

308



32
Lm 2, No 4
N 41-38-7
158756

The Antiseptic

A Monthly Medical Journal

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



Original Articles:—

	CONTENTS.	PAGE.
ROLE OF INTERSTITIAL FLUID IN RENAL FAILURE OF CHOLERA. By D. N. Banerjee, M.B. (Cal.), M.D. (Berlin), Officer-in-charge, Cholera Kidney Enquiry, Lecturer in Pathology, Carmichael Medical College, Calcutta. ...		523
CHANGE OF TYPE OF SOME DISEASES AS CLINICALLY OBSERVED. By Subodh Chandra Lahiri, M.D., Visiting Physician, Chittaranjan Hospital, Calcutta. ...		528
GASTRO-ENTERITIS. By Subramaniam, B.Sc., M.B., B.S., Assistant Physician, Govt. General Hospital, Madras. ...		530
ROLE OF INSECTS IN THE CAUSATION OF DISEASE. By P. L. Deshmukh, M.D. (Bom.), D.T.M. & H. (Lond.), Hon. Assistant Physician, Sassoon Hospitals, Poona. ...		539
LATHYRISM. By R. B. Mehta, M.R.C.P., D.T.M. & H., D.M.R.E., Hon. Physician, Civil Hospital, Ahmedabad. ...		542
CHARCOT-LEYDEN CRYSTALS. By P. N. Laha, M.B., B.S., P. W. Medical College, Patna. ...		545
THEORY AND APPLICATIONS OF BACTERIOPHAGE. By Jagadish C. Bhattacharjee, L.M.P., Darjeeling Himalayan Railway Hospital, Tindharia, Darjeeling. ...		547

Cases and Comments.

PAGET'S DISEASE OF THE NIPPLE. By H. M. Kar, B.Sc., M.B., B.S., Senior House Anaesthetist, King George's Hospital, Lucknow. ...	550
LATERAL CUM CAVERNOUS SINUS THROMBOSIS. By R. L. SONI, M.B., B.S., F.R.H.S., The Soni Clinics, Paungde, Burma. ...	552

Editorial:—

RECRUITMENT TO THE INDIAN MEDICAL SERVICE. ...	555
--	-----

Special Article.

STUDIES ON NUTRITION. By V. Krishna Row, L.M. & S., Medical Officer, Presidency College, Madras. ...	557
--	-----

Gleanings from Medical Press.

MEDICINE AND THERAPEUTICS. ...	562
SURGERY. ...	566
OPHTHALMOLOGY. ...	571
OBSTETRICS & GYNÆCOLOGY. ...	572

Annual Reports—Reviews.

Proceedings of Associations. ...	573
----------------------------------	-----

Preparations & Invention.

News & Notes. ...	576
-------------------	-----

Correspondence. ...	577
---------------------	-----

Editorial and Publishing Offices: 323-24, Thambu Chetty St., G. T., Madras.

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

Subscription Rs. 5. Burma Rs. 6. Foreign 10 sh. a year. Single Copy As. 12.—in advance.

Index to Advertisements, see page 38.

● The ethical relationship which exists among physicians has its counter part in the Lilly policy of close co-operation with the doctor. Distribution of information concernig Lilly Products is restricted to the medical and allied professions.



LEXTRON

(Liver-Stomach Concentrate with Ferric Iron and Vitamin D Complex, Lilly)

'Lextron' provides potent blood-building materials which are highly effective in commonly found types of anemia. In addition, 'Lextron' may be useful in other clinical conditions in which loss of appetite, fatigability, or undernutrition is a feature. Supplied in bottles of 84 and 500 pulvules.

Distributor: Kemp & Co., Ltd.

BOMBAY • CALCUTTA • DELHI • MADRAS • NEW DELHI

ELI LILLY AND COMPANY : Indianapolis : Indiana, U.S.A.

1941]

THE ANTISEPTIC

308.

1.

IF A SUBSTITUTE FOR BREAST-MILK MUST BE MADE



OSTERMILK

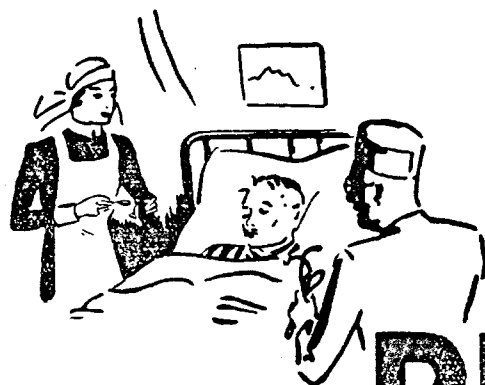
The modification of cow's milk to a form suitable to infant digestion involves the lowering of the fat content. And since vitamin D is fat-soluble, a significant alteration is also made in the proportion of this element. Thus the way is paved to disorders consequent on an impaired calcium and phosphorus metabolism—most common of which is rickets. Moreover, because cow's milk is notoriously deficient in iron, there is definite risk of nutritional anemia unless this deficiency is made good.

In Ostermilk, both of these dangers are guarded against. In the ultimate product, enough vitamin D is incorporated in the pure crystalline form to give a strong protection to infants receiving the food instead of, or as a supplement to, breast-milk. Iron also is added, in the form of iron and ammonium citrate. Ostermilk is virtually sterile, and on digestion forms a light, flocculent curd, comparable with that of breast-milk.

Representatives in India:—

H. J. FOSTER & CO., LTD.

Bombay, Calcutta, Madras, Lahore.



All your
patients
will readily
accept & enjoy

BRAND'S

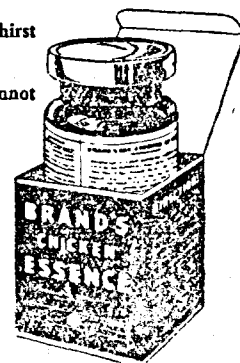
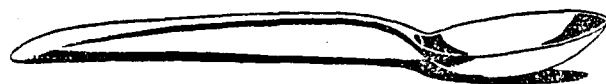
ESSENCE OF ENGLISH CHICKEN

because—

- Brand's Essence is easily and quickly digested without the formation of any solid precipitate—as may occur in the case of milk, raw white of egg, or even the best home-made chicken broth. Where there is gastric insufficiency, full digestion of these fluids sometimes takes many hours.
- This absence of precipitate at all stages of the digestion of Brand's Essence indicates that the system absorbs it with a minimum of effort. The stimulating properties of the Essence take speedy effect owing to the high degree of solubility of the natural protein.
- Even when the gastric juices are enfeebled by acute and chronic disease, there is always enough of the digestive ferments present to deal with the protein present in the Essence. For this reason, it may confidently be prescribed in conditions involving minor degrees of hypochlorhydria.
- Brand's Essence liberates and strengthens the gastric juices. It provokes neither irritation of the delicate lining membranes of the stomach nor the spurious stimulation induced by alcohol and similarly-acting drugs. Most of the resultant free acid is absorbed by the soluble protein. This is present in sufficient quantity to protect the stomach membranes and thus diminish the discomfort of food digestion.
- The Essence can be taken in large quantities without causing thirst or diarrhoea, or throwing a strain upon the kidneys.
- There is practically no acute or chronic condition in which it cannot be given with safety and advantage.

Agents for India and Burma:

GRAHAMS TRADING CO., (India) LTD.
Calcutta .. Bombay .. Karachi .. Rangoon



When writing to advertisers, please mention the "Antiseptic"

The *PRESCRIPTION
indicated . . .



when
conditions call for
*CONTRACEPTION

The efficacy of this method, proved by more than 50 years' success in all parts of the World, justifies Medical Recommendation.

Even apart from the complete dependability of Rendells, the ease of securing supplies at a moderate cost from all chemists is an advantage appreciated by patients.

• For these reasons alone no other prescription can satisfactorily replace this product.

For special literature apply

W. J. RENDELL LTD

161/165 ROSEBERY AVENUE, LONDON, E.C.1

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



Ready for Prompt Use

First-aid stations and the medical departments of large industrial and commercial establishments keep Antiphlogistine on hand ready for immediate use.

Because of its osmotic, decongestive, bacteriostatic and detergent qualities, physicians find it an application of eminent merit in the treatment of injuries of the soft tissues, such as burns, scalds, cuts, abrasions, sores, bruises, sprains, strains.

Sample on request

Antiphlogistine

The Denver Chemical Mfg. Co., 163 Varick St., New York

Agents in India:—MULLER & PHIPPS (India) LTD., P. O. BOX 773, BOMBAY.

FOR DELICATE & FASTIDIOUS PATIENTS

Allenburys Castor Oil is prepared by a special process that gives it distinct advantages over ordinary castor oil. It reaches an exceptionally high standard of purity. There are many grades of castor oil on the market. The poorer kinds are characterized by a nauseous taste and irritant properties. Being thoroughly purified, Allenburys Castor Oil is free from odour and unpleasant taste, but has full medicinal activity, and is specially appropriate in cases that demand the use of a non-irritant but active aperient, e.g., during pregnancy, after childbirth, before and after abdominal operations, and for young children.



In bottles of 1½ oz., 4 oz.,
8 oz. and 16 oz.

Allenburys
CASTOR
OIL

ALLEN & HANBURYS LTD.
(Incorporated in England)
Clive Buildings, CALCUTTA
And at 37 Lombard Street, London, E.C.3

When writing to advertisers, please mention the "Antiseptic"

MALARIA!!!

USE
JAVA QUININE
TRADE MARK



ALL QUININE SALTS
PLAIN & SUGAR-COATED TABLETS
CINCHONA FEBRIFUGE
AND OTHER
DERIVATIVES OF CINCHONA
ALKALOIDS

High Degree of Purity and Solubility.

Sole Agents for India & Burma:
MARTIN & HARRIS LTD.,
CALCUTTA — BOMBAY — MADRAS
KARACHI — RANGOON.

Some recent pronouncements on the value of QUININE IN MALARIA

Extract from the

*"Resolutions of the Inter-Governmental
Conference of Far Eastern Countries on
Rural Hygiene." Bandoeng, Java,
3rd-13th August 1937.*

*"...that wide distribution of quinine is a
public duty which, whenever and wherever
necessary, should be organised and paid for
by the State."*

*"The Conference further is in agreement
that the Cinchona derivatives remain the
drug of choice for mass distribution."*

*"QUININE is not only still the best and
safest remedy against MALARIA,*

*QUININE is also of proved value in the
prevention and cure of INFLUENZA."*



BI-COLATES

(STEARNS)

DEPENDABLE CHOLERESIS and CHOLAGOGUE ACTION

A scientific combination of the bile salts,
Sodium Glycocholate and Sodium Taurocho-
late, with Cascara Sagrada, Phenolphthalein,
and Oleoresin Ginger.

Bi-Colates (Stearns) are particularly indicat-
ed in cases of hepatic insufficiency, either
functional or in association with early cirrho-
sis, catarrhal and other forms of jaundice,
bilious attacks, intestinal auto-intoxication
and the prevention and treatment of gall-
stones.

Bi-Colates (Stearns) are also indicated in all
conditions in which a true cholaretic and
cholagogue is required.

Manufactured by:

FREDERICK STEARNS & CO., DETROIT, U.S.A.

Sole Agents in India & Burma.

MARTIN & HARRIS LTD.,

CALCUTTA—BOMBAY MADRAS—KARACHI—RANGOON.

KAOLIN

A valuable protective, adsorptive
and filter agent in the treatment
of intestinal toxæmia.

17 JUL 1941

IN all forms of intestinal toxæmia, Crookes' Kaolin, with
its remarkable power of adsorbing poisons, especially
bacterial toxins, has achieved a great measure of success. It
exercises the effect of forming an adherent coating on the
bowel wall, protecting the surface from irritant particles and
digestive juices in ulcerated conditions and preventing the
adsorption of toxins into the circulation.

In conditions of ulcerative colitis and chronic conditions
of the intestines where there is a large excess in the coliform
type of bacillus, Crookes' Lacto-Kaolin is more especially
recommended owing to the properties of the lactose
constituent.

Both products enormously enhance the efficiency of
ordinary kaolin treatment owing to the unique fineness of
their particles, for it is upon this fineness that the adsorptive
power depends.

**Crookes' Kaolin is supplied in 6 oz. and 16 oz. tins and Crookes'
Lacto-Kaolin is supplied in 6 oz. tins.**

DISTRIBUTERS FOR BURMA

BRYAN SMYTH & CO., 313, SPARKS ST., RANGOON

THE CROOKES LABORATORIES (British Colloids Ltd.) PARK ROYAL, LONDON, N.W. 10, ENGLAND
BOMBAY: 10 GRAHAM ROAD, BALLARD ESTATE

When writing to advertisers, please mention the "Antiseptic"

HORLICKS IN TUBERCULOSIS

AT all stages Horlicks is beneficially included in the diet of the tuberculous patient.

Horlicks is pure, fresh milk modified with the nutritive extracts of wheat and malted barley. It is partially pre-digested and contains no starch, cane or beet sugar. It provides liberal protein, much of it in a directly assimilable form and its carbohydrate moiety is a mixture of lactose, maltose and dextrin.

Tests show that Horlicks stimulates blood regeneration in nutritional anaemia. This characteristic is derived not solely from the haematopoietic qualities of its mineral content, but from its general nutritive qualities.

Horlicks helps to make the invalid's diet more appetising and palatable — it is an excellent vehicle for extra dietary such as cream, beaten eggs, etc.



AVAILABLE EVERYWHERE

When writing to advertisers, please mention the "Antiseptic"

GLYKERON

*Coughs, Bronchitis, Asthma
Laryngitis, and other Respiratory Affections . . .*

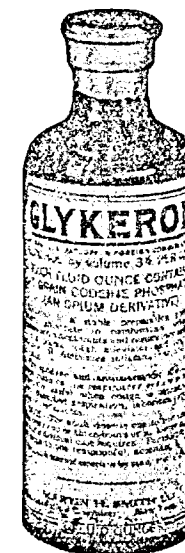
A Bronchial Sedative

Control the cough that weakens your patient.

GLYKERON quickly relieves this distressing symptom because it contains medically approved respiratory sedatives.

Your patients with respiratory affections do better when they sleep better—*without coughing.*

GLYKERON may be administered to diabetics freely as it contains no sugar or syrup and causes no disturbance of digestion.



Stimulating Expectorant

GLYKERON loosens the mucus in the bronchial passages and aids in its expulsion.

It lessens the hazard of complications by getting rid of germ-laden secretions. Prescribe it for the symptom of cough. Very palatable.

GLYKERON supplied in 3 oz. as well as 16 oz. bottles.

DOSAGE: Adults, one to two teaspoonfuls every two or three hours or at longer intervals as the individual case requires. Children, from ten drops to one teaspoonful, according to age.

Literature on request

MARTIN H. SMITH COMPANY, NEW YORK

A-O

INDICATED IN CASES OF

A SPECIFIC VACCINE

Made of

TUBERCLE BACILLI OF HUMAN TYPE

There are three practical uses to which

A-O

may be put

- (I) Prophylactic
- (II) Diagnostic and Prognostic
- (III) Therapeutic

Literature on request.

Q

Prepared by:

**THE ARIMA INSTITUTE,
Osaka, Japan.**

Head Office: 43, Churchgate Street, Fort, Bombay.
Readymoney Mansions.

- ⊗ Latent or frank tuberculosis
- ⊗ Pulmonary tuberculosis (Apical catarrh)
- ⊗ Surgical and urogenital tuberculosis
- ⊗ Ophthalmological tuberculosis
- ⊗ Dermal tuberculosis
- ⊗ Pleurisy and Peritonitis in convalescence
- ⊗ Disorderly menstruation due to innate weakness
- ⊗ Glandular affections
- ⊗ Laryngeal and intestinal tuberculosis
- ⊗ Is also useful as a diagnosticum and as a prophylactic of tuberculosis
- ⊗ A-O is an agent which calls forth or increases in an organism the immunizing powers through a biological reaction of its own.

Agents: **T. M. THAKORE & CO.,**
1/10 & 10/A, Stringer Street,
G. T., MADRAS.

AN UNUSUAL TONIC OF GREAT THERAPEUTIC VALUE



(EASTON'S SYRUP WITH MALT & ARSENIC)

Alembic Eastarso Malt has established its superiority over the old Easton's Syrup in thousands of cases, and now enjoys the widest measure of acceptance in every-day medical practice all over India, for recouping lost health and energy after malaria and other long illnesses.

COMPOSITION Phosphates of Iron, Quinine & Strychnine, Sodium Cacodylate & Ext. of Malt.

INDICATIONS. Extremely useful as a blood and tissue builder, and as a digestive and nutritive tonic after acute illness, convalescence, Malaria, Influenza, Typhoid, Small Pox and other debilitating diseases. In the prevention of Malaria and other relapses it has an unexcelled therapeutic value.

ALEMBIC PHARMACEUTICAL WORKS COMPANY LIMITED, BARODA

AS MODERN AS MEDICAL SCIENCE ITSELF

Ilford X-Ray films are of consistently high quality. The negatives afford the maximum assistance to correct diagnosis because of their great detail and freedom from fog and mechanical faults. They combine High Speed with excellent Contrast, while processing is expedited by means of their quick fixing properties. The super-coating of the film eliminates the risk of abrasion entirely.

ILFORD X-RAY FILMS (Double Coated).

The following are the grades available in India in all sizes:

Acetate (Safety) White Clear.
Acetate (Safety) White Matt.
Acetate (Safety) Blue Base Clear.
Acetate (Safety) Blue Base Pearl.

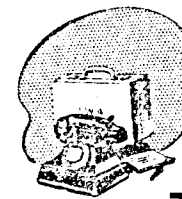
All Stocks of Ilford X-Ray Films are kept in our own cold-storage rooms at all branches in India.

ILFORD
(Double Coated)
X-RAY FILMS

Manufactured by
ILFORD LTD., LONDON,
& distributed throughout
India by:

ILFORD-SELO (INDIA) LTD.
BOMBAY, CALCUTTA, LAHORE, & MADRAS.

When writing to advertisers, please mention the "Antiseptic"



*From one Doctor to another . . . **

The after-treatment of Malaria, Influenza and Bronchitis.

In building up the patient's strength when lowered vitality follows illness, the use of WINCARNIS is frequently attended by a most gratifying improvement. Its pleasant flavour and aroma make it readily acceptable even in cases where the lightest and daintiest sick-room diet is refused. It stimulates the appetite and has a definite, beneficial action on the digestive system, enabling the patient to get full benefit from the food taken. Being free from all drugs, WINCARNIS may be safely prescribed in cases of severe prostration; its tonic action and strengthening elements promote the natural activity of gastric functions rendered subnormal by feeble muscles and the lowering effects of prolonged illness. WINCARNIS encourages healthy sleep and enriches the blood-stream, increasing the patient's resistance so that there is little chance of relapse.

WINCARNIS is a blend of pure matured wines, strengthening elements and vitamin malt extract (4850 International units Vitamin A per ounce; 700 units Vitamin D).

A wineglass or two a day is the usual prescription.

*One of a series published by the
proprietors of WINCARNIS—the tonic wine*

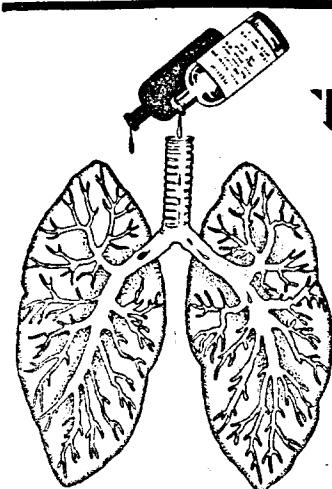
COLEMAN & CO. LTD., WINCARNIS WORKS, NORWICH, ENGLAND



WINCARNIS ★ over 25,000
recommendations from Medical Men

IM W 120

When writing to advertisers, please mention the "Antiseptic"



WASH THE LUNGS CLEAN

Being a combination of pulmonary antiseptics & expectorants of proved therapeutic value viz. pot. Guaiacol Sulphonate, Ammonium Chloride & Vinum Antimonii & containing, as it does, the tonic properties of Calcium Hypophosphite

PULMOLIN

not only clears the lungs of bronchial mucus but strengthens them against future attacks.

KILLS COUGH & HEALS THE LUNGS.

Literature sent free on request.

**LISTER ANTISEPTICS &
DRESSINGS COMPANY (1928) LD.
CALCUTTA**

LEXIN THERAPY

NEWER USES OF LEXIN

Snake-bite: Lexin inhalation and injection.

Opium Poisoning: Lexin inhalation and intravenous injection 1 c.c. to 4 c.c. Repeat as required.

Influenza: Put a few drops on handkerchief and inhale deeply for a few minutes; repeat every now and then till relief.

**Hysteria } Inhale as above; or put a drop or two into nostril; this breaks
Epilepsy } the fit.**

Cholera: Inject 2 c.c. intramuscularly, repeat every hour if necessary. If no pulse, inject 1 c.c. intravenous.

Collapse: Intravenous injection 1 c.c.

**Trauma and
Surgical Shock } Intravenous injection 1 c.c.**

Bleeding from any orifice: Inject 2 c.c. intramuscular or 1 c.c. intravenous.

