We congratulate the author on his success in bringing out such a useful book to the general practitioner.

Treatment and Prevention of Poison Gas—Published by Indian Medical Association, Calcutta, Pp. 71+vii. Price : As. 8/-

A terrible war is threatening to destroy humanity and there is every possibility of poison gas being used in this war as

in the Great War of 1914. Medical men may be called upon to treat cases due to gas-poisoning from an air attack. And when the call comes, they should be prepared not only to treat such cases but should also be able to organise preventive measures.

A careful study of the above book will help them discharge their duties in an efficient manner. The book is divided into two chapters—one dealing with various kinds of poison gases used in warfare and their treatment, and the other explaining the different methods of precautions to be taken. The book will amply repay perusal and we have therefore no hesitation in recommending it to our readers.

The Rise and Growth of the Alembic Chemical Works—A History—*By Raja Mitra B.D. Amin*, B.A., M.S.C.I. (LOND.), *Managing Director.*

The Alembic Chemical Works have been the pioneers of the Spirit and Pharmaceutical Industry in Western India, and during their existence of 32 years, their primary task has been to make available to the medical profession, indigenous medicines of a quality equal to those imported from outside India, and at cheaper prices. Various difficulties and problems that confronted them in this attempt on account of the unsympathetic policies of Governments in India, and the extent to which these difficulties have been partially solved after voluminous correspondence, extending over a number of years, are discussed in the above publication in close detail and in this and other respects, the book is a true 'history' of the Company.

Air Raid Precaution — Householder's Guide Published by Indian Medical Association, Calcutta: Price As. 3/-.

War clouds have spread in the East as well as in the West and it is very difficult to say how long India will be free from attack. One of the most obnoxious methods of modern warfare is an air raid. To protect his family from such a dire disaster is the duty of every house-holder, and it is to help him to be prepared for an emergency that the Indian Medical Association has published this booklet at a very low cost of As. 3/-.

The booklet consists of five small sections in which are given clear but brief instructions as to what one should do before, during and after an air raid. The medical men and the general public in India, especially those living in big cities like Madras, Bombay and Calcutta, owe a deep debt of gratitude to the publishers for their timely publication of this useful booklet.

REPLY TO THE QUERY

Regarding the treatment of periodic attacks of pain in a case of sub-acute gonococcal prostatitis, published on page 1100 of Nov. '39 issue of 'The Antiseptic'.

Dr. Debiprosad Chatterjee, L.M.F., Burdwan, writes:—

As regards the query of Dr. B. P. Mohindra's case published in your issue of Nov. 1939, I suggest the following points. If it satisfies you, kindly give it a little space in your paper and oblige.

Going through the history of the case, it seems to me that it is a case of chronic prostatitis resulting from gonococcal infection. But, for proper treatment, the following points should not be neglected to reach a definite diagonosis.

1. *Vesical calculus*:—Any history of previous renal colic and for this reason urine should be properly examined for concretions and cystoscopy should be done if possible.

2. Primary gonococcal infection with secondary pyogenic invasion by strepto, staphylo, B. Coli may be suspected for which urine should be examined microscopically and bacteriologically.

On the whole, thorough examination of the lower urinary passages must be instituted.

Any cause mentioned above, if recognised, proper treatment for the same should be undertaken.

I mention the following points of general treatment for chronic prostatitis and vesiculitis leaving aside the true cause of micro-organism which should be properly dealt with if found by the methods mentioned above.

The patient should be kept in a warm atmosphere and perfectly in bed. Hot hipbaths, twice daily, maintained for some time, are very advantageous.

Iodex suppository should be given at bed time and if pain is severe Morphine and Belladonna suppositories are useful.

Sanmetto 1 to 2 dr. thrice daily gives good results to allay the pain and irritability. Bowels should be well regulated.

Diet should be bland and unstimulating. Alcohol, tea and coffee should be prohibited. Milk may be given freely together with barley water, soda water, lemonade and any mineral alkaline water.

PREPARATIONS AND INVENTIONS

Kapseals Dilantin.—(Parke, Davis and Company). A New Drug to Control Epileptic Seizures.

Dilantin or " Epanutin ", the name by which it is known in England, was made available to the medical profession by Parke, Davis and Company,following clinical studies in epilepsy reported at the 1938 annual convention of the American Medical Association held in San Francisco. Drs. H. Houston Merritt and Tracy J. Putnam of Harvard Medical School reported on 200 cases of epilepsy treated with Sodium Diphenyl Hydantoinate (Dilantin). These two workers have more recently reported the results of two years treatment: Proc. Amer. Neurol. Ass., June 1939.

Evaluation of Sodium Diphenyl Hydantoinate was made on patients who had not been controlled by accepted therapeutic measures such as Phenobarbital, Bromides, Katogenic diet, and fluid restriction. A total of 142 patients who had been under treatment with Sodium Diphenyl Hydantoinate for periods ranging from two to eleven months formed the main part of the report. In this group *grand mal* attacks were prevented in 58 per cent. and greatly decreased in frequency in an additional 27 per cent. Seizures of the *petit mal* type were prevented in 35 per cent of patients treated, and greatly decreased in number in an additional 49 per cent. Reports of Dilantin since its introduction to the profession in Europe and America have fully confirmed the findings of Merritt and Putnam.

Lack of hypnotic and soporific effects of Sodium Diphenyl Hydantoinate was in marked contrast to those of Phenobarbital and the Bromides. In effective dosage it did not make patients drowsy or stuporous. In 15 per cent of patients treated toxic reactions were noted. These consisted of occasional instances of dizziness, diplopia, tremor of the hands, and ataxia. According to Dr. Merritt such reactions usually responded to reduction in dosage. Cutaneous reactions, scarlatiniform or morbilliform in nature, occurred in 5 per cent of patients treated. In most instances these reactions tended to appear several days after treatment was started, to disappear on temporary discontinuance of the drug, and not to reappear when treatment was resumed. Only two of the 200 patients treated had reactions which the authors regarded as dangerous: one patient had non-thrombocytopenic purpura, and one had an exfoliative dermatitis. Both recovered following discontinuance of the drug. It is advised that patients be under observation during at least the early part of treatment when reactions necessitating temporary reduction of dosage may be encountered.

Dilantin is supplied in bottles of 100 Kapseals and literature or further information can be obtained from Parke, Davis & Co., P. O. Box 88, Bombay.

INDEX TO ADVERTISERS, DEC. '39.

Printed at the 'ANTISEPTIC' PRESS and Published by the Proprietor U. KRISHNA RAU, Madras.