Asthma: In extreme dyspnoea—inject 2 c.c. intramuscular; after 1 hour 2 c.c. intravenous. Only one injection gave prompt relief and permanent cure in many cases.

Pains of Cancer: Inject 2 c.c. intravenous.

Prices: LEXIN bot. ½ oz. Re. 1-8-0.

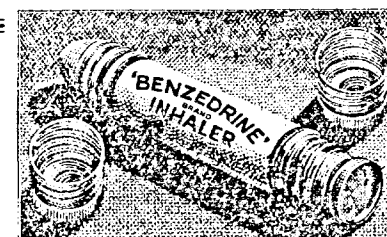
Box of 6 ampoules × 2 cc. Rs. 3.

P. BANERJI, Mihijam, India.

Agents: SRI KRISHNAN BROS., MADRAS.

When writing to advertisers please mention the "Antiseptic."

To Combat
Head Colds
and
Nasal Catarrh



To Ensure
Nasal Comfort
and
Easy Breathing

Colds need not develop. The timely use of 'Benzedrine' Brand Inhaler at the first sign of a cold will often abort the condition entirely. In the acute stages it affords marked symptomatic relief and also helps to prevent the onset of more serious complications such as sinusitis. Its vapour diffuses throughout the whole upper respiratory tract and reduces congestion in areas that are inaccessible to liquid inhalants.

BENZEDRINE INHALER

RAPID IN ACTION

CONVENIENT

FOR CHILDREN AND ADULTS

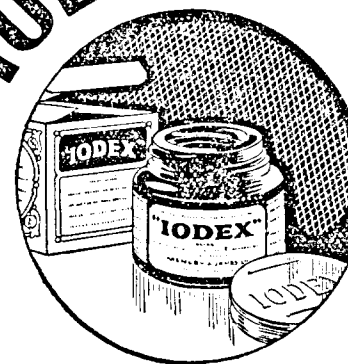
Menley & James Ltd., 123, Coldharbour Lane, London

B1105

Agent for India: RALPH PAXTON, 10, LALL BAZAR, CALCUTTA

IODEX[®] BRAND IODINE OINTMENT

Antiseptic
Inflammation-reducing
Entirely Bland



Iodex presents bland yet active iodine. It is remarkably resolvent, penetrating, inflammation-reducing, decongestive, and antiseptic. Totally unlike the Tincture, Iodex does not irritate, harden or stain the skin, or lead to desquamation. It is bland even on mucous or other very sensitive surfaces. Indicated in enlarged glands, goitre, parotitis, tuberculous joints, hæmorrhoids, pruritus

ani, open wounds, parasitic skin diseases (e.g., ringworm), and external inflammatory conditions generally.

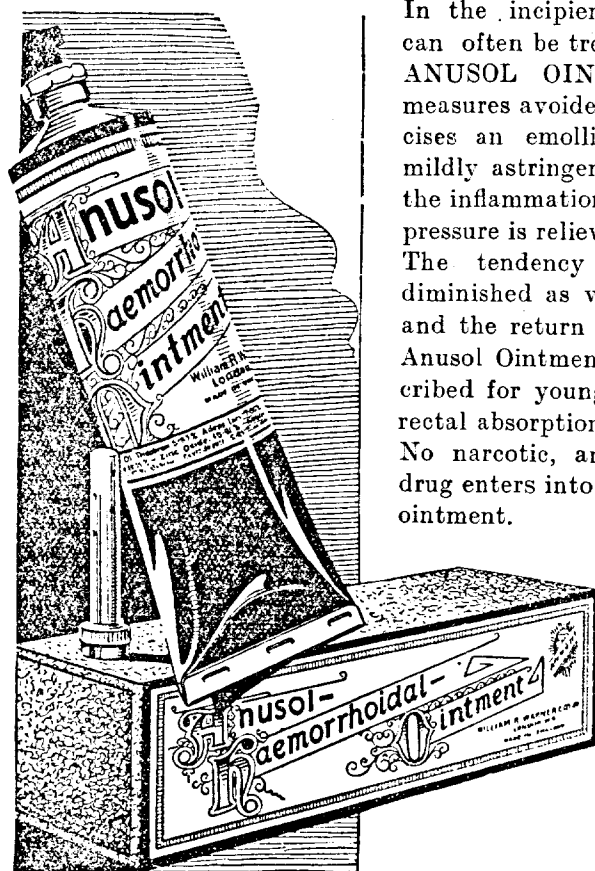
MENLEY & JAMES LTD., 123, Coldharbour Lane, London

XD205

Agent for India: RALPH PAXTON, 10, LALL BAZAR, CALCUTTA

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

The Safe Treatment of HAEMORRHOIDS



In the incipient stages, hæmorrhoids can often be treated successfully with ANUSOL OINTMENT, and surgical measures avoided. The ointment exercises an emollient, decongestive and mildly astringent action. By reducing the inflammation that causes congestion, pressure is relieved and pain disappears. The tendency to bleeding is also diminished as venous stasis is relieved and the return circulation is improved. Anusol Ointment may safely be prescribed for young or old without fear of rectal absorption of any toxic substance. No narcotic, analgesic or anæsthetic drug enters into the composition of the ointment.

*Supplied in
collapsible tubes with
rectal nozzle.*

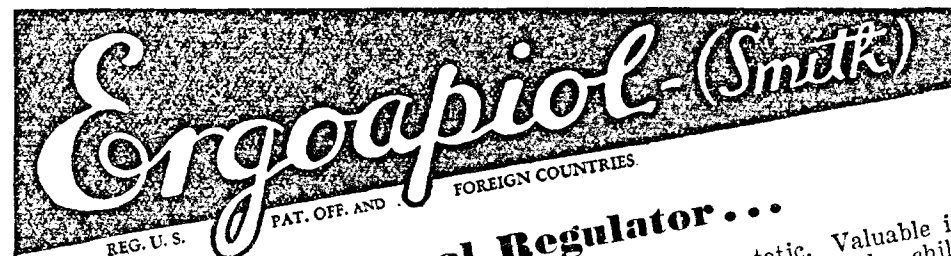
ANUSOL HAEMORRHOIDAL OINTMENT

Samples and literature on request.

MARTIN & HARRIS LTD. Mercantile Buildings, Lall Bazar, Calcutta.
Also at Bombay, Madras, Karachi & Rangoon

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

When writing to advertisers, please mention the "Antiseptic"



A Menstrual Regulator...

When the periods are irregular, due to constitutional causes, ERGOAPIOL (Smith) is a reliable prescription. Containing superior ergot and apiol (M.H.S. special) together with aloin and oil of savin of the highest quality, this preparation effectively stimulates uterine tone and controls menstrual and post-partum bleeding.

In cases of Amenorrhea, Dysmenorrhea, Menorrhagia and Metrorrhagia, Ergoapiol serves as a good uterine tonic and hemostatic. Valuable in obstetrics after delivery of the child and for the menstrual irregularity of the Menopause.

Prescribe 1 to 2 capsules 3 or 4 times daily. Supplied only in packages of 20 capsules. Literature on request.

As a safeguard against imposition the letters MHS are embossed on the inner surface of each capsule, visible only when the capsule is cut in half at seam as shown.



HEWLETT'S MIXTURE

MIST. PEPSINÆ CO. C. BISMUTHO (HEWLETT'S)
THIS PREPARATION IS ALSO SUPPLIED "SINE OPIO" WHEN DESIRED
**OVER 60 YEARS' REPUTATION AS A REMEDY FOR
INDIGESTION, DYSPEPSIA AND ALL DISEASES OF
THE STOMACH.**

MEDICAL OPINIONS

"It is clear, mixes easily with water, and is undoubtedly a valuable and convenient preparation."—*The Lancet*.

"Obviously likely to be of much advantage in the frequent cases of irritative dyspepsia with atony of gastric or intestinal muscular layers."

The British Medical Journal.

Supplied in 4oz., 10oz., 22oz., 40oz., and 90oz., bottles.

INTRODUCED AND PREPARED ONLY BY
C. J. HEWLETT & SON., LTD.,

Wholesale and Export Druggists and Surgical Instrument Makers,
35-43, Charlotte Road and 83-85, Curtain Road, London, E.C. 2.

Agents who stock Hewlett's Preparations.

BOMBAY:— Amersy Khimjee & Co. Jadavji Goverdhandas & Co.
CALCUTTA:—Smith Stanistreet & Co. M. Bhattacharyya & Co. B. K. Paul & Co. Ltd.
MADRAS:— Madras Drug Stores. Dadha & Co. Appah & Co.



When writing to advertisers, please mention the "Antiseptic"

Doctors are human!

The lay public seldom show much consideration for medical men, that is, in the exercise of their profession. Calls at all hours of the night and refusal to accept errors in diagnosis are all too common. Patients even make no allowance for the doctor's natural enthusiasm when new methods of relieving suffering comes to his notice. And yet how easy it is sometimes to pass over the old and tried prescriptions when the new discoveries are favourably reported on!

HALL'S WINE



This tonic restorative is compounded from an original formula of an English doctor; it is based on a sound red wine, of full character, extra rich in iron salts, with added medicaments which greatly increase its calorific value. This tonic is assimilated without digestive activity, it improves the general metabolism and rapidly increases the haemoglobin content of the blood. A prescription of Hall's Wine has thus a dual effect:

* *physically*, it assists a weakened digestion, provides energy and tone and improves the circulation of the blood while enabling it to elaborate fresh haemoglobin.

* *in treating nervous cases*, the stimulus provided by Hall's Wine and its pleasant taste help to convince the patient of his powers of rapid recovery.

Distributors: J. HALLEY & CO., LTD..

P. O. Box 133,
Calcutta

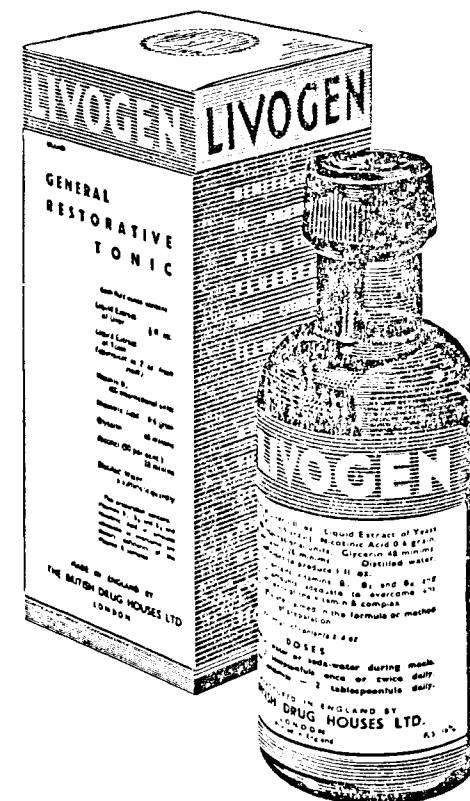
P. O. Box 84,
Lahore

P. O. Box 34,
Karachi

P. O. Box 466,
Bombay

Hw. 1719 A

When writing to advertisers, please mention the "Antiseptic"



LIVOGEN

and the Mobilisation of Nervous Energy

The availability of energy from carbohydrates for utilisation by the nervous system is dependent upon adequate supplies of Vitamin B₁, the vitamin which is probably most commonly deficient in average diets and for which body demands are most liable to be increased under conditions of stress.

Intracellular respiration of all body tissues, including nerve tissue, is dependent upon the other members of the Vitamin B complex, particularly lactoflavine and nicotinic acid.

Livogen provides these factors, as well as the hæmatopoietic principles of liver and yeast, and is, therefore, an ideal preparation for the prevention and treatment of irritability, nervous exhaustion, neuritic states, certain cases of insomnia and of pellagroid depression and hallucinatory states.

Stocks of Livogen are held by leading chemists, and full particulars are obtainable from:—

THE BRITISH DRUG HOUSES LTD.

(Incorporated in England)

Imperial Chemical House Ballard Estate
BOMBAY

Health Food Products

Supusti

The most COMPLETE NATURAL FOOD
prepared from the 'WONDER BEAN' of
'BLITZ' Nutritional value
A SYNTHETISED VITALITY

PROTEIN	... 34% :: Digestibility 92% :	Rich in Essential Amino-acids (Cystine, Lysine, Tryptophan) Wt. for wt. :- 2 x Meat = 4 x Eggs = 6 x Wheat = 12 x Milk.
FAT	... 17% :: .. 90% :	Mostly Unsaturated Fatty acids (Oleic, Linolic, Linolinic), Lipoids 1% (Lecithin & Cephalin)
CARBOHYDRATES	30% :: .. 94% :	Contain PENTOSANS & GALAC- TANS. FREE from STARCH & other Glucose forming Hexoses.
VITAMINS	... A, B complex C, D, & E	SALTS—ALKALINE.

Through expert Chemical Manipulation, the bitter taste, unpleasant odour etc.
of the 'Leguminous Cinderella' are removed without Denaturation.

Indian Health Institute & Laboratory, Ltd.
BELIAGHATA MAIN ROAD, CALCUTTA.

GHARBINOL

(Regd.)

An Ideal Utero-Ovarian Tonic

Recommended by eminent doctors.

Some of the medical opinions.

A Retired M.D., Madras, writes:—

"This is to certify that I found **Gharbinol** useful during pregnancy and I dare say that it improves the tone of the Uterus and thus will be found helpful especially in preventing **Post-Partum Hæmorrhage**".
(Sd.).....

"I have great pleasure in recommending the medicine **Gharbinol** for **Leucorrhœa** and **Allied Ailments**."

(Sd.) Capt.....F.R.F.P.S.,
D.P.H., D.T.M. & H. (EDIN.)

Detailed Literature on application.

Available at all Chemists.

THE VIJAYA PHARMACY,
COCHIN.

Madras Stockists: APPAH & CO.,
MAYER & CO., DADHA & CO.

FILARIA

However dreadful and obstinate,
our famous

"ARSENO-TYPHOID"

is a harmless, and excellent
remedy for filarial Scrotum, Legs,
etc. Goods obtainable from all
Chemists.

Particulars from:—

**CALCUTTA CLINICAL RESEARCH
ASSOCIATION, LTD.,**

6, Chowringhee Road, Calcutta.

When writing to advertisers, please mention the "Antiseptic"



VITRATE

A nutrient reconstructive of high natural
vitamin potency

**IN A HONEY-LIKE VEHICLE
DEVOID OF FISHY TASTE**



When opportunities for exposure to sunlight are limited and when fresh vegetables are not abundant, a vitamin supplement is often indicated to fortify the dietary intake. Children of all ages should receive a continuous supply of vitamins for good health; but because of their capricious likes and dislikes, supplemental vitamin feeding is often possible only with a confection-like preparation which masks the vitamin-containing oils. During convalescence a nutritious vitamin tonic speeds recovery and encourages early return of strength and vigor.

Vitrate, a palatable vitamin concentrate of honey-like taste, provides natural vitamins A and D, iron and vitamins B₁ and G (B₂) derived from yeast and malt extract. Each ounce, in addition to supplying vitamin A, 22,000 U. S. P. Units, Vitamin D, 1200 U. S. P. Units, and iron and ammonium citrates, 4 grains, furnishes 150 calories.

Vitrate is indicated for children, for nursing mothers, convalescence, during pregnancy, and in malnutrition. Children particularly appreciate the pleasant taste of Vitrate and its freedom from fishy taste and odor.

AVAILABLE in 8 oz. and 24 oz. bottles.

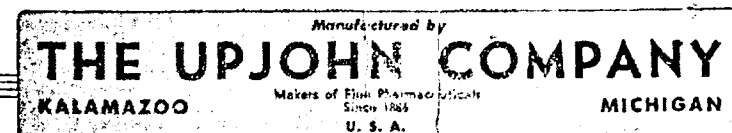
Sole Agents:—

T. M. THAKORE & COMPANY,

1/10 & 1/10A, Stringer's St., G. T., Madras.

Head Office: 43, Churchgate Street, Fort Bombay.

Branches: Calcutta, Karachi, Lahore, Rangoon, Nova-Scotia.



When writing to advertisers, please mention the "Antiseptic"



"Delightfully Palatable"



PATIENTS co-operate willingly when 'Petrolagar' is prescribed for constipation. Taste 'Petrolagar' and note the delightful flavour which makes the preparation so popular with patients, particularly children. It pleases the palate and is therapeutically efficient.

Petrolagar
Regd.
Brand Paraffin Emulsion

Distributors in India:

KEMP & CO., LTD., Charni Road, Queens Road, Bombay.

Sole Proprietors:

JOHN WYETH & BROTHER LTD., 25, Oldhill Place, London, N. 16

Distributors for Petrolagar Laboratories Ltd.

When writing to advertisers, please mention the "Antiseptic"



DOCTORS
OF REPUTE
prescribe
THE TONIC
OF REPUTE

ZANDU RAKTO-PHOSPHO-MALT, a valuable tonic and powerful stimulant to the blood forming organs and to the functions of nutrition. It supplies phosphorus to the system and its glycerophosphates help the absorption and promote assimilation of organic phosphates by the neuron system and thus act as cell food for the nerves.

In the treatment of weak digestion and corresponding faulty nutrition **RAKTO-PHOSPHO-MALT** will act as a very effective tonic and stimulant to the digestive tract.

Hæmoglobin places **RAKTO-PHOSPHO-MALT** first amongst "Digestive-Nutritive-Recuperative Tonics" and the inclusion of Drakshasava gives it the advantageous Alterative and Diuretic properties.

Indications:

General Debility, Convalescence from exhausting and acute Diseases, Atonic Dyspepsia, Hypoacidity and an acidity of the stomach, Neurasthenia, Exhaustion, Mental worry, Bronchitis, Bronchial Asthma, old age, debility.



the tonic of repute.

The Zandu Pharmaceutical Works Ltd.,
Gokhale Road, BOMBAY, 14.

Can be had from our Authorised Agents all over India.

When writing to advertisers, please mention the "Antiseptic"



Confidence in Antisepsis

The high germicidal efficiency of 'Dettol' with its safety and convenience, have won for it a leading position in hospitals and private practice, and make it a most useful disinfectant for first aid at home, for personal hygiene, and for gargling and bathing.

'DETTOL' maintains its efficiency in the presence of blood and other organic matter, and can be used in high concentration, thus giving a wider margin of safety. It is absolutely non-poisonous and non-staining and possesses a distinctly pleasant smell.

'DETTOL'

TRADE MARK
THE MODERN ANTISEPTIC

Send postcard for free literature to:

ATLANTIS (East) LIMITED., (Dept. A. 6) 20/1, Chetla Road, Calcutta.
Marketing Agents for Reckitt & Sons, Hull & London, England.

HYDROXY ERYTHRIN (Regd.)

SYNONIM

HYDROXY ANTHOCYAN (J. N. MISSRA)

TO KILL TWO BIRDS WITH ONE STONE

USE

Hydroxy Erythrin—Synonim-Hydroxy Anthocyan (J. N. Missra)—is a wonderful discovery in the modern Medical World for the most satisfactory treatment of **Tuberculosis** of all types and **Asthma** of various dispositions. It works miracles even in the most chronic and obstinate cases where other treatments fail. It is the saviour of lives of the dying millions of India, nay, the **World**. It has the double functions of curing and preventing.

Dr. S. M. Namasivayam of Salem writes:—"On studying the chemical compositions and natural contents of Dr. J. N. Missra's "Hydroxy Erythrin", I tried it as per the technique advised to a patient of mine of long standing **Asthma Bronchial**, which had resisted so many other forms of treatment including Auto-Haemotherapy and Tuberculin injections. As if by a miracle, the patient was completely relieved in about two months and is free even after two years.

Then on finding that it had given a complete cure, I gave it to six more **Asthmatic** subjects and they are all now doing well. Now I am using it as a regular finishing up remedy to bring about a cure in **Asthma**.

Incidentally, I may add that the same medicine has completely cured my niece of **Tubercular Cervical Glands** which had recurred twice even after the use of other remedies."

Write for literatures to-day.

To be had from:—GALLENO PHARMACEUTICAL WORKS,

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

Main Stockists:—Messrs. SRI KRISHNAN BROS., 323, Thambu Chetty St., Madras.

Messrs. E. STELLA & CO., Marshall's Building, Ballard Road, Bombay.

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

SULPHONAMIDE-P

(SULPHANILAMIDE)

Sulphonamide-P is effective over a wide range of infections, especially those of streptococcal, meningococcal and gonococcal origin, and has been used with success against *Bact. coli*, *Proteus ammoniac*, and other infections of the genito-urinary tract. It may also be of use in gas-gangrene and possibly in early cases of typhoid and paratyphoid fevers. Its use has also been suggested in the treatment of trachoma.

'Tabloid' Sulphonamide-P, 0.5 gramme, is available for oral administration. It presents Sulphonamide-P as a 'Tabloid' product of traditional quality and precision in manufacture, possessing therapeutic efficiency with comparatively low toxicity.

'Wellcome' Sulphonamide-P is available for oral or parenteral administration. Parenteral administration is indicated particularly when oral administration is impracticable as, for instance, when the patient is extremely ill or in a comatose condition.

TRADE MARK 'TABLOID' BRAND SULPHONAMIDE-P

For oral administration. Bottles of 25 products, Rs. 1-2; and 100 products, Rs. 3-10

TRADE MARK 'WELLCOME' BRAND SULPHONAMIDE-P

For parenteral or oral administration. Bottles of 25 grammes, Rs. 1-9; and 100 grammes, Rs. 5

Prices in Bombay to the Medical Profession (liable to fluctuation) subject to Medical Discount



BURROUGHS WELLCOME & CO., LONDON

(THE WELLCOME FOUNDATION LTD. INCORPORATED IN ENGLAND)

and Cook's Building, Hornby Road, BOMBAY

D 720 Ex.

COPYRIGHT

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



DAGENAN
-M & B 693
TRADE MARK

SULPHAPYRIDINE

READ THIS TO AVOID CONFUSION

"DAGENAN—M & B 693" is the proprietary name of the drug introduced under what was its mere experimental number "M & B 693." "Sulphapyridine" is the generic or common name which was adopted for this drug in the United States and is now gaining increasing currency in this country. Each of the three terms designates the compound 2—sulphanilyl—aminopyridine which has proved so remarkably successful in acute bacterial infections.

On prescriptions calling for this preparation under any of the above descriptions only our product may be dispensed.

 **MAY & BAKER (INDIA) LTD.**
11 CLIVE STREET, CALCUTTA

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: 323-24, THAMBU CHETTY ST., MADRAS.

Annual Subscription: Rs. 5; Burma—Rs. 6; Foreign—10 Sh.—Post Paid.

Vol. 38.

JULY, 1941.

No. 7.

Original Articles

Role of Interstitial Fluid in Renal Failure of Cholera*

BY

D. N. BANERJEE, M.B., (CAL.), M.D., (BERLIN),

Officer-in-charge, Cholera Kidney Enquiry,

Lecturer in Pathology, Carmichael Medical College, Calcutta.

SEVENTY per cent of the human body weight consists of water and every physiological process of the individual depends on it. This quantity of water occupies the human body in three compartments. The major portion of the water *i.e.*, 50% of the body weight is enclosed inside the body cells and is called the intracellular fluid. Of the remainder, called the extracellular fluid, which constitutes 20% of the body weight, 5% is present in the blood plasma and 15% constitutes the interstitial fluid which represents the lymph and the other body fluids. The interstitial fluid is the intermediary between the blood and the cells of the body, helping the exchange of fluid between the two components. It is being continually formed from the blood and is in constant circulation through the lymph channels, lymph glands and the thoracic duct and finally draining itself into the blood circulation again. Of the mechanism of the formation of the interstitial fluid, the most important is the hydrostatic pressure within the capillaries. In the case of any fluid loss from the body, the first charge falls on the interstitial fluid which forms a reservoir of a much larger volume about three times than the blood. A severe loss of the interstitial fluid will necessarily lead to a great disturbance in the process of compensation of the depleted plasma volume on the one hand, and those of the tissue cells on the other, thus leading to serious consequences.

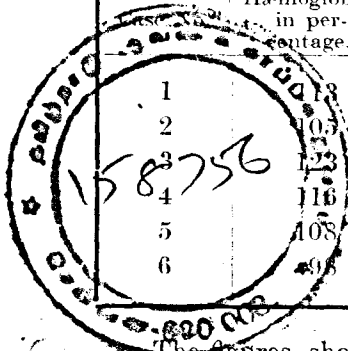
Profuse evacuation of watery fluid through copious vomiting and purging is the most prominent manifestation in cholera. With a view to study this problem of loss of fluid, the following method is adopted.

Method.—Changes in the concentration of blood in cholera were followed by estimation of hæmoglobin of the blood and also by estimation

* Specially contributed to 'The Antiseptic'.

of corpuscular volume by hæmatocrit. In most cases, the estimation had been done several hours after the administration of Saline so as to allow sufficient time to establish the fluid equilibrium of the body.

Table showing the Values of Hæmoglobin.



Hæmoglobin in percentage.	Hæmoglobin in percentage of normal.	Case No.	Hæmoglobin in percentage.	Hæmoglobin in percentage of normal.
1	141	7	107	133
2	131	8	114	142
3	154	9	122	153
4	145	10	118	147
5	135	11	109	137
6	110	12	104	130

The figures, shown in the table, taking 80% of hæmoglobin to be normal, indicate a maximum value of hæmoglobin in percentage of normal to be 154, with a minimum of 110 and 138 as the average. This shows that in this series, the most severe case shows a rise of 54% in the concentration of blood. The average cases showed a rise of 38% while the mild cases 10%. All these figures being from cases recovering after intravenous injection of Saline.

Considering from what UNDERHILL and his co-workers (1923) have found, i.e., that an animal or man cannot long survive a blood concentration of 140% of the normal value and when concentration reaches 125 per cent of the normal value, conditions for the maintenance of life are becoming precarious, the above figures as shown by our observation indicate a condition of very serious hæmo-concentration.

The hæmatocrit findings also give the same results. The corpuscular volume in spite of repeated intravenous injection had been maximum 64, average 56 and minimum 50. With these figures, calculated on the basis of 45 as the normal percentage of corpuscular volume and with 55 as that of the plasma, the loss of fluid from blood comes to be maximum 54%, average 35% and minimum 18%. The calculation is done in the following way. Taking the maximum corpuscular volume to be 64, the plasma will be 36. As no red blood cells are lost, the corpuscular volume 64 is reduced to 45, the normal figure, and also the plasma volume 36 to 25.3 in the same proportion. This shows that there is serum 25.3 volumes instead of 55 normal, i.e., a loss of 29.7 of serum. 29.7 constitutes 54% of 55. Thus, in maximum cases, there is a loss of 54% serum. Similarly, the hæmatocrit finding of 56 corpuscular volume in the average case means a loss of 35% of serum from the blood. The minimum figure (50) indicates a loss of 18% of the serum.

These figures essentially corroborate those of ROGERS (1911). ROGERS has observed corpuscular volume of 71 in fatal cases with a loss of fluid amounting to 64%. Assuming that the blood volume amounts to about 5% of the body weight, a normal individual weighing 65 kilo will have about 3,250 c.c. of blood of which 45% represents erythrocytes and 55% plasma, i.e., 1,463 c.c. of corpuscular volume and 1,787 c.c. of plasma volume. A case of cholera of average severity, weighing 65 kilo, will thus have a loss of 35% of

the blood volume, therefore, having 2113 c.c. of blood with 56% of erythrocytes and 44% of plasma, i.e., 1,183 c.c. of corpuscular volume and 930 c.c. of plasma. A severe case with a loss of 54% of the blood volume will have 1,495 c.c. of blood of which the corpuscle will represent 957 c.c., i.e., (64%), and 538 c.c. of plasma.

This huge loss of fluid from the circulating blood draws its supply from the interstitial fluid—the blood plasma and the interstitial fluid comprising the extracellular fluid. This extracellular fluid has two main functions in the body: (1) conveyance of the nutrient and of waste materials, (2) maintenance of the stability of physiochemical conditions within the organism. Of the two functions, the latter is obviously more prominent and requires closer study, while the former is apparently clear in itself. The more important functions consist in the maintenance of reaction in terms of pH, osmotic pressure and temperature. The values of these properties in the intracellular fluid are very closely associated with those in the extracellular fluid—one depending on the other. It is clear that there are, going on in living organisms, various chemical reactions, which are often interrelated, and these chemical reactions will fall out of adjustment very quickly, if the values mentioned above are not maintained at fairly correct and constant level. Three materials are directly required to maintain the extracellular fluid *viz.*, (1) water (2) Na (3) Cl ions. There are, many other components, but as these are supplied as a result of the metabolic process, and Na and Cl ions being always extracellular in their position, they are not obtained from the source of metabolism. It may thus be said that removal of water from the body takes place wholly at the expense of and in terms of transport function of extracellular fluid. Thus, we can understand that in cholera, two distinct sensations *viz.*, a specific craving for Na Cl and thirst are so intense and take place with a view to ensure adequate maintenance of extracellular fluid. Under normal conditions, this is maintained by the intake of fluid essentially through the gut, but in cholera, this organ is instead, the source of drainage of the fluid. Thus while normally, all the fluids of the body which constitute about 70% of the body weight have been absorbed through the walls of the alimentary tract, no intake is possible in cholera either as fluid or as food by this route.

Role of interstitial fluid during dehydration.—Our observations go to show that in cholera, the dehydration becomes extreme i.e., the interstitial fluid is exhausted and so functional failure of blood takes place due to the reduction of plasma volume. As the volume of blood plasma in the vascular channels is generally maintained stationary, while the interstitial fluid varies widely—leading to œdema when it is increased and dehydration when it is decreased—it appears that the plasma is in possession of a reserve in the interstitial fluid which is about three times its volume. This may be compared to money following in the current account with three times its volume in the reserve fund.

LAVIETES, BOUIDILLON and PETERS (1935) have attempted to measure the volume of the interstitial fluid in man. They selected some substances which are practically incapable of getting into the cells and are not altered in the body by oxidation or any other process. They injected these substances in persons and studied their concentration in the serum. By this method, in normal subjects they obtained values of about 20% of the body weight by means of Sucrose, Sulfocyanate and Sulfate. The values obtained by these three substances were not identical. But the figures

were so close that one can reasonably conclude that the normal human adult has, in his body, approximately 20% of his body weight, a fluid, the extracellular fluid, which is separated from other fluids—the intracellular fluid being impermeable to the substances mentioned above.

Exchange between the interstitial fluid, with blood on the one hand and cell on the other, is mainly done by the action of the capillary blood pressure and the colloid osmotic pressure. The capillary blood pressure constantly tends to drive fluid through the capillary wall while the osmotic pressure of the colloids to which this membrane is impermeable, exerts an opposing force tending to draw fluids back from the tissues into the blood stream. A question may arise whether the intracellular fluids remain undisturbed during such a process of dehydration. GAMBLE (1937) has found that intracellular fluid is also lost along with the extracellular fluid but undoubtedly when only considerable loss of extracellular fluid has taken place. ASCHBY, RICHARDS and BENEDICT (1931) have found similar evidence of loss of intracellular fluid in the dehydration of diabetes. It is most likely that this withdrawal of intracellular fluid in cholera is a late event in the process of dehydration, *i.e.*, only after considerable loss of extracellular fluid has taken place.

COLLER and MADDOCK, (1935) have shown that it requires a water deficit of 6% of the body weight to show the early manifestations of dehydration. Thus, from our own material, consisting mainly of young adults, the average body weight of whom has been taken to be about 65 kilo, showing early dehydration, the water loss must have been about 3.9 litres *i.e.*, more than 6½ pints. In cholera, the dehydration is very often extreme. Thus, a fluid loss amounting to 7.9 pints is of common occurrence in cholera.

The effect of absorption of water on the colloids and electrolytes of the interstitial fluid, after intravenous injection of Saline in cholera, is obvious. The interstitial fluid acts as an osmotic buffer. It serves as a large homogeneous mass of water and salts with no internal restraint other than the nominal one, imposed by the endothelial membranes. Under the combined forces of hydrostatic and the osmotic pressure of the colloids, which accumulate in certain parts of the system, it can be rapidly moved and aggregated, where its presence is mostly required.

Role of interstitial fluid in renal function of cholera.—In cholera, the loss of extracellular fluid is the result of failure of reabsorption of gastrointestinal secretions. These secretions are constructed from water and electrolytes, chiefly Sodium and Chloride ions, taken from the blood plasma and continually returned there under normal conditions. The loss of plasma, because of its direct relationship with the osmotic value, is accompanied by a corresponding loss of extracellular water. The kidney regulates water removal in terms of base loss and attempts to maintain the normal total base volume. In the late stages of dehydration in cholera, inaccuracy of control of the total base concentration is nearly always found.

LASHMET and NEWBURGH have estimated that the waste products eliminated by the normal kidney requires about 600 c.c. of urine per day and retention of urea and N.P.N. in blood takes place when the daily output sinks to below 600 c.c. In cholera, the excretion of fluid through the kidneys and also the maintenance of blood pressure and pulse are maintained so long as the water can be withdrawn from the interstitial fluid. When this becomes no longer possible, diminution of the water content of the blood

(anhydræmia), reduction of blood volume and great disturbances of renal function take place.

MADDOCK and COLLIER (1937) have shown that when water was given to experimentally dehydrated subjects, the urine volume did not immediately increase but a considerable quantity was retained to replace the body fluid previously lost. They are of opinion that the major need for water was to restore to normal some of the internal chemistry that had been upset during the dehydration period. Water to relieve dehydration and vaporisation is decidedly more important than water for kidney function, and it is only when the former had been cared for, that sufficient water becomes available for urine. This explains why, after repeated intravenous injections of Saline in cholera, blood volume returns to within normal limits as shown by the specific gravity estimation and also by hæmoglobin and hæmatocrit findings; still, suppression of urine persists for fairly long periods. Even total suppression of urine followed by fatal result may take place after adequate replacement of lost fluid.

As the kidney is responsible to keep the blood constant in composition and volume, which is essential for the purpose of optimum efficiency, an adequate supply of the interstitial fluid is absolutely necessary to meet this demand and further supply to produce a sufficient quantity of urine in order to dissolve the waste products of metabolism.

In cholera, the great disturbance in the extracellular fluid produces two different conditions, (1) a change in the volume of the extracellular fluid constituting dehydration and (2) a change in the structure of the extra-cellular fluid constituting acidosis.

There is a lot of evidence founded on the results of careful experiments by PETERS (1935), GAMBLE (1937) and others, which prove that Sodium and Cl ions do not pass the cell barrier and are always extracellular. The two immediate factors of control of hydrogen ion concentration in extracellular fluid are the concentration of free carbonic acid and of the plasma bicarbonate. The loss of interstitial fluid in cholera constituting hæmoconcentration, hypochloræmia and disturbance of acid-base equilibrium, plays the important role in the filtration through the glomerulus. This, in addition to the capillary reaction in the kidney, forms the basis for renal failure in cholera.

I take this opportunity to express my best thanks to PROF. C. C. BASU for his helpful interest, to the Physicians in charge of the Isolation Hospital, for permission to utilise the material, to the House Physicians for co-operation, and to Dr. BISWANATH BASU, for active help in this work.

References:

1. Aschby, Richards and Benedict (1931)—*Jour. Clin. Invest.* 10. 661.
2. Collier, F. A., Maddock, W. C. (1935)—Cited by Marriott and Kikwick (1937).
3. Gamble, J. L. (1937)—*Bull. John. Hop. Hosp.* 61. P. 151.
4. Lavietes, P. H., Boudillon, J. and Peters, J. P. (1935)—*Proc. Am. Soc. Clin. Invest.* May.
5. Lashmet and Newburgh—Cited by Marriott and Kikwick (1937).
6. Maddock, W. C. and Collier, F. A. (1937)—*Jour. Am. Med. Assoc.* 168. P. 1.
7. Marriott and Kikwick, A. (1937)—*Practitioner.* 139. P. 250.
8. Peters, J. P. (1935)—*Body Water*, London.
8. Rogers, L. (1911)—*Cholera and its Treatment*.
10. Underhill, F. P., Carrington, G. L., Hapsinow, R. and Pack, G. T. (1923)—*Arch. Int. Med.* 32. P. 31.

Change of Type of Some Diseases as Clinically Observed*

BY

SUBODH CHANDRA LAHIRI, M.D.,

Visiting Physician, Chittaranjan Hospital, Calcutta.

MANIFESTATIONS of a disease generally depend on two factors *viz.*,—

- (a) Causative factor or factors, and,
- (b) Reaction of the system to the above. The latter, *i.e.*, the reaction, is generally manifested as the symptom of the disease.

Now, from what has been said above, it may be concluded that a change of type of a particular disease may occur either by some change in the causative factor, *e.g.*, in the infective organism in case of an infective disease, or by some change in the system of the community of people likely to be affected, or by a combination of both the factors.

Students of history of Medicine are well aware of what a havoc syphilis had created in Europe, when it was first introduced there. Modern manifestations of that infection are very much milder. Hypervirulence of the symptoms of a disease, when it is first introduced into a community, may be explained by the fact that the specific protective immunological reactions of the human or any other animal system are very poor, when it is confronted with a new and unaccustomed infection. The system gets stunned, as it were, by its presence. Subsequent modification of virulence may be explained by the increase of mass immunity and also elimination of more susceptible persons. In this connection, one has also got to think of another possibility *i.e.*, whether the virulence of the infective organism gets attenuated by repeated passages through comparatively resistant hosts.

Observations discussed above are also true in cases of infections by *Bacillus tuberculosis*; Small-pox virus and many other infective organisms.

Apart from theoretical considerations, the author has made an attempt in the present paper to draw the attention of the profession to the change in the type of some of the diseases, which he has clinically noticed.

Malarial fever.—For the last two or three years, it has been noticed by the present author that the malarial fevers, especially, those caused by the malignant tertian parasites, are showing greater resistance to Quinine than before. Formerly, it was noticed that 30 grains of Quinine by intramuscular injections, *i.e.*, 10 grains of Quinine intramuscularly every day for three consecutive days, or about 60 grains of Quinine orally, where there were no gastro-intestinal complications, would invariably check an attack of malarial fever. But, for the last two or three years, the author has been seeing an increasing number of cases of malignant tertian infection, where even sixty grains of Quinine by intramuscular injection in the course of 4 or 5 days with plenty of Glucose and Alkali by mouth, would not cure an attack of the fever. The first three or four injections of 10 grains each would not produce any impression on the temperature and other symptoms. Even after six injections of the fever and other symptoms, though somewhat

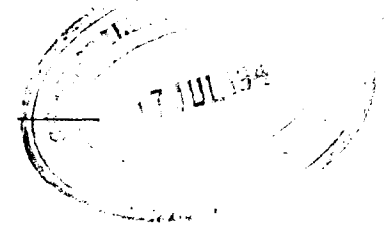
lessened in intensity, would continue, and had to be checked by Atebrin or its substitutes by mouth. In some of the cases, Quinine by injection was combined with Quinine by mouth without any better result. In all these cases, blood examination revealed heavy malignant tertian infection uncomplicated with any other disease. In none of the cases was there any sign of local inflammation at the site of injection, and the Quinine solutions used were those manufactured and sold in ampoules by Parke Davis & Co. All the cases treated in this series came either from the Presidency or Rajshahi Division of Bengal.

The above observation, though very meagre, raises the question whether a partially Quinine resistant strain of malaria parasite is coming into existence in Bengal. If we accept this possibility, we must admit that it is the result of incomplete treatment of malarial infection with quinine. If the treatment is stopped before the system is completely freed from parasites, the result is that these parasites which escape become to some extent accustomed to Quinine. Their progeny will be resistant to Quinine to that extent. If the infection caused by the latter parasites be subjected to further incomplete Quinine treatment, those parasites which will escape this time will develop further resistance to Quinine. Unless proper and timely steps be taken, this process may go on till a highly resistant, Quinine fast strain of malaria parasites may emerge, making the treatment of malarial infection infinitely more difficult. Owing to the cost and other difficulties, incomplete treatment of malarial infection is very common in Bengal. So, the danger is not merely hypothetical but should be further investigated.

Measles.—A little change in the symptoms of this disease has also been noticed in a number of cases. The stage of invasion or pre-eruptive febrile stage of this disease generally lasts, as described by OSLER, "from three to four days, very rarely five or six." In recent years, the present author has seen a number of cases in which this pre-eruptive febrile stage lasted for seven days and the eruption came out on the eighth day. The course of the disease in all these cases has been very severe throughout. The fever has been high and continuous from the beginning, with marked toxæmia, eruptions in some of these cases have been hæmorrhagic in type, and all the cases have been complicated with broncho-pneumonia and gastro-intestinal complication.

Changes have also been noticed in the type of some other diseases which will be discussed in a later communication.

* Specially contributed to 'The Antiseptic'.



Gastro-Enteritis*

BY .

R. SUBRAMANIAM, B. SC., M.B., B.S.,

Assist. Physician, Govt. General Hospital, Madras.

"Behold, O Lord, for I am in distress, my bowels are troubled".

—Lamentations, 20.

IN summer, leaving apart the common skin disorders as prickly heat and summer boils, the alimentary disorders are far too frequent among the systemic disorders. There are several factors which predispose to this. In the first instance, the food is not relished when hot and steaming *i.e.*, when it is in such a state as is least likely to be contaminated. It is a custom in this country in a large majority of people, even among the middle classes, to boil the rice and add water to this boiled rice and take it the next day. The boiling of the rice allows the starch to be softened and is a good media for pathogenic organisms.

Leaving apart such individual habits, summer season brings with it the sale of cool drinks, sherbets and ice-creams by street-vendors. All these articles are flavoured and sweetened and so attract flies. The process of making these articles, as also selling them, involves their being handled by a number of persons. So much so, there are two factors: firstly, the consumer is exposed to fly-borne diseases and secondly to the diseases that are harboured by the seller and the various other persons concerned upto the time when the produce reaches the vendor.

Summer season is also the time when most of the fairs and festivals take place, and as is well known, Indian fairs and festivals are the most unhygienic centres, where the conservancy arrangements were, till very recently, next to nothing and even now the state of affairs requires to be improved a great deal. It was a bitter experience, till very recently, for Madras to have epidemics of cholera after the festival at Periapalayam, about fifty miles from Madras. Now that the Public Health authorities have provided for protected water supply, prohibited the selling of the eatables in open trays exposed to the flies, and arranged suitable conservancy measures, cholera epidemic does not break out after the festival in this place. Even now, in many festivals even in cities, sweets are carried in open trays with flies hovering about them in numbers and street dust being raised by the vehicles constantly sprinkled on them, and these sweets are consumed by little children. Further, food which has been prepared a day before is carried and consumed on the banks of road-side tanks and also the water of the tank consumed—a tank which serves the common purpose of reservoir of drinking water, for washing the clothes and cattle, and for purposes of ablution and bathing.

Either one or several of these above factors favour the onset of gastro-enteritis. Gastritis is manifested by the vomiting and nausea, and after a few hours, enteritis is evident by diarrhoea or by passing blood and mucus with diarrhoea. There may be manifested in a case gastritis, and as this subsides, enteritis manifests or both may be present at the same time, though the latter is very uncommon except in cholera. In the other alimentary disorders, as in bacillary-dysentery, vomiting is very exceptional. In typhoid fever, the writer has seen vomiting and diarrhoea

both present at the same time, though far more commonly diarrhoea alone is seen. Exceptionally, in one case of typhoid which was under the writer's care, vomiting and nausea persisted and the temperature was going steadily for the first ten days, and with the temperature having reached the fastigium, vomiting stopped and diarrhoea started. Typhoid was not suspected for the first three or four days when the temperature was low, both temperature and vomiting being attributed to gastritis. In cases of food-poisoning also gastro-enteritis occurs.

So, in a case of gastro-enteritis, the possibility of its being cholera, or typhoid or bacillary dysentery or a case of food-poisoning must be borne in mind.

Some of the salient symptoms of enteric fever are:—Fever of insidious onset with persistent head-ache during the first week. Pulse is slower corresponding to the temperature. Tongue is coated heavily. Very often, particularly in the adults, the papillae stand out red on a dirty background. Abdomen is tumid. In most cases, there is no nausea or vomiting, but in a few, enteric fever is ushered in with very severe vomiting and rigor, and simulates an irritant poisoning. By the end of the first week, the head-ache stops and delirium commences and the patient goes into the typical typhoid state with slow muttering, lying unconscious with half open eyes, slightly hard of hearing, responding indifferently to questions and may be picking at the bed-clothes. Bowels invariably become loose, and is semi-solid in consistence with very offensive smell—the so-called pea-soup stool. Pulse is moderately full, but easily compressible. Urine is high-coloured and may contain a trace of albumin. It is seldom that typhoid rash is seen even in fair-skinned patients in this country. The writer has seen typhoid rash only in half a dozen out of over five hundred cases of typhoid. The rash appears at any time from 8th to 15th day or even later. The temperature reaches the fastigium in a few cases only, at the end of the first week. In most cases, even at the end of a fortnight, fastigium is not attained and, in not a few cases, it may be prolonged to the third or fourth week. The fact of the fastigium being delayed is not mentioned in text-books and the error of ruling out typhoid when the temperature is high and steady during the 4th week, is not avoided. In cases with diarrhoea from the onset, the temperature is not affected, but in cases with constipation or regular bowels with the onset of diarrhoea, temperature drops down, and if measures are taken to control the diarrhoea, then the temperature goes up. By the end of 20 days, the motions are reduced in number, get more solid, and the colour changes from brownish black to yellow. Diarrhoea in enteric cases is, in most cases, not attended with tenesmus or griping though a few patients may persistently complain of colicky pain, particularly during the end of the 2nd week and the whole of the 3rd week. During this stage of the fever, there is marked wasting of the muscles, and asthenia is present. In uncomplicated cases, patient enters convalescence. Temperature gradually comes down by lysis. In most cases, about 70% of them, temperature chart shows an intermittent type of temperature. During convalescence—particularly in girls—it is fairly common to get *Bacillus coli* pyelitis, keeping up the intermittent temperature for a fairly long time, unless this complication is suspected and suitable measures are adopted. As the patient does not complain of any pain to direct the attention to the kidney, and clinical examination also fails to elicit any accountable cause for the temperature, urine must be examined

* Specially contributed to 'The Antiseptic'.

in these cases as a routine, when the temperature is markedly intermittent for more than a week or ten days. In a few cases, a latent malaria or pulmonary tuberculosis may keep up the temperature. Both these conditions are not likely to be missed as the progressively enlarging spleen in the one and the lung signs in the other will draw the attention and a blood smear in the former and the sputum examination in the latter confirm the diagnosis. After convalescence, the temperature is likely to be subnormal for a few days. Patient feels unsteady to walk and very weak. Appetite is generally good, sometimes voracious. The writer has recently seen a case, in which a boy of 10 years old—a convalescent case of typhoid fever—was complaining of intense appetite after consuming a plate-full of rice and curds and a full loaf of bread. It is best to restrict the diet in spite of the appetite; for, the patients rapidly gain weight and strength. In some patients, blood-pressure is low during convalescence and long after the fever, and they continue to complain of giddiness.

Some of the salient symptoms of cholera are:—In times of epidemics, cholera starts either as diarrhoea which lasts for 2 or 3 days and then the symptoms of cholera set in or it may come on suddenly. It starts with profuse diarrhoea, the motions succeeding one after another very rapidly, losing the faecal nature and becoming watery with a few flakes of mucus, —the so-called rice water stools. At this phase, vomiting sets in. Motions are painless invariably, but they may at times be attended with griping. Due to the profuse loss of fluid, signs of dehydration as sunken eyes, scaphoid abdomen, shrivelled-up skin, particularly the palm of the hand—compared to washerwoman's hand, are manifested. The surface temperature markedly falls to 97°F. or lower, while the rectal temperature is high and may be 104°F. to 105°F. or even higher. This lasts for 2 to 3 days. Pulse becomes feeble, fast, and thready, and may even be difficult to count. During this stage, patient is restless. Complaints of intense thirst and burning sensation in the chest and cramps occur in various muscles. The muscular cramp occurs in the extremities and the abdomen—particularly, the rectus abdominis. The affected muscles become rigid and are felt as lumps. Suppression of urine and biliary secretions occurs. Generally, consciousness is not impaired. From this stage, either the patient does not recover or he goes to the cholera-typhoid state. In the stage of reaction, the surface temperature becomes normal or slightly goes above normal, the secretion of urine and bile starts and the vomiting and diarrhoea gradually stop. Pulse could now be felt to be definitely getting better, and the volume and tension are good.

In the cholera typhoid stage, all the features mentioned above happen, but with the general improvement the body temperature goes up, and the appearance of the patient is like a typhoid fever patient during the middle of the 3rd week when the fever is at its acme. During this stage also death may occur from asthenia, diarrhoea persisting or pneumonia.

While the above symptoms are the usual ones, ambulatory cases may be met with which subside with diarrhoea only during times of epidemic. The other variety is the case, where there may be no vomiting or diarrhoea, but the patient dies before symptoms are manifested; this is the so-called cholera sicca or dry cholera, and the other type associated with high temperature from the onset. The axillary temperature in these cases reaches 107°F. and these are invariably fatal.

Symptoms of the bacillary dysentery.—The majority of the cases of dysentery are bacillary dysentery. Some are due to amoeba

and other protozoas and some others still, though rarely, are caused by helminthic infections. As in cholera, the disease may start as diarrhoea and gradually lead to passage of blood and mucus or may come on suddenly with acute rise in temperature and from the start passing blood and mucus. In the early stages, the abdomen is rigid. There is dysuria in the majority of cases and there may be pain in the abdomen referred to the areas above the sigmoid, splenic or hepatic flexures and very rarely over the caecum. Tenesmus may or may not be present, depending on the site of the lesion, the nearer it is to caecum or rectum the greater will be the griping. The patient may be toxic. The number of motions may be so great as to glue the patient to the commode. Temperature may range anywhere from 100°F. to 104°F. with a daily variation of 1.5° to 2° F.

Character of the motion :—The first one or two motions are faecal and bulky. This is seldom seen in practice. By the time the patient seeks medical advice, he passes small quantities of pure mucus tinged with blood. This is alkaline in reaction and free from smell and, when examined under the microscope, consists of leucocytes, particularly polymorphs with their margins uneven, presenting the mouse-eaten appearance. There are macrophage cells which may even contain red-blood cells but are non-motile as distinguished from amoeba. The red cells are either lying free or in rouleaux but never in clumps. There is no activity i.e., no bacilli or organisms seen; whereas, in amoebic dysentery, the motion will be teeming with micro-organisms.

Bacillary dysentery in children.—In children, bacillary dysentery is very common and amoebic dysentery is exceptional. In most cases, the dysentery is ushered in with convulsions and frequency of motion. Soon, the number of motions increases. Children stand dehydration very badly and the patient may be carried off unless the treatment is very energetic. The child looks very ill, with dry tongue and if the fontanelles are still patent, it is sunken and the skin is shrivelled, dry and inelastic. Abdomen is full and tender and sometimes distended; tenderness may be referred to the colon region. Pulse is rapid, tongue thickly coated with white fur and the tip clean. Mouth is wanting in natural moisture. The picture is graver in all its aspects in the case of children.

Character of the motion :—Some cases pass blood and mucus, while in others, motions are only green and offensive and in some, yellow and loose. In all these cases, microscopic examination invariably shows cellular exudate and macrophage cells and absence of micro-organisms and the reaction of the motion is alkaline.

Symptoms of food poisoning :—This is rather uncommon in this country because in feasts and dinners only fresh articles are used and tinned products are very rarely served. This is characterised by gastro-intestinal upset in a large number of persons after having had a common meal. Symptoms come on from 3 to 4 hours to 3 or 4 days after taking the contaminated food. The onset of the symptoms occurs earlier when the contaminated food is taken alone, or in an empty stomach or when the body resistance is poor as in debilitated conditions. Conversely, the symptoms are delayed or even may be absent when the contaminated food is only a part of the meal with a bulk of wholesome food or when the stomach is full or the general resistance of the person is high. Symptoms when they appear are vomiting and diarrhoea. Usually, vomiting precedes diarrhoea by a few hours. Temperature may go up to 103°F. or 104°F. Sometimes, the

attack may start with rigor. Prostration is always marked. Pulse is rapid and feeble. There may also be painful cramps and intense thirst. In some cases, urticarial rash may occur.

Diagnosis.—Diagnosis of these conditions is so easy, once the disease is well advanced and the symptoms are fully established, that even a novice is not likely to make a mistake, while, in the earlier phases of the disease, and in atypical cases, the very elect also may be led astray.

Diagnosis of typhoid :—This is a long continued fever, characterised, at the onset, by slow pulse during the stage when the temperature has not as yet reached the fastigium, when the pulse rate corresponds to the temperature. Abdomen is tumid very early in the course of the disease. Tongue is coated. Headache, which is continuous in the first week, stops with the onset of delirium. At the end of the first week, a soft spleen just palpable below the costal margin can be felt. In some cases, a rash may be present. During the first week, bronchitis is usually present. Temperature curve gives the best clue by its characteristic curve. Any one of the above factors, though by itself is not diagnostic of enteric fever, is very suggestive. Diagnosis can only be confirmed by bacteriological investigation. If seen in the first week, the culture of blood will give a positive blood culture for *B. typhosus*. In the later weeks blood agglutination for *B. typhosus* of over 1 in 200 is conclusive. If only an agglutination of 1 in 100 or less occurs, then, the test may be repeated after 5 days; for, a rise in titre is confirmatory of the fever being typhoid. After the 3rd week, *B. typhosus* may be isolated by urine and motion culture.

Diagnosis of cholera :—In an epidemic, even cases of diarrhoea must be suspected as cholera till proved to the contrary. In an established case, diagnosis is easy by the vomiting, rice water stools, signs of marked dehydration as sunken eyes and shrivelled-up skin, suppression of urine and severe cramps in the muscles and the voice reduced to whispers. Cholera cases have got to be distinguished from cases of acute attacks of malignant tertian malaria, and fulminant attacks of bacillary dysentery and a severe attack of irritant diarrhoea. Blood examination will eliminate malaria as also the cause of the illness, and a history of headache and back-ache and a palpable spleen. In bacillary dysentery, motion examination and motion culture may give a clue to the diagnosis. Even in severe cases of diarrhoea, the motion is never devoid of biliary tinge and is likely to contain undigested food due to the hurried passage, and there is invariably pain associated with the passage of motion and motion-culture does not yield cholera vibrio. In cholera, the passage of motion is not accompanied by pain or effort as in cases of diarrhoea. Motion-culture in Peptone broth media gives a growth of Comma vibrio and clinches the diagnosis.

Diagnosis of bacillary dysentery :—Diagnosis is difficult in the early stages when blood and mucus are not passed but only large evacuations of faecal matter. Later, the dysentery has to be distinguished from amoebic dysentery. Amoebic dysentery is usually insidious in onset and not attended with fever. It is not unusual for a mixed infection to occur, when amoeba may be present as also bacterial infection. Diagnosis in these cases can only be made by motion culture and microscopic examination of the motion. Care should be taken not to mistake macrophage cells for amoeba. The chief distinction in a fresh specimen is, the macrophage

cell is non-motile whereas amoeba is motile. I have seen several cases in which *Entamoeba histolytica* was present and, at the same time, motion culture was positive for Shiga or Flexner organisms. In these cases, clinical improvement is not satisfactory when treatment is for amoebic or bacillary infection alone.

In this country, malignant tertian malaria very closely simulates bacillary dysentery. Diagnosis is definitely arrived at by examining the blood smear. Microscopic examination of the faeces gives a tentative diagnosis by the presence of cellular exudate. A convenient test, though not completely dependable, is to look for the reaction of the motion. It is acidic in the case of amoebic dysentery and basic in bacterial infection. This can be done by using a moistened litmus paper. Though this is useful in many cases, absolute reliance on this test alone is not justified. Motion culture, though useful, does not always give a positive culture, and a negative culture result cannot rule out a case from being bacillary dysentery. Serum agglutination for dysenteric organisms, while useful in chronic cases, is of no value in the acute cases.

Helminthic dysentery is never so acute as bacillary dysentery, and generally not attended with fever, but in some cases, particularly in children, signs of broncho-pneumonia, convulsions and dysentery are all present and the motion examination microscopically reveals the ova usually. Ascariasis is the commonest helminthic infection.

Diagnosis of food poisoning :—Is generally easy by the sudden onset of gastro-intestinal upset in a number of persons, who have taken a common meal. Bacteriological examination of the motion and culture for *Salmonella* group of organisms is essential. Serum agglutination against *Salmonella* group of organisms may also be done. As arsenic and other chemical poisons also produce an identical clinical picture, the vomit and faeces must also be sent for chemical examination for the presence of arsenic or other chemical irritants. If the food that was taken be available that also must be inspected and sent for both chemical and bacteriological investigations.

Treatment.—**PROPHYLAXIS** :—Water used must always be boiled and cooled and stored in clean vessels for drinking purposes. All articles of food which are difficult to digest as unripe fruits and nuts must not be consumed in large quantities at any time and should altogether be avoided when there is an epidemic of cholera or dysentery or typhoid. Foods should also be stored from fly contamination, and selling of eatables in open trays exposed to flies should be prohibited. In times of epidemics, protective inoculation for cholera and typhoid should be insisted upon for all and particularly, where a large number of people live together as in hostels, prisons and barracks. The patient should be isolated—preferably in an isolation hospital—and all excreta and vomit should be carefully disinfected before being discarded, and also care should be taken that they are not accessible to flies. Attendants on the sick should be inoculated and should wash their hands well before leaving the patient or the hospital. It is advisable for the attendants to use sterilised overalls while attending and discard them when leaving the ward. Before discharging a patient from the hospital, culture of excreta and bile must be done to see that the patient is not a carrier.

GENERAL TREATMENT :—In all cases of gastro-enteritis, irrespective of

the cause, the patient must be put to bed and rest ensured. In bacterial infections, all solid foods are withheld and in the acute stage, when vomiting is severe, nothing is given by mouth for the first 24 to 48 hours, by which time vomiting stops or is greatly diminished. Fluid loss has to be compensated as also the tendency to alkalosis corrected by giving normal Saline per rectum, if there be no diarrhoea, or by the vein. The essentials of treatment in all these bacterial infections are three: viz., (1) To replace the fluid loss caused by vomiting and diarrhoea. (2) To combat the toxæmia produced by the pathogenic organisms. (3) To arrest the growth of the organisms and to destroy the same.

Treatment of typhoid fever:—Treatment of an uncomplicated case is essentially one of nursing. Patient is put in a convenient bed with access on either side with back attended to twice a day to prevent bed sores. Four hourly temperature and pulse chart must be maintained and whenever the temperature goes beyond 104° F. tepid sponging must be done. Ice bag to the head when the temperature is over 102° F., gives comfort to the patient. Lips and gums are attended to with an emollient. Lime-juice and Glycerine in equal part is very suitable. Mouth is attended to by Condy's gargles after each feed. Boroglycerine is applied to the teeth, and inside of the cheek and gums. In coma vigil, ulceration of the cornea is prevented by washing the cornea with a mild Boric lotion. A simple diaphoretic mixture is sufficient in an uncomplicated case. Being a long continued fever, if there be no diarrhoea, diet can be liberal. I have given a diet of the calorific value of 1,500 to 2,000 calories a day, during the fever period, with benefit. Only liquid foods are given as citrated milk, (2 grains of Soda Citras to an ounce of milk); and arrow-root conjee. The advantage of arrow-root is that it has no coarse particles to irritate the mucous-membrane, while, at the same time, it is fairly nutritious. This conjee can be served without milk in cases of diarrhoea. If there be diarrhoea, milk should be withheld and whey can be given instead. Orange juice can be given after-noons.

Treatment of complications of enteric fever:—*For tympanites:* Turpentine stupes to the abdomen and Essential oil internally can be given. Glucose is stopped if the patient is getting it liberally and starchy foods reduced. *For diarrhoea:* Plain arrow-root conjees are given and Kaolin in dram doses, every two hours. If even then diarrhoea is severe, Bismuth carb can be added to Kaolin. *For constipation:* Every other day, a low glycerine enema, using 3 ozs. of glycerine to an equal quantity of water (for an adult) is given. *For hæmorrhage:* If very small, and pulse not affected, nothing special need be done for hæmorrhage but diet is simplified and the patient put on whey and albumin water only. If the hæmorrhage be severe enough to cause a rise in pulse rate, then all feeds are stopped. Morphine $\frac{1}{4}$ grain is given subcutaneously to procure rest. Only sips of iced Glucose water is given. Congo-red 20 c.c. of a 1% solution given intravenously is very useful. If not available, 15 to 20 c.c. of patient's blood can be given deep intra-muscularly with benefit. Auto-hæmotherapy is a very valuable procedure and the writer has found this giving splendid results in some of his cases. Hæmoplastin 2 c.c. intramuscular injection can be given. This is not so useful as the previous remedies suggested. In progressive and recurrent hæmorrhages causing pallor and signs of shock and pallor, blood-transfusion if possible is the ideal thing to do, and in its absence, isotonic gum Saline can be given. Calcium chloride 10 c.c. of a 3% solution can be

given intravenously every 4 hours. *For perforation:* Immediate operation is the only means of saving the patient.

Treatment of cholera:—*Prophylaxis:*—During times of epidemics, inoculation should be done on a mass scale. Purgatives should not be given. Cases of diarrhoea should be checked energetically. All indigestible articles should be avoided. Tomb's mixture may be taken as a prophylactic twice a day.

R	Ol. of Cloves	...	℥ v
	Ol. of Cajput	...	℥ v
	Ol. of Juniper	...	℥ v
	Acid Sulph. Arom.	...	℥ xv
	Spts. Etheris	...	℥ xxx
	Acacia Gummi	...	℥ s.
	Aqua ad	...	℥ ss.

Excreta should be disinfected and disposed off. Flies should not have access to the same.

Treatment of the case:—Treatment aims at replacing the fluids and salts lost by injection of Salines, when the specific gravity of the blood goes above the normal of 1056 to 1058. Two salines are in common use. (a) Hypertonic Saline (Sodium chloride 120 grains, Potassium chloride 6 grains, Calcium chloride 4 grains, Aqua ad one pint) is useful for replacing the blood volume and loss of chlorides. (b) An alkaline solution (Sodium bicarbonate 160 grs. Sodium chloride 90 grs. Aqua ad one pint) is useful to counteract acidosis and uræmia. In conditions of collapse, one pint of the alkaline solution is injected and calculating on the specific gravity of the blood the hypertonic solution is given, e.g., for a specific gravity of 1062, two pints, for 1063 three pints, etc. The idea is to keep the specific gravity of the blood below 1060. Specific gravity of the blood is determined by mixtures of glycerine and water of known specific gravity. Injections should be repeated whenever the specific gravity goes up. Temperature of the Saline is controlled by the rectal temperature. If temperature be high, cool Saline is given.

RECTAL TEMPERATURE.	TEMPERATURE OF SALINE.
(1) 97° F. and below	102° F. to 104° F.
(2) 97° F. to 100° F.	98.6° F. to 99° F.
(3) Above 100° F.	Below 98° F.
(4) Above 102° F.	Room temperature (80° F.)

During the stage of reaction, cold sponging may be done when the temperature goes over 105° F. For low blood pressure, Pituitrin 1 c.c., t.d.s. may be given. Threatened uræmia is controlled by poulticing the loins and liberal doses of alkalies by mouth. Other complications are dealt with systematically. Cholera serum and phage therapy are under trial. During convalescence, carbohydrate diet can be increased but proteins can be given only after the kidneys are functioning normally.

Treatment of bacillary dysentery:—*PROPHYLAXIS:*—Similar to cholera and typhoid. Water and food contamination must be avoided.

CURATIVE:—The patient must be put to bed and kept warm. During the 1st day, plenty of water with barley or as albumin water can be given. From the next day, a non-residue diet as arrow-root and Benger's food can be given. Milk should not be given in any form. The diet can later on be gradually brought to normal. After a preliminary purgative like Ol. Ricini $\mathfrak{z}$ i, Soda Sulph. one dram is given every hour, till the motion is free from mucus and is fæcal. Then, Kaolin is given in dram doses every two

hours. In acute cases serum, preferably Polyvalent, is given. In our country, the severe type of dysentery is commonly caused by Shiga infection and so Shiga dysentery serum can be given. In severe cases, dehydration is pronounced and this can be controlled by isotonic gum Saline. This can be given about a pint at a time intravenously for adults. In children, normal Saline can be given by the subcutaneous route, about 3 ozs. for an infant, 5 to 8 ozs. for a child upto 8 years of age and 10 ozs. for older children. Children stand dehydration very badly and fluid loss should be promptly attended to. Serum is best given intramuscularly. For griping and tenesmus, a hot water bag to the abdomen is useful. Charcoal and Kaolin can be given orally for distension and Turpentine stupes to the abdomen. Starch and opium enema can also be given for griping. As the patient's general condition is improving, the diet can be increased. If the motions continue to be loose, Tannic acid 2% solution—either plain or with 3 i of Tr. Opii to a pint—can be given per rectum with great benefit. Bacteriophage is disappointing. Other complications are treated symptomatically.

*Treatment of food poisoning:—*PROPHYLAXIS:—Avoid articles of tinned foods as far as possible. Care should be taken while opening the tins to see whether the lid is bulging and if so to discard it as also to note a hissing noise indicating escape of gas, on opening the tin. Proper care of cooked food is also essential.

*Treatment of the case:—*Rest in bed is essential. If the onset of symptoms be less than three hours after taking food, stomach can be washed with normal Saline. Patient is given liquid diet 3 to 4 ozs. every two hours. Brandy one or two spoonfuls may be added to the feeds with advantage. Milk should be withheld in these cases. For pain and diarrhoea without collapse, Morphia $\frac{1}{4}$ gr. subcutaneously can be given. Bowel wash with normal Saline is also useful. If there is severe dehydration, then 5% Glucose Saline can be given intravenously. A mixture containing Bismuth et Sodii with Acid Hydrocyanic dil may be given to control gastritis and nausea and Bismuth Salicylate for diarrhoea. Motion culture is repeatedly done and only when three consecutive cultures are negative for Salmonella group, the case can be considered as cured.

Summary.—1. Some reasons for the increased prevalence of the gastro-intestinal disorders in summer are mentioned.

2. Some of the commoner diseases causing gastro-intestinal disorders are enumerated. Chiefly typhoid, cholera, dysentery and food-poisoning group are mentioned.

3. Symptoms of typhoid, cholera, dysentery and food-poisoning and their diagnosis and treatment are given briefly.

4. The writer has freely used his ward case notes in describing the symptoms and treatment. The writer is also indebted to the various books on these diseases, though only to a few of them bibliography is given.

Bibliography:

- | | |
|--|---|
| 1. Price; Text Book of Medicine. | 4. Rogers and Megaw—Text Book of Tropical Diseases. |
| 2. Manson Bahr—Text Book of Tropical Diseases. | 5. Ker's—Manual on FEVERS. |
| 3. Manson Bahr—Dysenteric Disorders. | 6. Stitt—Text Book of Tropical Diseases. |

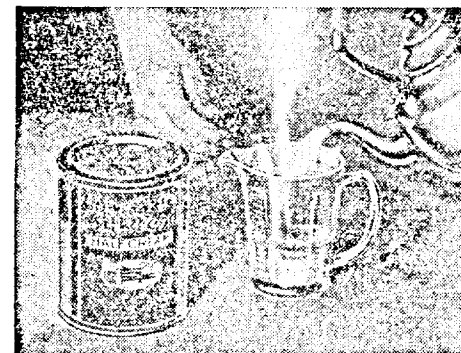
67. Muthumari Chetty St,
Madras.

A COW & GATE PRODUCT for EVERY INFANT IDIOSYNCRASY



COW & GATE MILK FOOD A complete food for normal infants.

Clinical samples and literature regarding these products will be gladly sent to any member of the Medical Profession on request to Messrs. Carr & Co. Ltd., Wittet Road, Ballard Estate, Bombay, or direct to Cow & Gate Ltd., Guildford, Surrey.



HALF CREAM For delicate infants and in all cases of Fat intolerance.



COW & GATE GLUCOSE A.D. The Cow & Gate Glucose with added natural vitamins.



BRESTOL A Humanised Cream of high vitamin value for milk modification, indicated for Marasmus and backward babies.



LACIDAC Lactic Acid Milk in Powder Form for gastro-intestinal disturbances, whooping cough, pneumonia, measles, diarrhoea, marasmus, vomiting. Supplied in three strengths—Separated, Half Cream and Full Cream.

© 2291

"Ample stocks are available in India and will be maintained"



The Reliable Sulphanilamide PROTECTION AGAINST SUBSTITUTION

P-amino-benzene-sulphonamide (sulphanilamide) is recognised as the most generally valuable of the whole sulphonamide series, and now occupies a place in every surgery.

It is essential, however, that only the purest drug, from a known and reliable source, should be prescribed. The word SEPTANILAM is the description of the Glaxo Laboratories' product, bearing their usual guarantee of purity and reliability.

For your patients' protection, and in your own interest, prescribe SEPTANILAM in original packs of 25 or 100.

INDICATIONS

Streptococcal and meningococcal infections; acute and chronic gonorrhoea; staphylococcal infections, erysipelas, scarlet fever, etc.

GLAXO LABORATORIES
LIMITED,
Greenford, Middlesex,
ENGLAND.

SEPTANILAM

Representatives in India:—H. J. FOSTER & CO., LTD. BOMBAY CALCUTTA MADRAS LAHORE

ERBOLIN

STABLE, STANDARDISED, DEPENDABLE ERGOT

NEW
CONVENIENT SIZE

PRODUCT OF THE
GLAXO LABORATORIES

GLAXO LABORATORIES
LIMITED
GREENFORD, MIDDLESEX,
ENGLAND

Representatives in India:—
H. J. FOSTER & CO., LTD.
BOMBAY CALCUTTA
MADRAS LAHORE

To meet economically the need for the usual brief course of ergot, Erbolin—stable defatted ergot—is now available in tubes of ten capsules. Erbolin is not only as economical in use as liquid ergot but has not the disadvantage of rapid deterioration.

PACKING: Phials of 10 capsules.
Bottles of 100 capsules. Special terms for Hospitals on request.

When writing to advertisers, please mention the "Antiseptic"

PRODUCT OF THE
GLAXO LABORATORIES

RATIONAL TREATMENT of DIARRHOEA

It is necessary to control diarrhoea, of whatever etiology, as rapidly as possible. "Pectasorb", now introduced by Glaxo Laboratories, has been specifically designed for this purpose, and is a combination of two important therapeutic agents, Pectin and Magnesium Trisilicate.

PECTIN The raw apple treatment of diarrhoea is of proved value in many cases, the treatment having received particular notice in America and on the Continent.

Various theories have been put forward to explain the effect of raw apples, but the view that is commonly accepted is that it is due to pectin. This theory is supported by the fact that preparations of pectin are as efficacious as the raw apple pulp.

As a result of their absorptive capacity pectins are able to fix bacteria and toxins, rendering them inert. Fluid secretions can be taken up, assisting in the conversion of a fluid stool into a formed one. By its buffer action, it can help to limit fluctuations in the reaction of the intestinal contents.

MAGNESIUM TRISILICATE Apart from being antacid, magnesium trisilicate is a powerful adsorbent of bacterial and food toxins. It is probably the most effective substance of this type.

PECTASORB which combines the properties of Pectin and Magnesium Trisilicate has a powerful controlling influence in diarrhoea, in both the chronic and acute forms. It arrests the absorption of toxins into the blood stream, protects the mucous membrane from irritants, and checks excessive peristalsis.

DOSAGE

It is an additional advantage, that the dosage is small, one teaspoonful every four hours being usually satisfactory. The usual precautionary measures, such as the administration of fluids and careful selection of diet, should be observed.

... PECTASORB ... is in granules, and should be given suspended in water.

Representatives in India:—
H. J. FOSTER &
CO., LTD.
BOMBAY CALCUTTA
MADRAS LAHORE

PECTASORB

GLAXO LABORATORIES LTD., Greenford, Middlesex, ENGLAND.



SHIONO SEX HORMONES

PRAC-HORMON
ANTERIOR PITUITARY HORMONE

In functional and developmental disturbances of Male & Female sex glands.

PELANIN
FOLLICULAR HORMONE (OESTRIN)
Hypofunction of the ovary with or without genital infantilism; Amenorrhea, Climacteric disturbances, etc.

SHIONOGI & CO LTD
OSAKA JAPAN

LUTEINOLIN
CORPUS LUTEUM HORMONE

1. Habitual and Threatened abortion.
2. Sterility.
3. Spasmodic Dysmenorrhoea.

FORBON
ASYNTHETIC MALE HORMONE COMPLEX

1. Mental & somatic debility.
2. Sexual Neurasthenia.
3. Prostatic Hypertrophy, etc.

SOLE AGENTS: - RANBAXY & COMPANY
HASSAN CHAMBERS, OFF. SIR PHEROZ SHAH MENTAR, BOMBAY HALL ST. AMRITSAR.

When writing to advertisers, please mention the "Antiseptic"

Role of Insects in the Causation of Disease*

BY

P. L. DESHMUKH, M.D. (BOM.), D.T.M. & H. (LOND.),

Hon. Assistant Physician, Sassoon Hospitals, Poona.

THIS subject, though rather obscure and uninteresting, is, I believe, of great medical and hygienic importance. While I am sure that I will not be able to do sufficient justice to the subject in the few pages which the worthy Editor can justly allot to me, the reasons for my choice of the subject are strong enough. This part of our science is neglected to a great extent by students of Medicine, and if this necessarily short article only helps to stimulate their interest in the direction, its purpose is well served.

My interest in this branch of Medicine was roused by a patient who came to me with pain in the abdomen, followed by passing of small worms in numbers. I instructed the patient to bring the worms to me next time when he passed them. When they were brought to me, I examined them thoroughly but they had no resemblance to any of the usual intestinal parasites. They were short, truncated at one end and pointed at the other and moved slowly on the slide. They looked very much like small maggots. Being foiled in my attempt to define the species, I decided to send some of them to a Tropical School for identification. The report said that they were larvae of a fly belonging to the species Sarcophagidae (flesh-flies). Thus, the condition was one of intestinal myiasis.

The relation of insects to disease is three-fold as follows:—

- (1) Insects may be vectors of disease, *i.e.*, they may cause disease by inoculation or injection in the human being; *e.g.*, mosquito in malaria.
- (2) Insects may be mechanical carriers of disease *e.g.* Musca domestica or the common house-fly as in dysentery.
- (3) Insects may themselves be the cause of disease, *e.g.*, scabies causing itch.

Insects and insect-like organisms are grouped entomologically in the Phylum Arthropoda. Further sub-divisions of the phylum into Classes, Orders, Series etc., are tabulated below for the sake of convenience. It should be clearly understood that the classification is essentially incomplete for the fact that it includes only those subdivisions which are of medical importance.

Phylum Arthropoda	
Class Insecta	Class Arachnida
Orders	Orders
1. Hemiptera (bugs)	1. Acarina (ticks, sarcoptes etc.)
2. Anoplura (sucking lice)	2. Araneida (spiders)
3. Hymenoptera (bees, wasps etc.)	3. Scorpionida
4. Aphaniptera (fleas)	
5. Diptera (flies)	

* Specially contributed to 'The Antiseptic'.

The order **Diptera** is subdivided into the following series :—

- I. **NEMATOCERA**:—This includes Culicidæ (mosquitoes), Psychodide (sandflies), Simulidæ (buffalo gnats) and Ceratopoginidæ (culicoides).
- II. **BRACHYCERA**:—This includes Tabanidæ (Gadflies).
- III. **ARTHEICERA**:—This includes Oestridæ (bot flies) and Muscidæ (house and other flies).
- IV. **PUPIPARA**:—This includes 'Tick Flies'.

Below, I shall give some of the insect-vectors and the diseases they produce in the human beings, either by injection or inoculation :—

Mosquitoes of anophelina group. The members of this group mainly transmit malaria, though some of the species also transmit periodic *Filaria bancrofti* in Japan, China and East Indies, and *Microfilaria malayi* in South India; and Culicidæ group: *Culex fatigans*, and *Culex pipiens*, transmit periodic *F. bancrofti*; *Culex mansonii* transmits *M. malayi* in India and Java; *Aedes ægypti* transmits yellow fever and dengue; and *Aedes scutellaris* transmits dengue in Japan and non-periodic *F. bancrofti* in Pacific Islands.

Phlebotomus (sandflies), transmit leishmaniasis, phlebotomus or papataci or three-day fever, Oroya fever and verruga peruana.

Fleas transmit endemic typhus, plague, tapeworms named *Hymenolepsis* and *Dipylidium*.

Lice transmit relapsing fever, epidemic typhus, and trench fever.

Ticks are of three main types. *Dermacentor* transmits rocky mountain fever, tularæmia; *Rhipicephalus* (dog-tick) transmits Marseilles fever, African typhus and *Ornithodoros* transmits relapsing fever.

Mites, *Trombicula akamushi*, transmit Japanese River Fever or Tsutsugamushi Fever.

Bugs, *Triatoma megista*, transmit Chaga's disease caused by *trypanosoma cruzi*.

Flies, *Chrysops discalis* transmits tularæmia. *Chrysops dimidiata* transmits *F. loalloe*. *Glossina palpalis* and *morsitans* Tse-tse flies transmit Gambiense sleeping sickness caused by *Trypanosoma gambiense*. *Glossina rhodesiense* transmits Rhodesiense sleeping sickness caused by *Trypanosoma rhodesiense*.

Among the insects which act mainly as mechanical carriers of disease, the common house-fly and the cockroach stand foremost, though the insects that usually inhabit or frequent the houses are equally capable of doing so. The two insects mentioned above are most suited for the purpose; because (1) they appear to have an equal aptitude for enjoying clean as well as dirty material, (2) they are pretty bold and are fairly familiar with human beings and (3) they, particularly the flies, breed profusely.

The insects which themselves may cause diseases are many in number, and I shall deal below with the more important and commoner of the series.

Mites:—*Sarcoptes scabiei* or the 'itch-mite' causes scabies or itch. *Demodex folliculorum* lives in the hair-follicles and sebaceous glands and causes inflammation of the skin, particularly of the eyelids. *Tyroglyphus*

or the 'cheese-mite' is found in the floor dried fruit, cheese and copra, and occasionally infects the skin of the grocers, who handle them, causing erythema known as 'grocer's itch' or 'copra-itch'.

Ticks:—These sometimes cause paralysis known as 'tick paralysis', by their bite.

Flies:—*Simulium* or the 'buffalo gnat' is a blood-sucking fly, and sometimes, attacks human beings; *Culicoides* are blood-sucking midges and attack man for blood; *Stomoxys* is a blood-sucker and may attack man; *Chrysomya*, *Lucilia* and other species produce 'myiasis' of the wounds or intestines; *Sarcophaga* causes, in addition, facial myiasis; *Cordylobia* causes cutaneous myiasis by burrowing obliquely through the skin in the larval stage; Larva of *auchmeromyia* is a voracious blood-sucker, particularly at night; Larva of *gastrophilus* and *hypoderma* causes 'creeping eruption' in man; Larva of *dermatobia* burrows in the skin of man causing large abscess cavities.

Lice:—They are parasitic on man and suck blood. Eggs may be laid on eyelashes causing blepharitis.

Bugs and mosquitoes:—They are well known blood-suckers of man.

Spiders:—One harmful species—*Latrodectes* or 'Black Widow'—attacks man in privies and other out-buildings.

Scorpions:—These are well known to sting by their last segment—the telson.

Bees and wasps:—These may sting a man singly or attack him in numbers.

Knowledge of relationship between insect and disease is useful for the following reasons :—

- (1) It is possible to diagnose certain conditions with ease, sometimes only from the history of the patient.
- (2) This knowledge is useful in the prevention and spread of certain diseases.
- (3) It is possible with this knowledge to anticipate seasonal increase or otherwise in the incidence of a disease and to take measures accordingly, in the interests of public health.
- (4) It gives useful information about the epidemiology of some diseases.
- (5) It may be utilized to eradicate certain diseases.

Summary.—1. A case of intestinal myiasis due to *Sarcophagas* is placed on record.

2. Relationship of insects to disease is indicated and some available information about it is summarized.

3. Usefulness of such a knowledge is shown.

Lathyrism *

BY

R. B. MEHTA, M.R.C.P., D.T.M. & H., D.M.R.E.

Hon. Physician, Civil Hospital, Ahmedabad.

LATHYRISM is a very uncommon disease in this part of India, though it is quite common in some parts of Central India and United Provinces. IRWING, in 1857, considered that in some districts as many as six percent of the population were affected. A. BUCHANAN, in 1904, estimated that about 7600 persons were affected in Seugar District alone. ACTON, in 1902, found that in Rewah, there were 60,000 cases, chiefly affecting men in early prime of life. I have not been able to find any case of lathyrism reported from Gujarat. Few cases that have been admitted at the Civil Hospital had come from outside this Province.

Ætiology.—Believing the 'Kesari Dal' as the culprit, many workers tried to isolate a poisonous substance from the pea-lathyrus sativa. In 1883, ASTIER isolated an alkaloid which he regarded as the poison but gave no experimental evidence in support of his view. In 1917, STOCKMAN also isolated an alkaloid, but only in very minute quantities. DR. S. GHOSH has isolated a non-toxic amine which gives most of the alkaloidal test. ACTON in 1922, describing some cases in Rewah, stated that lathyrus sativa peas caused paralysis and death in ducks, but the poison could be removed by soaking the grain in three changes of water during twenty four hours. He says that the poisonous substance is soluble in water. It has been found, however, that some crops will produce lathyrism while others will not. It was a real irony of fate that the real culprit was not spotted and the innocent one had to undergo all the sufferings at the hands of various chemists and experimental workers, until HOWARD, SIMONSON and ANDERSON, in 1923, gave their definite verdict acquitting the innocent pea-lathyrus sativa, saying that it did not contain any poisonous bases at all; and convicting vicia sativa as a contaminating weed. It follows, therefore, that lathyrism is not due to consumption of lathyrus sativa. S. R. A. SHAH, in the July issue of I. M. G., reported an epidemic of lathyrism in a Punjab village, due to eating wheat contaminated with seeds of vicia sativa.

In September 1939, I came across three cases from one family, complaining of similar symptoms. The following is a brief resume of the three cases:—

- (1) Umerbibi, aged 35—mother:
- (2) Ahmedkhan, aged 23—eldest son.
- (3) Usufkhan, aged 19—second son.

The family consisted of Umerbibi, the mother, her two sons mentioned above, a daughter and six grand-children. All had an attack of vomiting and diarrhoea a month and a half previously. This attack gradually subsided. The mother and her two sons and later on the daughter too complained of tingling and numbness in both the fore-arms and legs, most marked in the distal parts. The symptoms in each case came suddenly at night making them unable to walk or do any work.

* Specially contributed to 'The Antiseptic'.

Comparing the case reports of DR. SHAH, the premonitory symptoms such as nausea, vomiting and diarrhoea followed by marked sensory symptoms in the affected limbs, which accompanied the paralytic symptoms, were exactly the same as in the above mentioned cases.

Physical examination.—Umerbibi, aged 35, C.N.S.: Cranial nerves—normal.

SUPERIOR EXTREMITY:—Tremors of the fingers of both hands present. No wasting of any group of muscles.

Muscle tone—diminished, *Muscle power* diminished.

Sensory disturbances—none except subjective as mentioned before.

Reflexes:—Biceps active on both sides. Triceps could not be elicited. Supinator present on both sides.

Abdominal reflexes:—Both upper and lower present. No sphincter disturbances.

INFERIOR EXTREMITY:—Inspection, marked thickening of the soles of feet.

Attitude of limbs—that of flexion. Knee jerks, ankle jerks, and ankle-clonus could not be elicited as the patients complained of great pain; even light touching of the limbs caused discomfort.

Gait:—Patients were unable to stand or walk.

Sensations:—Subjective symptoms present as mentioned before, plus exaggeration of pain and touch sensations. Sensation of heat and cold normal. The only difference in the physical findings and history of Umerbibi's sons was that Usuf had bilateral wrist-drop and absence of reflexes of superior extremity; both the sons had an attack of fever with rigors three days before the onset of vomiting.

The food of this family consisted of Kesari-dal, wheat, rice, with occasional meat and eggs.

Diagnosis.—*Acute transverse myelitis:*—There was no involvement of sphincters, no girdle pains, no band of hyperæsthesia, and there was involvement of both the superior extremities; all these points are against transverse myelitis.

Post botulism:—Cranial nerves were all normal. There was no history of diplopia or dysphagia.

Ascending myelitis:—As the disease process ascends, there should be involvement of intercostal muscles resulting in the embarrassment to respiration and, if progressive, resulting in death.

Beri-beri:—The disease resembles beri-beri (dry form) in certain respects, but as the patients did not consume chiefly rice, the typical cardiac symptoms were absent.

Ergotism (Spasmodic type):—Rye was not used at all in these cases and vertigo, headache and epileptiform convulsions were absent.

Pellagra:—The characteristic skin eruptions, sore-mouth and psychic disturbances of pellagra were absent.

Multiple peripheral neuritis:—Clinical examination shows these cases

to be one of peripheral neuritis, but the history of having partaken of the same kind of food, giving rise to vomiting and diarrhoea, followed by severe marked sensory disturbances and paralysis, one and a half month later, is suggestive that something must be wrong with the articles of diet. Unfortunately, the cases left the hospital very soon, otherwise we would have been able to follow the progress, particularly watching for the development of spasticity and extensor plantar response, as in lathyrism, there is involvement of pyramidal tracts giving rise to spastic paraplegia or diplegia.

To make the diagnosis certain, the articles of food—wheat, rice, and Kesari Dal—were sent to the Director of the School of Tropical Medicine and Hygiene, to find if any of the grains were contaminated with seeds of *vicia sativa*.

The report is as follows:—1. Sample of rices—Middle grade atap. Long stout grain variety, Fragmented grains 50% Diseased grains with central opacity 20%.

2. Sample of Mussor Dal—healthy.

3. Sample of Arhar Dal, mixed with Kesari and lathyrus sativa 5%, healthy.

4. Sample of wheat healthy.

Treatment.—**PROPHYLAXIS:**—HOWARD and his associates suggested that Kesari Dal should be planted in drills and the contaminating *vicia sativa* removed by weeding.

CURATIVE:—No specific treatment for lathyrism is known. The consumption of Kesari Dal must be discontinued. Massage and electrical treatment are sometimes helpful. MELLAMBY (1934) has suggested the use of vitamin A. It is always desirable that the diet should be generous and rich in available proteins and vitamins.

I am indebted to the Civil Surgeon and the Director of the School of Tropical Medicine and Hygiene, Calcutta, for the necessary help.

References:

1. Acton H. W. (1922)—I. M. G. 57, 241.
2. Acton and Chopra, R. N. (1922)—I. M. G. 57, 412.
3. Shah S. R. A. (1939)—I. M. G. 38, 587.
4. Chopra R. N. (1938)—British Encyclopaedia of Medical Practice, 657.
5. Chopra R. N. (1936)—A Hand Book of Tropical Therapeutics.

Lal Darwaja, Ahmedabad.

Charcot-Leyden Crystals *

BY

P. N. LAHA, M.B., B.S.,

P. W. Medical College, Patna.

CHARCOT-LEYDEN crystals almost always bring to our mind a picture of intestinal amoebiasis. These crystals have been named after CHARCOT and LEYDEN who originally described them.

About the year 1853, CHARCOT described them as occurring in the tissues of patients who had died of leucocythæmia. LEYDEN described the presence of similar crystals in the sputum of cases of bronchial asthma.

It was ACTON (1919), who drew attention to the significance of these crystals in amoebic colitis.

These crystals have also been found to occur in the sputum of acute plastic bronchitis, paragonimiasis, tropical liver abscess bursting into the lung. MANSON-BAHR has encountered these crystals in association with malignant disease of the rectum, with mucous colitis, with coccidial (*Isospora hominis*), and with various helminthic infections. Tropical liver abscess 'pus' also shows the presence of these crystals.

KNOWLES describes them as occurring in 4 types: (a) thin, sharply pointed, whetstone-shaped varying from 5μ to 50μ in length; (b) short, almost diamond-shaped forms; (c) forms similar to the type (a), but with the ends truncated; and (d) long, acicular forms. In all the cases, they show up with a green, clear, refractile look, and stain an intense jet black with iron-haematoxylin staining. In Iodine preparation, they show up badly.

The presence of these crystals in diverse conditions naturally brings in the difficulty as regards their origin. GOLLASCH (1889) claimed that he had demonstrated that the oxyphil granules of eosinophile leucocytes might give rise to Charcot-Leyden crystals. MC. JUNKIN (1919) wrote; "Charcot-Leyden crystals. . . . stained pink with eosin. They appear to be a product of the eosinophils, and certainly result from these cells in vitro". In this connection, the work of CICCACIO is interesting; for he opines that the granules in the eosinophile leucocytes are composed chiefly of lipoid substance. The presence in bronchial asthma, where there is high eosinophilia, lends a supporting hand to the above postulations. But the explanation of their presence in the tissues of leucocythæmia is a matter of surmise. To KNOWLES, they appear to consist of ethyl-imine, and to be a product of tissue digestion by *Entamoeba histolytica*.

THOMSEN and ROBERTSON (1921) stated that they occur quite as frequently in stools containing cysts as in the fluid stools containing the free forms. They also stated that the greatest number of crystals found were present in the mucus, obtained directly from the scraping of an ulcer during the sigmoidoscopic examination. They occasionally have been found within the cytoplasm of trophozoites of *Entamoeba histolytica*, but it is impossible to say whether they were formed in situ or were ingested after formation.

The origin of these crystals is still merely a question of surmise.

* Specially contributed to 'The Antiseptic'.

There seems to be little doubt that, in amoebic dysentery, they are formed very close to, if not within, the ulcer and, considering all the evidence including the work of GOLLASCH and Mc. JUNKIN, it is not highly improbable that they result from the digestion or lysis, partial or complete, of tissue elements, especially lipoids, possibly as a result of the specific cytolytic action of the entamoebae.

Charcot-Leyden crystals require to be distinguished from fatty acid crystals which may occur in spicules resembling the former. Fatty acid crystals do not dissolve readily in hydrochloric acid, whereas the Charcot-Leyden crystals are soluble in warm water, acids and alkalies, but they are insoluble in alcohol, ether, and glycerine.

The diagnostic importance of these crystals has been over-emphasized. ACTON, THOMSON and ROBERTSON thought that the appearance of these crystals in the stools was almost pathognomonic of amoebic infection of the intestines. KNOWLES thought that their appearance in an acute dysenteric stool together with that of actively motile *E. histolytica* was an evidence of true relapse in amoebic infection—as distinct from re-infection—of a previously cured patient.

There seems to be very little justification in placing so much undue importance to these crystals in the diagnosis of amoebiasis. ACTON gave 20.4% as the percentage of amoebic infections, in which these crystals could be demonstrated in the stools. Their presence in the stools is highly suggestive but never pathognomonic of intestinal amoebiasis. Bacillary dysentery stools usually do not show them. Their presence in the sputum of cases of bronchial asthma, acute plastic bronchitis, paragonimiasis, and liver abscess 'pus' discharging through the lung is only of academic interest.

The presence of Charcot-Leyden crystals in the stools is the beginning and not the end of diagnosis. Their presence calls for further investigation to get the real etiology of this finding. It goes without saying that a negative finding is of no importance.

References:

1. Dobell, C. & O'Connor, F. W.—The Intestinal Protozoa of Man. (MCM. xxi).
2. Knowles, R. (1928)—An Introduction to Medical Protozoology.
3. Manson-Bahr, P. H. (1935)—Manson's Tropical Diseases.
4. Rogers L. & Megaw, J. W. D. (1939)—Tropical Medicine.
5. Stitt, E. R., Clough, P. W. & Clough, M. C.—Practical Bacteriology, Haematology and Animal Parasitology (9th Edn.)
6. Thomson, J. G. and Robertson, A. (1929)—Protozoology.
7. Young, R. A. & Beaumont, G. E. (1937)—A Test-Book of the Practice of Medicine.

Theory and Applications of Bacteriophage*

BY

JAGADISH C. BHATTACHARJEE, L.M.P.,

Darjeeling Himalayan Railway Hospital, Tincharia, Darjeeling.

Introduction.—Bacteriophage was introduced in Medicine by D'HERELLE who considers this to be an ultramicroscopic living organism (virus), parasitic upon and lytic towards bacteria. He observed in 1917 that sterile filtrates of stool of patients suffering from bacillary dysentery, when mixed with broth culture of Dysentery bacillus, causes dissolution of the culture and similar phenomenon may be observed if a little fluid from the lysed culture is transferred to another young culture of the same organism. In this way, the process may be repeated as many times as desired. Since then, D'HERELLE and a host of other research workers, all over the world, have made considerable progress in the study of bacteriophage, and during the past decade, bacteriophage has acquired an important place in the treatment of many infectious diseases, such as cholera, bacillary dysentery typhoid fever etc.

Although D'HERELLE attempted to define the exact nature of bacteriophage in 1917, the existence of such an agent was at first suggested by TWORT, who observed similar phenomena in culture plates of *Staphylococcus* in 1915. In the light of our knowledge of bacteriophage, the purifying effect of river waters, known to Indians from the time immemorial, has been explained. Spreading of cowdung to purify house-floors, widely practised in India, is also now considered to be a method for disseminating bacteriophage in the house.

Phenomenon of bacteriolysis.—The phenomenon, how bacteriolysis occurs, has been extensively studied in recent years, especially with cholera stools. The stool of convalescing cholera patient contains bacteriophage and, if a trace of such filtered stool is added to a turbid culture of cholera vibrios, the culture becomes clear after sometime, all the bacteria being disintegrated in the presence of the phage. The process of bacteriolysis may be observed under a microscope, which consists of swelling and spherulation, formation of granules and finally disintegration of bacteria.

The development of bacteriophage may be observed on solid media as well. On the surface of the medium, some circular areas are noticed, where no growth takes place. These are called plaques. These are the colonies of bacteriophage. If the same plate is inoculated for a longer time, colonies of secondary phage-resistant bacteria are bound to grow within those areas. Similar phenomenon may be observed on the broth culture, made clear by lysis with bacteriophage, as the turbidity re-appears on keeping it for a longer time.

Bacteriophage is capable of bringing about changes in morphology and cultural and serological reactions of bacteria. This process is known as 'mutation'. Sometimes, this modification is so complete that secondary culture from the original strain may be morphologically quite different. PASRICHA (1931) has made extensive experiments with cholera-vibrio and has observed that the different cholera-like vibrios are actually the mutation forms of the true cholera vibrio, which play an important part in the incidence of the epidemic.

* Specially contributed to 'The Antiseptic'.

Properties of bacteriophage.—The principal lytic action of the bacteriophage has been described above. It is filtrable through a porcelain filter and the clear bacteria-free filtrate is fully active. It is also active in a very high dilution, say 1 in 1,000,000 and can be propagated indefinitely by passage through young bacterial cultures. It grows at the expense of living bacteria only and therefore cannot be grown in any artificial culture medium and has little effect upon dead bacteria or old culture. It is specific against the particular kind of bacteria from which it originates, but may be slightly active against closely related species of the same kind. It retains the activity for many years and can withstand drying for months.

Preparation of bacteriophage.—The potent source of bacteriophage is the stool of a patient suffering from cholera, bacillary dysentery, typhoid fever etc., as the case may be, and in order to isolate bacteriophage, a few drops of stool are mixed with nutrient broth and incubated for 18 hours. It is then filtered through a Pasteur-Chamberland filter and the clear filtrate is then tested against the living culture of the same organism. The activity of the 'phage may be exacted by repeated passage from culture to culture till a certain level is arrived at. After preparation, the phage is stored in a warm chamber for several weeks to see if secondary growth appears or not.

Relation of bacteriophage to infection.—D'HERELLE believes that when a man is infected by a bacteria, say cholera vibrio, bacteriophage develops in his intestines, and if the 'phage so established is powerful enough to dissolve the organisms in the gut, the case recovers up quickly. But, if the bacteriophage does not develop at all or is weak and feeble, the patient may die or may pass into a chronic stage. Bacteriophage acts in two ways, directly by causing dissolution of bacteria and indirectly by setting up a process of acquired immunity through the lysates containing the dead bacteria, which act as an antigen and stimulate defensive mechanism of the body.

It has also an important relation with the spread and control of epidemics. During the earlier part of an epidemic, when there is very little bacteriophage established in the intestines of the patients, the mortality is high; but late in the epidemics, the bacteriophage from the convalescent patients disseminate to all the water sources of the locality, which the people use, and the epidemic is controlled. This phenomenon has been observed in Assam as well as in Calcutta and the presence of bacteriophages in natural water supplies has been demonstrated in a very high percentage during the decaying phase of cholera epidemics.

Applications of bacteriophage in the treatment of diseases.—Bacteriophage is issued in 2 c.c. hermetically sealed ampoules and is given by mouth with little water 4 to 6 times a day in empty stomach. No antiseptics or acids should be used along with bacteriophage treatment, as they spoil the action of the drug. It acts best in alkaline medium and hence small doses of Sodium bicarbonate may be given immediately before its administration. Ampoules once opened should not be kept for further use and children may be given the full dose. There is no contra-indication for its use. Usually, bacteriophage is issued for each individual organism, but combined 'phages, such as of cholera-dysentery and other intestinal organisms, are also available. Bacteriophage in itself is a clear colourless liquid, but some of the trade-brands are coloured pink with phenol red.

Cholera.—Bacteriophage has, now-a-days, been extensively employed as an active therapeutic agent in the treatment of cholera as well as in its prophylaxis in epidemic areas. To be effective, it must be administered at the earliest moment and it must be virulent and powerful.

It has been extensively used by MORRISON in Assam, while he was Director of Public Health Department, in cholera epidemics both as a therapeutic and a prophylactic agent. In his first series of cases, (MORRISON and VARDON, 1929) a combined cholera-dysentery 'phage was used and the mortality rate was 29.0 per cent, while the mortality rate was 75.8 per cent in cases having no 'phage treatment. The observations of D'HERELLE and others are even more encouraging. MORRISON has used bacteriophage in selected areas, where epidemics of cholera are prevalent every season and has found that the area may be kept free from seasonal invasion by the disease, if the water-supplies are treated with 'phage during the suspicious period and also by administering the 'phage prophylactically.

ASHESHOR and others have recommended an easy way of administering bacteriophage. Two bottles, each containing 50 c.c. should be supplied to the patient and one drachm of this has to be sipped, undiluted directly from the bottle every 30 minutes, the first two bottles being taken within the first 16 hours. During the next 24 to 48 hours, another bottle may suffice. Together with the oral 'phage treatment, hypertonic Saline may be administered and in severe cases, bacteriophage 5 c.c. may be added to the intravenous Saline. During the epidemic, cholera-phage, in one ampoule may be taken once or twice daily as a prophylactic measure.

Although the pioneers of 'phage treatment have spoken very highly of its efficacy, it appears to the present writer, that further systematic study and observations are necessary before accepting bacteriophage as a routine treatment in epidemic cholera.

Bacillary dysentery.—Of late, bacteriophage has been tried extensively in the treatment of bacillary dysentery, but the results obtained by different observers are variable. However, in some cases, the effect produced is marvellous, if it is administered early before the mucous membrane of the gut is seriously damaged.

In writer's hand, it has also given indefinite results but Shiga type of infection appears to have reacted better. Three or four ampoules should be given in 24 hours and no food should be allowed one hour before or after the 'phage administration.

Enteric fever.—Bacteriophage has also been employed in typhoid and para-typhoid fevers, but the result obtained is not encouraging. In diarrhoea of enteric fevers, sometimes it is employed with benefit. One ampoule has to be given three times a day for 4 or 5 days, during which period, no other medicines should be given by mouth.

Diarrhoeal diseases of uncertain origin.—Bacteriophage has been successfully applied in the treatment of diarrhoeas of uncertain origin and chronic dysenteric disorders, where all other treatments have failed. For this, special combined 'phages are available. These 'phages are prepared from organisms of dysentery, para-dysentery, cholera, typhoid and para-typhoid fevers, *B. coli*, *B. para-coli*, *B. proteus*, *B. pyoscyaneus*, *Enterococcus*, *Staphylococcus faecalis* and Gartner bacillus.

For intestinal troubles of bacterial origin in infants and children, similar

preparations are available containing 'phages from dysentery and other diarrhoea-producing organisms isolated from infected children. These preparations are worthy of trial in resistant cases.

In infection with *Past. Pestis*, bacteriophage has been tried subcutaneously but its value is still undermined. *B. coli* phage has been tried in cystitis caused by *B. coli*, when it has to be introduced into the bladder for local action, but the results are not yet established. Like autovaccine, autophage is also said to be more effective than stock phage, but the preparation of the same requires a longer period and hence cannot be used in each individual case.

Summary.—Bacteriophage is an ultra microscopic living organism which grows at the expense of living bacteria and causes its dissolution both in vitro and in vivo. It has been employed in the treatment of cholera, bacillary dysentery and diarrhoeas of bacterial infections of the intestines with more or less success.

Acknowledgment.—I record here my grateful thanks to my chief, Dr. S. K. BISWAS, Medical Officer, D. H. Railway, Kurseong for his kind interest in this contribution.

References.

1. Chopra R. N. : Tropical Therapeutics
2. De M. N. & Chatterjee K. D.—Bacteriology.
3. Morrison, J.—Bacteriophage in the Treatment of Cholera..
4. Morison, J. & Vardon, A. C. (1929)—Indian Journ. Med. Res. Vol. 17, p. 48.
5. Pasricha C. L., De Monte, A. J. H., and Gupta, S. K. (1931)—Ind. Med. Gaz., Vol. 66, p. 610.

Cases and Comments

Paget's Disease of the Nipple

BY

H. M. KAR., B.SC., M.B., B.S.,

Senior House Anaesthetist, King George's Hospital, Lucknow..

P. B. J., 49 Years, Male, Hindu, married, vegetarian, resident of Jessore, was admitted on the 5th November, with the following complaints:—(1) Pigmented small lumps on the right side of the chest—1 year; (2) Bleeding Piles—15 years; (3) Constipation and digestive troubles—3½ years; (4) Sensation of warmth in the head—2 years.

FAMILY HISTORY:—Father died of fever with cough for about a year.

PERSONAL HISTORY:—(1) *Habits*: Sedentary. Only takes walking exercise for about a mile, morning and evening. Used to play games 30 years ago. He is a rice-eater and takes milk and liberal amount of vegetables. Does not smoke or indulge in any other intoxicants.

(2) *Past illness*:—He suffered from malaria off and on. There appeared a leucodermal patch on the medial aspect of left thigh, which disappeared in 2 months. This recurred several times. He is suffering from piles and constipation since 15 years.

HISTORY OF PRESENT ILLNESS:—One year back, he felt a pea-sized nodule under the right nipple. It was hard and painless. It gradually grew in size and finally ulcerated about one month after its appearance. Two months ago, a few nodules appeared on the surface in the neighbourhood; but the main lump has decreased to one-third of its maximum during the last one

and a half months. He was treated with paints and other drugs but to no benefit.

LOCAL EXAMINATIONS:—(1) *Inspection*: There is an ulcer of size 1½ x 1½", rhomboidal in shape, situated in the right pectoral region at the site of the nipple, which has been replaced by the ulcer with margins irregular and pigmented. The floor of the ulcer is covered with red granulations. The base of the ulcer is fixed to the surrounding tissue.

Above and medial to the ulcer, the skin is raised as spots 2 mm. in diameter, some reddish, others black.

(2) *Palpation*:—There is a lump under the ulcer. The shape of the lump is oblong and it is fixed to the skin. It is 3' long and 1½" broad. It is hard and mobile even on making the pectoralis major muscle tense. The lump is painless. The spots medial to the ulcer are slightly tender. The axillary lymph glands are not palpable. On the left side, there is a rectangular uneven area raised above the surrounding surface near the left border of the sternum at the 4th costo-sternal junction. It is reddish at places and black elsewhere. It is free from the deeper structures, but is fixed to the skin and subcutaneous tissue.

GENERAL EXAMINATION:—Pulse 86/mt. Temperature 98.4. Conjunctiva anæmic.

RECTAL EXAMINATION:—Piles present. Some of them are thrombosed.

PATHOLOGICAL EXAMINATIONS:—(1) *Blood*: Total W.B.C.—14,720. Differential W.B.C.—Poly—72%; Lympho—26%; Eosinophil—2%; Total R.B.C. 4.63 millions; Hæmoglobin—91.8%; Wassermann Reaction—nil; Blood urea. 35 mgms%; malarial parasites. . Negative.

(2) *Urine*:—Nothing abnormal detected.

(3) *Tissue examination*:—Typical Paget's disease of the nipple. It shows early disease and Paget's cells are present.

TREATMENT:—Deep ray therapy was given twice a week. After four exposures, ulcer was reduced to the size of ½" x ½", and the floor of the ulcer was pinkish. The deep ray therapy was suspended for four weeks and the patient was advised to come after four weeks.

Some special remarks on this disease:—This interesting condition was first described by Sir JAMES PAGET in 1874. It had aroused great discussion for many years. It commences as an intractable eczema of the nipple, but later—usually within two years but occasionally not as long as ten years—a carcinoma arises in the breast, frequently at some distance from the nipple. The eczematous area is usually bright red and inflamed with a finely granular surface.

THIRZA REDMAN and HEWETSON, who have very well studied a few hundred cases of neoplasms of the breast, say that Paget's disease of the breast occurs in 1.1% of cases of malignant conditions of the breast, the most common type of malignant condition being duct carcinoma which is 56.1% of cases. These 1.1% of cases were associated with duct or scirrhus carcinoma. The duration of life in these cases of Paget's disease were one, two, four or even seven years. There were interdermal spread of malignant cells and an early invasion of duct epithelium by masses of malignant growth passing down the duct between the two dermal layers of the epithelium.

The pathology of Paget's disease consists of three features: (1) epidermal hypertrophy (2) Paget's cells and (3) Subepidermal round cell infiltration.

The first one is always present and the epidermis becomes 2 or 3 times thick both in depth and breadth. Paget's cells look like large and clear cells. They have small pyknotic nuclei. They are present in the deeper layers of the epidermis either singly or in small groups. The vacuolated appearance is said to be due to hydropic degeneration. The small round cells infiltrate the superficial part of the dermis.

The nature of the lesion is still a controversial point. One thing is certain that it is an eczematous condition due to cancerous lesion. Its malignancy is low and the spread is slow and the axillary glands are not involved as shown by this case. The Paget's cells might be epithelial cells which have undergone hydropic degeneration or they may be malignant cells. Cytologically, the epidermal cells show the evidence of their malignancy by their irregularity in size and staining but histologically, they are not malignant as the spread is slow.

MIUR's view about the disease and how it develops into carcinoma of the breast in the long run is that the primary lesion is in the breast as an intraduct carcinoma, the cells of which spread both in the lumen and in the epithelial lining of the duct. Finally, they reach the skin of the breast and penetrate between cells of the epidermis. This can be called an intra-epithelial spread of carcinoma. The infiltrating cells undergo hydropic degeneration and assume the shape of the Paget's cells. When the cells remain confined to the duct, the malignant condition may be overlooked. Some believe that the malignant lesion may spread from the skin to the breast. A few pathologists are of the opinion that the lesion in the skin and the breast are both primary, as in some cases no direct connection between the two can be demonstrated.

SIR GEORGE LENTHAL CHEATLE points out that in 1874, PAGET described superficial changes on the surface of the nipple, and that signs were often associated with cancer of the breast, but that his description was limited to the clinical condition, and BUTHIN and BOWLBY and others made the earliest microscopical description drawing the attention to the large Paget's cells. In diagnosis and treatment, the recognition of the Paget's cells is important as was demonstrated in reviewer's practice during the past year. Though this disease is not very rare in India, the diagnosis is often missed due to the common site of cancer in that region.

Lateral cum Cavernous Sinus Thrombosis

BY

R. L. SONI, M.B., B.S., F.R.H.S.

The Soni Clinics, Paungde, Burma.

BEFORE the discovery of the chemotherapeutic agents belonging to the Sulphanilamide group of drugs, cases complicated with sinus thrombosis (lateral or cavernous) were always of very serious import.

In view of the comparative ease with which such complications are treated now-a-days with the above drugs, and the fact that very few recoveries from lateral and specially cavernous sinus thrombosis were known in the pre-Sulphanilamide days, the following successfully treated case from our old records, seems worthy of interest:—

*The Case:—*K. P., a boy aged 14 years, on the morning of the 30th September 1933, had slight fever associated with headache. By evening,

the condition became bad and at midnight, when I saw the boy, he was unconscious, with extremities cold and clammy, not responding to calls or shouts, with irregular shallow breathing interrupted by occasional gasps. Temperature in axilla was 104.5°F., pulse 90 p.m., full and regular, lungs were clear and heart had no murmurs; pupils were unequal (dilated more on right side) but reacting, superficial abdominal reflexes were absent, knee jerks present but plantar reflex indefinite; neck was stiff and could only be slightly flexed.

A frequently changed ice compress was applied to the head and the bowels evacuated with a glycerine enema. Blood films taken at the time revealed no evidence of malarial infection. Lumbar puncture showed clear fluid under pressure and 25 c.c.m. flowed out before the normal flow started. Omnadin was given intra-muscularly and 20 c.c.m. of 50 per cent Glucose injected slowly intravenously followed by 10 c.c.m. of Pharmasol Iodine by the same route. Half an hour later, the child cried, gazed curiously at those present, pulled over the blanket, complained of headache and burning sensation throughout the body, and again became listless in the bed.

Next morning, he was conscious, crying and complaining of severe headache. A systematic examination revealed chronic suppurative otitis media on right side, dating back for eight years, with history of occasional attacks of headache associated with suppression of discharge. The mastoid was neither tender nor puffy, and hearing was only slightly impaired. Auroscope showed bulging granulations at the site of drum enclosing an oblique fissure from where pus oozed. The eustachian tube appeared blocked.

On the 4th morning, pain was complained of in the neck below both ears—more on the sound side. Though tenderness was elicited and left side was felt somewhat stiff, no palpable mass was detected. Abdominal reflexes had become brisk. At noon, rigors occurred for the first time and the temperature rose to 105°F. In the evening, the left side of the neck was more tender and a little swelling was made out under the mastoid. The discharge from the right ear was foul and profuse and smears showed Streptococci, Staphylococci and unidentified longish bacilli. Polyvalent anti-Streptococcal serum 20 c.c.m. was administered intravenously. At this stage, despite the contra-lateral appearance of signs in neck, diagnosis of lateral sinus thrombosis was made and operation advised, but it was refused.

Next day, rigors again occurred and the left side of the neck was swollen and tender below the mastoid, and below the swelling was a chain of small tender glands three of which were almond-sized. The right side of the neck had also a chain of tiny tender glands extending to the right clavicle and a walnut-sized tender gland was palpable in the right axilla. The patient also complained of transient attacks of blurred vision that day.

At this stage, though signs connected with the ear were rapidly developing, the possibility of plague which is endemic in the locality, was suggested. Though the blood smears were negative for *P. Pestis*, yet anti-plague treatment was started.

On the 6th day, though the temperature showed a downward tendency, the tender swelling on the left side of the neck had enlarged and a gland had appeared in the left axilla as well. Moreover, the upper lid of right eye was swollen and though the pupils were normal, retinoscopy showed the right disc choked. Diagnosis of cavernous sinus thrombosis suggested itself. As the temperature appeared to be taking a better turn, antiplague treatment was continued.

The subsequent course was one of worsening of the condition of the right eye associated with general improvement and enlargement and successive appearance of glands in the right pre-auricular region, both inguinal regions and dorsum of right foot.

On the 7th day, both the right eye lids were enormously swollen and even with retractors, it was hard to have a glimpse of the cornea. The next day, the adjoining cheek and temple areas became oedematous. Despite this, headache was less and except the pain in the eye which was severe, the patient felt better in general. The upper lid was scarified and in the evening, 3 leeches were applied to it followed by hot boric fomentations. This improved the condition somewhat. Next morning, on separating the lids, the conjunctiva was found congested and in folds overhanging the cornea which was hazy. But, by evening, conjunctiva was highly oedematous and cornea could not be viewed. Scarification relieved the tension.

The temperature came to normal on the 18th October, and thereafter remained normal. Subsequently, the glands began to subside and the patient improved considerably in general health, the swellings of the lids and conjunctiva slowly disappeared, but signs of irido-cyclitis complicated the picture. Pus was noted in the anterior chamber. This was followed by an arcus-senilis-like opacity which thickened and broadened and, by the first week of November, occupied the whole of the right cornea. The opacity slowly cleared in the upper external quadrant by mid-December, when he had a hazy vision by twisting the eye downwards. By February, spots, promising clearance, had appeared in the rest of cornea but no further improvement in his eye condition occurred. He was advised to take further treatment for his ear, but on the 18th April, he left for India.

Comments.—Though, from the very beginning signs were pointing to the head, and the ear could be incriminated from the second day, somewhat suggestive signs of lateral sinus thrombosis were noted on the fourth day, but those being on the contra-lateral side, their importance was eclipsed by the successive appearance of glands in different parts of the body and attention directed to antiplague treatment. On the 6th day, indications were definite of cavernous sinus thrombosis, but as the antiplague treatment had by that time shown some benefit, it was allowed to continue another two days. Whether the beneficial effects resulting from administration of the serum were specific in nature or otherwise, it is hard to say definitely; but most probably, it acted in a non-specific way. It is of interest to note that, on stopping its use, the temperature again rose and was controlled by intravenous Septicemine.

The patient was liberally fed with Glucose drinks and properly nursed. The ear received no other treatment than merely mopping and dressing with Acriflavine in Spirit rectificatus. The eye received hot boric fomentations, milk-cream boric dressings, Acriflavine irrigations and later, when the opacity had formed, Unguentum Hydrarg. flava was applied.

Undoubtedly, the case was a very complicated one. The points of interest in this case are, the contra-lateral appearance of signs of lateral sinus thrombosis followed by generalised glandular enlargement and ipsilateral signs of cavernous sinus thrombosis, the beneficial effects of chemo-sero-therapy, tension-relieving measures applied to the lids and conjunctiva and above all, recovery with partial vision. It is hard to speculate as to what would have been the result, had the patient undergone surgical interference, but in any case the result, it appears, could not be better.

PRODUCT OF THE
GLAXO LABORATORIES

Glaxo

PURITY

*a safeguard against
seasonal epidemics*

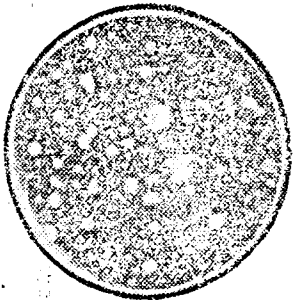
Seasonal variations in the tropics influence the incidence of many diseases. Flies multiply more rapidly in the rains than at other times.

Clinical experience has shown that certain milk-borne infections are more prevalent during the wet months of the year. Typhoid for example, tends to occur in epidemic form during the wet season and the incidence of gastro enteritis and other intestinal infections in infants is greatest during this period. Glaxo is not only free from all pathogenic organisms—it is virtually sterile.

To ensure complete protection from all milk-borne disease the practitioner can with confidence recommend "Sunshine Glaxo"—there is no purer or more reliable infant food available.

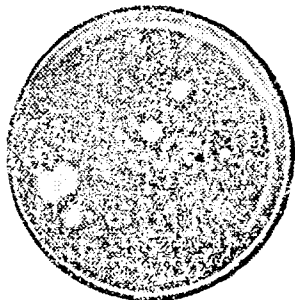
The following illustrations clearly show the high degree of bacterial purity of "Glaxo" compared with grade A cows' milk:—

**GRADE A
COWS' MILK**



agar plate
100,000 bac-
teria per cc.

**SUNSHINE
GLAXO**



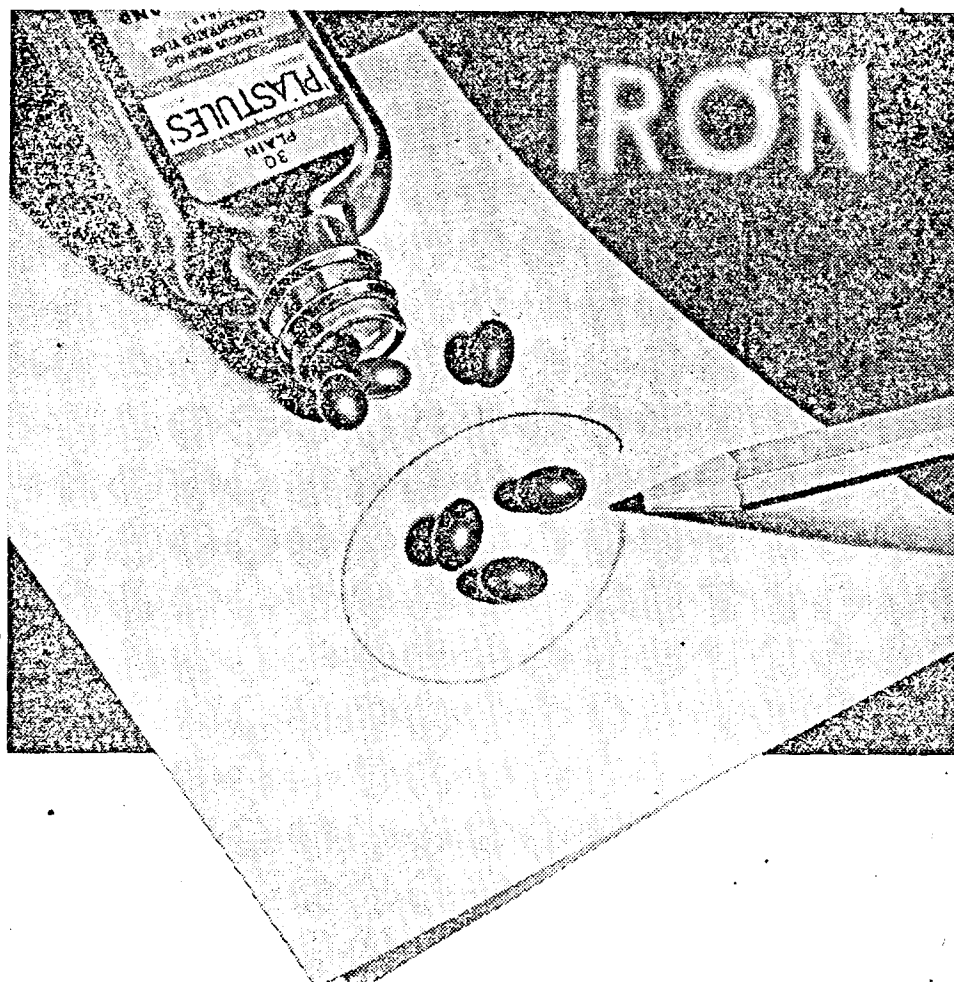
agar plate
30 bacteria
per cc.

Glaxo furnishes a complete food and is especially modified to meet the needs of infants in the tropics. The added vitamin D and iron eliminate the risk of rickets and nutritional anaemia. To further safeguard the powder from subsequent contamination, particularly by flies, Glaxo is packed in hermetically sealed tins and they are dated.

Representatives in India:

H. J. FOSTER & CO., LTD.

**BOMBAY
CALCUTTA
MADRAS
LAHORE**



'PLASTULES' BRAND HÆMATINIC COMPOUND IMPROVED IRON TONIC

Large doses of iron are no longer necessary for the successful treatment of hypochromic anæmia and debility. Independent investigations have proved that 'Plastules' yield rapid clinical response, equivalent to the results obtained from massive doses of other forms of iron. The average patient requires only three 'Plastules' Plain daily which obviates the unpleasant effects usually associated with massive iron feedings. Prescribe 'Plastules' for your patients and note the immediate results—appetite and colour return rapidly. Literature on request.

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

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

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



A fresh development ULTRA - VIOLET AIR SANITATION

Experimental work covering 8 years has disclosed the feasibility of eliminating air-borne infections from hospital wards, operating theatres, consulting rooms etc., by means of bactericidal ultra-violet rays generated from Hanovia Air Sanitizers. Read full facts in professional brochure 'Air-borne Infection and Air-Sanitation'. The Hanovia service of information, supply and maintenance for actino therapy is offered through electro-medical suppliers throughout Britain and the Overseas Dominions.



The Duotherapy Unit combines therapeutic ultra-violet and infra-red lamps in one dual-controlled assembly.

COUPON To Messrs.....

Dear Sirs,

(Nearest Agent)

Please send me a copy of your new medical prospectus "Actino-therapy Equipment"

Name.....

Address.....

M/105A/51

"I Am Prescribing Actinotherapy.."

Within the octaves of ultra-violet and infra-red wave-lengths you find an endless variety of therapeutic applications—systemic tonic reactions, counter-irritant doses, or regenerative focal treatment with the ultra-violet; palliative and decongestive effects with the infra-red; harmonic combinations of both at will. The modern practitioner himself administers or supervises these treatments to his own patients, thanks to Hanovia actinotherapy equipment. In this splendid range of up-to-date ray therapy lamps the physician finds that combination of great power and exact control which makes it a joy to work with them. Whether you wish to administer tonic sunbaths to a large group of men at one time, to eliminate diphtheria cocci from the membranes of a carrier, to avert impending mastoiditis, or to build up a patient's hæmoglobin—you can use a Hanovia lamp which is as right for that work as modern knowledge can make it.

Ask for the illustrated brochure

'ACTINOTHERAPY EQUIPMENT'

(including equipment for Air Sanitation)

HANOVIA LTD.

Actinotherapy equipment specialists.

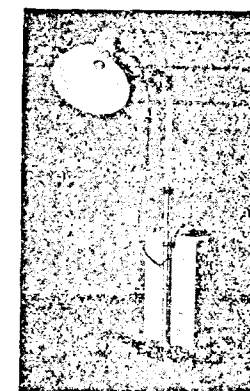
SLOUGH. BUCKS.

Showrooms: 3, Victoria Street,
London, S. W. 1.

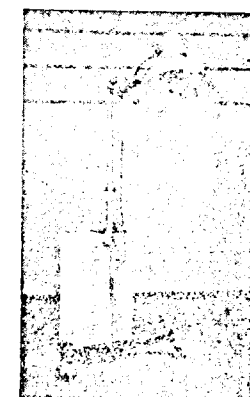
AGENTS IN INDIA:

Bombay: MALGHAM BROS.,
26, Custom House Rd., Fort.

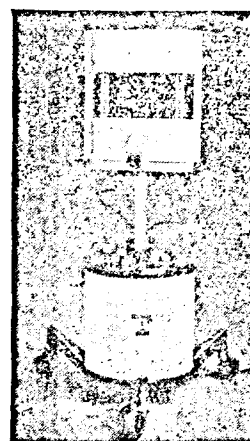
Calcutta: ADAIR DUTT & CO., LTD.,
Dalhousie Sq., East.



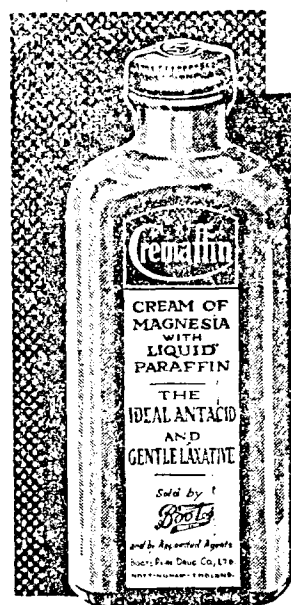
The Alpine Sun lamp is best for ultra-violet irradiation of individual patients in hospital or private practice.



The Sollux infra-red lamp includes both luminous and long-wave generators and other unique aids to accurate technique.



With the Centrosal you can administer tonic sunbaths to maximum numbers of patients in minimum time.



Prescribe
Cremaffin

Cream of Magnesia with Liquid Paraffin
in the treatment of

**Constipation associated with acidity
and digestive disorders.**

Cremaffin exhibits the well-proved virtues of cream of magnesia and liquid paraffin without any of the disadvantages of the latter

It is presented as a pleasantly flavoured emulsion incorporating cream of magnesia (magnesium hydroxide) and liquid paraffin. Cremaffin provides a bland, non-irritant laxative, suitable for persons of all ages, and it is free from all risk of creating a habit.

Patients suffering from haemorrhoids will find it an ideal laxative, as it softens the bowel contents and promotes easy evacuation.

GASTOMAG

MAGNESIUM TRISILICATE



**The safe treatment for Peptic
Ulceration and Hyperchlorhydria.**

Gastomag possesses powerful adsorbent properties and exerts a prolonged neutralising action with no risk of alkalosis.

Gastomag has a slight laxative action but produces no undesirable effects.

Available in 2 oz. cartons and 1 lb. tins.

FOR PARTICULARS PLEASE APPLY TO: **BOOTS PURE DRUG CO. LTD., 10 LALL BAZAR, CALCUTTA.**

**MANUFACTURED BY:
BOOTS PURE DRUG CO. LTD. NOTTINGHAM, ENGLAND**

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: 323-24, THAMBU CHETTY ST., MADRAS.

Annual Subscription: Rs. 5; Burma—Rs. 6; Foreign—10 Sh.—Post Paid.

Vol. 38.

JULY, 1941.

No. 7.

Editorial

Recruitment to the Indian Medical Service

THE Surgeons-General with the Provincial Governments have appealed to the members of the Medical Profession to join the Indian Medical Service and offer their services for war work. We also understand that a Conference is going to be held in Simla, in the near future, to discuss methods for increasing the recruitment to the Indian Medical Service. All these indicate that so far the response to join the Indian Medical Service has not been very satisfactory. The Surgeon-General with the Government of Bombay, in a speech delivered at the meeting of the Bombay Branch of British Medical Association, is reported to have stated that, if the medical men in India did not find the jobs lucrative, they should offer their services from the point of view of humanitarian motive at least. The Surgeon-General presumably presupposes that Indians lack humanitarian spirit and are concerned only with monetary considerations. We must lodge a protest, on behalf of the large body of Medical men in India, against this aspersion. The Surgeon-General of Bombay may well know that, only quite recently, a Medical Mission was sent to China which rendered praiseworthy service without the least idea of profit or loss, and the Indian doctors certainly can be expected to render to their own country, at least as much of service as they have done to China. Did not the Indians exhibit their humanitarian spirit in the last war, by offering themselves in large numbers? Why, then, is there not the same response now?

It is not our intention to discuss here to what extent the general political situation in the country is responsible for this lack of enthusiasm amongst medical men. It has no doubt its share, and repercussions are bound to exist as a result of the present political stagnation. But, there is no doubt that a good deal of dissatisfaction existed and still exists with regard to the treatment meted out to the Indian members of the Indian Medical Service. During the last war, Indian medical men—some of them with lucrative practices—rushed to enrol themselves. But, on the termination of the war, some of them had, what we may call, their dis-illusionment. Some of these Indian officers were sent back without being made permanent. Out of over 1200 temporary Indian Officers who had then volunteered, over a hundred only got regular Commissions. The remaining, who

were unceremoniously thrown out, had to restart their lives at an age when they felt inadaptive for settling down. Some of these were officers who had served well for nine or ten years, and who were replaced by freshers from the Universities and from general practice. They had given their best period of their lives for the country and had to face the world at a later part of life when they found their field of practice choked by the more energetic and more enthusiastic juniors.

There has been dissatisfaction also with the method of recruitment of Indians to the Indian Medical Service. DR. JIVARAJ, N. MEHTA, in a speech delivered by him at the meeting referred to above, and published elsewhere here, gives figures which are worthy of consideration. According to him, prior to March '37, out of a total strength of about 649 Officers of the Indian Medical Service, there were 386 British Officers, and 263 Indian Officers. Under the new dispensation, the number of British Officers remains the same *i.e.* 386 out of the total strength of 584 Officers, while the Indian Officers have been reduced from 263 to 198. On the Civil side, out of 220 Officers under the 1937 scheme, there are to be 166 British and only 54 Indian Officers. In the Indian Army list for 1939, DR. MEHTA tells us that there are as many as 455 British Officers in that Service that year as against 386 prior to 1937. We are also told that out of the 200 I. M. S. Officers who were given permanent commissions in the I. M. S. in the ten years immediately preceding October 1938, only 33 were Indians. Between October '38 and January '39, we are told that as many as 27 British I. M. S. Officers were granted permanent commissions and no Indian was given a commission during these months. These figures are not very creditable to the Government of India. The expression of "incredibility" at the Indian attitude, from those who are responsible for the above figures, in our opinion, is out of tune with their past record. Even now, it is not too late to alter the conditions of recruitment and to give the Indian Medical Officer a better future.

Some of the suggestions made by DR. JIVARAJ MEHTA in the said meeting, and mentioned in our columns for the last so many years, will, if given effect to, lead to a better response to the appeal of the Surgeon-Generals and the Government of India. It has been often said that the Indian Medical Service is purely a Military reserve. If this were correct, logically all the existing I. M. S. Officers, at present in the Civil side, should be asked to join the colours straight off, and the Civil side should be allowed to be maintained completely by members of the Indian Medical Profession. Let the Indian Medical Service be a purely Military Service, necessary for the expanded Indian army and let the recruitment to it be restricted to Indian personnel only. If Europeans want to join it, let them come on the same terms and conditions as Indians and with no special privileges. There should, in our opinion, be no special residuary posts for the European officers, and no special terms of employment must be offered. Men volunteering should be started at a rank and seniority in consonance with their experience and standing in the medical profession. All commands should be open to them on the basis of seniority. The scale of pay and promotion must apply to them equally. All men who take up temporary commissions must have an inalienable right to permanent commissions in the I. M. S. if they wish to go on serving in the army. About half the posts in the Provincial Civil Medical Services should be filled by these officers, men being selected on the basis of the excellence of their work in the field, and it

should be agreed and guaranteed that the recruitment to the permanent commission after the war should be restricted to officers holding temporary commissions in the I. M. S.

We are sure, if these guarantees are given and if the young medical practitioner who volunteers for service is assured of a reasonable and decent living on his return, he will respond to the appeal in a manner worthy of every Indian.

Special Article.

Studies on Nutrition*

BY

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

PART IV

Standards of Health and Physical Fitness

A man is what he eats—(Man ist wasser ist).

HEALTH is dynamic, an active state of living. It is not mere absence of disease. It is not mere physical fitness. It means much more than that. It is the condition produced by the combined influences of wholesome food, regular work, absolute rest, perfect sleep, and cleanliness (both internal and external). It is the absence of these, that is responsible for the misery of the body and ill-health more than any other cause.

Health is always personal. It is also relative. It is a "balance between a demand and the reaction to that demand." *Healthful living*, therefore, denotes a 24 hour period of continued activity.

The *standard of health* adopted is the physiological or the ideal one, namely, a state of well-being such that no improvement can be effected by a change in the diet.²⁶

Fitness means much more than physical strength. It means the energizing effect of several influences, including those of food, fresh air, sunlight, sleep and exercise.

Physical fitness may be defined in several ways. It may be considered subjectively as a state of being normal, healthy, efficient, free from symptoms, free from gross physical defects, ability to withstand physical effort and strain, having the capacity to work.²⁷ Again, it may be defined in terms of its objectives; physically fit for work, play, industry, military service.

KESSLER concludes that—

"physical fitness in its widest sense is the ability to perform productive and continuous work. This fitness is based on native ability, training, and the presence or absence of illness.....Rejection should be based on the presence of organic disease and not on static defects, except where a specific vocation indicates unusual physical requirements.....In the determination of the physical fitness by means of the physical examination, the physician should bear in mind that the average man can do the average job."

* Continued from page 401 of 'The Antiseptic', May 1941 issue.

The physical standards of fitness for the Army are :

“to see well; to have good hearing; to have a heart able to withstand the stress of physical exertion; to understand and execute military manoeuvres; to obey commands and protect himself.”²⁸

In the Army, the soldier, after proper hardening, must be able to walk 15-20 miles, carrying 50 lbs. on his back, without taking harm to himself in the process.²⁹

The tests for the estimation of physical fitness have been classified into (1) *anatomical*, (2) *physiological*, (3) *psychological*, and (4) range of human capacities.

In Europe, the aim of physical education and training is to train men to stand *the tasks of peace and the tasks of war*. In the Scandinavian countries, the objective is “to develop endurance to fatigue, cold and pain, the ultimate object being to build up the complete athlete, not specialized in any particular way.”³⁰

In England, *fitness for life* (which includes physical fitness) has been advocated, which involves the development of those mental and spiritual qualities without which true health cannot be maintained³¹. In other words, the aim of physical training is :

“not to produce a nation of trained athletes, but rather to ensure that by the proper training and development of the body, men and women may be enabled to carry out their daily work to the utmost of their ability, and enjoy their leisure with that sense of well-being which comes from the possession of a sound mind in a sound body”³². In other words, *mens sana in corpore sano*.

Assessment of the state of nutrition.—In simple language, *nutrition* means food, as *malnutrition* means insufficient feeding. Malnutrition is not a symptom, nor a disease, but a cause. In the nomenclature of diseases, adopted in the various administration reports of the many Surgeon-Generals, is mentioned the ‘*diseases of malnutrition*’ or insufficient feeding. Malnutrition has been used as synonymous with defective development too*. The two terms, nutrition and malnutrition are much used and their definitions are vague and loose. One is really puzzled if he attempts at the definition. But the medical profession should think over and come to satisfactory definition of the terms.

In an article, in the *Spectator*, London, the question *What is malnutrition?* is discussed : †

“The word is commonly understood as meaning a condition of sub-normal health, or development due to lack of enough of the right sorts of food or foods, or in other words, a condition of starvation or semi-starvation. These estimates are based on inference rather than on actual observation. * * If we do now in fact know the last word about food-values, the real exact income of families concerned, and how it was spent, and if proper allowances were made for the age and the occupational demands of each of the individuals, this would of course be a very strong line of argument * * * There is no absolute standard in this matter. We do not yet know what the right sort of food, in the right amounts, available for all the people, is still capable of achieving in terms of health, stature and energy”.

“It must be admitted the assessment of the degrees of nutrition and malnutrition is by no means an easy matter”.

The *state of nutrition* is the condition of the body, ill or well-developed, muscular or thin, weak or strong, determined by the age, height and weight. ‡

* Ind. Jour. Med. Res. Vol. XXIV No. 3rd Jan. 1937. p. 817. H. Ellis et al

† Medical Correspondent: *Spectator*, London, Aug. 4, 1939.

‡ View shared by Sir J. B. Orr: Food, Health, and Income: Chapter VIII.

It depends upon a number of factors—the age, the sex, the caste and race, economic conditions, exercises, and diet.

The *assessment* of the state of nutrition is the bone of contention among the various workers in the field. (1) It was first based on the *height and weight* of the individual. (2) Then it was changed into the classification of *obese, stout, muscular, medium and thin*. This was unsatisfactory. (3) Then numerous formulae of *indices of nutrition* were worked out.* The latest is the A-C-H index. These were unsatisfactory again. (4) Then there was the classification, A, B and C classes. This too became unsuited. (5) Then, a fifth classification, approved by the Board of Education, England, has been adopted in all English schools, “*Excellent, Normal, slightly Sub-Normal, and Bad*.”³³

Even in the Indian astrological books, mention is made of the *physical features*, being ascertained :

“first by the height of man in inches, second by his weight in a balance, and by indications in his face, his gait, his size of body, by the nature of his blood, flesh, gloss of body, and the peculiarities of the oily secretions obtained in the five different parts of his body, his voice, his disposition, and his complexion of the body, at the best age of 25”³⁴.

This Indian procedure is more or less the same as advocated to-day for the assessment of nutrition. It is not possible nor is this the paper for a proper discussion of the various formulae of the index of nutrition.

“Punjabi is the best of all Indian types when the comparison is based upon weight, given weight and age. The second place is to the Hindus of the United Provinces, Central Provinces, and Bengal. There is no question that the Madras and Bombay Hindus carry the tail end of the whole Hindu group”³⁵.

Giving evidence before the Royal Labour Commission in 1931, SIR ROBERT W. MC. CARRISON stated—

“The level of physical efficiency of Indian workers is, above all else, a matter of food. . . . As we pass from the Punjab down the Gangetic plains to the coast of Bengal, there is a gradual fall in stature, body-weight, stamina; and efficiency of the people. In accordance with this decline in manly characteristics, it is of utmost significance that there is an accompanying gradual fall in the nutritive value of the dietary, and more especially, in the average level of protein metabolism, attained by the people of the Punjab, U. P., Behar and Bengal”.

A few medical officers of Colleges and Universities, like myself, Dr. A. Chatterjee of the Calcutta University, Dr. S. B. Gadgil of the Bombay University, and Professor K. B. Madhwa of the Mysore University have tired to work out the nutritional index formula. But this is not enough. The final figures for the different communities in India have yet to be struck. An organised and systematic research-work into physical fitness is an essential preliminary in the scheme of health regeneration. A cheap, suitable and satisfactory diet chart would maintain health and physical fitness of either the individual, the community, or the nation at large. This is an unexplored field.

Suggestions.—Therefore, my suggestions are, that a careful research-work should be undertaken by the Indian Research Fund Association, Rockefeller Institute in India, and by the various universities, with the following objectives :—

(1) Determination of the normals for heights, weights, and chest

* Vide Appendix.

measurements for the different ages of the various communities in India *

- (2) Recording the vital capacity of lungs, as a means of assessing physical fitness.
- (3) Determination of the muscular efficiency :—*Physical capacity tests.*
- (4) Determination of the visceral efficiency (*e. g.*,) heart, eyes, stomach—the rate of digestion, the cost of digestion, by feeding experiments and skiagrams.
- (5) Diet surveys of the repective communities, to chalk out a cheap and satisfactory diet card.
- (6) Determination of the incidence of disease and defects, and their relation to environments, organic disease, and diet.†

(To be continued.)

APPENDIX

Indices of Nutrition Formulae ³⁶

1. Quetlet Index $= \frac{W}{H^3}$, where W is the weight & H is the height.
2. Rohner Index $= \frac{W \times 100}{H^3}$
3. Von Pirquet Index $= \frac{10 \times W}{B}$ where B is the length of the bust.
4. Livis Index $= \frac{100 \times \sqrt[3]{W} \text{ (kgms)}}{H \text{ (cms)}}$
This is variable with age, and often fails to pick out an undernourished individual.
5. Tuxford's Index (modification of Livis Index) $= \frac{100 \sqrt[3]{W}}{H} \times \frac{\text{Age (years)} + 1}{\text{Age (years)} + 2}$
The index works out as 2.12 to 2.16.
6. Pignet's Index (Index of Robusticity) $= H - \frac{W \times H \times \bar{I} + W \times H \times E}{2}$
where $\bar{I}$ = Inspiration chest measurement,
and E = Expiration " " "
The greater the value of I, R. the more useless the individual. Upto 10, the individual is first class in every way. This gives only concordant results.
7. Thermin Index $= W + H + (W \times H)$.
8. Vital Index $= \frac{W \times H}{H}$
9. Liefman Index $= \frac{(W \times H)^2}{H}$
10. Snellen's Index $= \frac{100 (W \times H)}{H}$
11. Manouvrier Index $= \frac{H - B}{B}$ where B is the length of the bust.
13. Pyor's Index $= \frac{DI}{H}$ where DI is the distance between the iliac spines.

* The Municipal Reports and Insurance Companies' Health Reports may be consulted.

† My application for this research-work, on the above lines, has been rejected both by the Indian Research Fund Association and the Madras University, as early as 1939.

13. Martinet Index $= \frac{H}{DA}$ where DA is the biaxillary diameter.
14. W (Kgms) $= \frac{\text{Chest circumference} \times H}{240}$
This predicts the weight with 5% error. Application doubtful for children.
15. Oppenheimer's Index (Nutrition Quotient) $= \frac{100 \times \text{Circumference of upper arm}}{\text{Circumference of chest}}$
N. Q. averages 29. When it is below 26, the physical condition is bad. This is unreliable.
16. Quetelet's Index $= \frac{W}{H^2}$ (Constant for each age).
This gives indications in the right direction.
17. J. Kaup's Index (based on the laws of growth) $= \frac{Q}{H} = \frac{W}{H^3}$
 $\therefore Q = \frac{WH}{H^2}$ (Constant figure for each age).
18. Davenport's Index $= \frac{W}{H^2}$
All these formulae fail when applied beyond most limited fields.
Tuxford's Index is the best available (J. Kerr).
19. Index of Development (Tuxford's)
For Girls $= \frac{W}{H} \times \frac{354 \times \text{Age (months)}}{48} = 1000$
For Boys $= \frac{W}{H} \times \frac{381 \times \text{Age (months)}}{54} = 1000$
Variations from 1000 show excess or defective development.
20. A. C. H. Index = American index, based on the measurements of arms, chest measurements during inspiration and expiration, and hip measurements from trochanter to trochanter.

N. B.:—This is recommended as useful supplement and modifications are required for application to Indians (Aykroyd, Madhwa Rajagopal—Ind. Jour. Med. Res. 26.1 July 1938, Pp. 55—94.

References :

26. *Food, Health, and Income* : Sir J. B. Orr, Chapter II. for 1933 and 1934; Health of School Child.
27. Determination of *Physical Fitness* : Herry H. Kessler, J. A. M. A. 115 : 1591, Nov. 9, 1940.
28. Physical Standards under Selective Service : J. A. M. A. 115 : 1552 (Nov. 18 : 1940.
29. J. A. M. A., 115 : 1106, Sep. 28, 1940.
30. Times, London : National Health Supplement : Sep. 30, 1937.
Recent Trends in Physical Culture.
31. Summary of the Debate in the House of Commons on the Br. Physical and Training Recreation Bill, 1937.
32. Lord Dawson, His Majesty's Physician : Times, London : June 30, 1937. Pp. 12.
33. Annual Report of the Chief Medical Officer, Board of Education, England,
34. Brihat Samhita : 68th Chapter of *The Samuthrika Shastra* : Anglo-Tamil Translation (1892), Madras.
35. Report on an investigation into the height, weight, chest and abdominal measurements of lives assured with the Oriental Life Office, between 1914 and 1924 : L. S. Vaidyanatha Iyer, M. A., F. I. A., Dy. Actuary of Oriental Life Office and Professor of Actuarial Science, Sydenham College of Commerce, Bombay.
36. (a) J. Kerr—Fundamentals of School Health;
(b) League of Nations : Bulletin of Organisation of Hygiene. Vol. VI, No. 2, Pp. 158.
(c) Journal of Boretin Sanitario—July, 1938, Pp. 575-581. Buenos Aires, S. America.

Gleanings from Medical Press

Medicine and Therapeutics

The Medical Management of Fractures.

—NON-UNION of fractures, or delayed union, may be due to endocrine imbalance, vitamin insufficiency, or disturbed blood chemistry, the specific factors governing bone metabolism being (1) calcium and phosphorus concentrations of the serum, (2) the calcium-phosphorus ratio of the serum, (3) the activity of the parathyroid glands and (4) the vitamin D level. (C. F. Nelson and R. C. Nelson, *Journal of the American Medical Association*, January 18, 1941, 116, 184). On the basis of the study of about one thousand cases of recent fractures, in which no instance of failure of union occurred, the authors recommend a medical regime. Low serum calcium, which may be the result of impaired parathyroid function, insufficient calcium intake and absorption, or too much phosphorus consumption, should be treated by the administration of at least 1 quart of milk daily and 4 gm. of calcium gluconate powder dissolved in 4 to 5 ounces of hot water and taken half-an-hour before meals. When the serum calcium is low and the serum phosphorus concentration high, foods with a high phosphorus content, such as liver, fish, eggs, cheese, green vegetables, and cereals, should be withheld for ten to fourteen days until the correct ratio of calcium and phosphorus is established. In the treatment of fractures of small bones, it is not necessary to give calcium intravenously unless the calcium level is below 10 mgm. per 100 c.cm., but in Colles's fracture, in order to prevent osteoporosis from disuse, 1 c.cm. of solution of parathyroid should be given subcutaneously every third day from three to five doses in addition to the calcium gluconate by mouth. In the case of fractures of large bones, carpal and tarsal fractures, and in all cases complicated by osteoporosis, 10 c.cm. of 10 per cent. calcium gluconate should be given intravenously daily for ten days, and then every third day until the blood chemistry determinations indicate a serum calcium of from 11 to 12 mgm. per 100 c.cm.; this in addition to the calcium gluconate powder by mouth. 1 c.cm. of solution of parathyroid should be given subcutaneously every three days until the serum calcium has reached the desired level and the dosage is then reduced to 1 c.cm. every six or seven days until the bone has united. The dosage of solution of parathyroid for children from five to twelve years is 0.5 c.cm. and for infants $\frac{1}{2}$ c.cm. In cases of senile osteoporosis or in acromegalic types the calcium level should be increased to 12 mgm. per 100 c.cm. Low serum phosphorus may be the result of hyper-parathyroidism, low phosphorus intake, high calcium absorption, and insufficient vitamin D. Phosphorus containing foods should be added to the diet; 3,000 units of vitamin D (preferably in the form of cod-liver or halibut-liver oil concentrates) should be given daily until the serum phosphorus concentration has reached

3.5 to 4 mgm. per 100 c.cm. If the serum calcium level is 10.5 mgm. per 100 c.cm., additional calcium should not be given until the serum calcium phosphorus concentration ratio has reached 3 calcium to 1 phosphorus. The danger of promiscuous use of vitamin D, however, is stressed, and extra vitamin D above a sustaining dose of 400 to 500 units daily should only be used in cases of low serum-phosphorus concentration; otherwise, non-union may result. In order to prevent the minerals from becoming insoluble 15 to 20 drops of dilute hydrochloric acid should be given in half a glass of water during each meal, unless the patient's history indicates hyperacidity. The urine must be kept definitely acid to litmus, and it may be necessary to administer ammonium chloride for this purpose—1 or 2 tablets (enteric coated) of $7\frac{1}{2}$ grains two to three times daily. Patients must be warned against the use of too much citric acid, fruit juice, bicarbonates, citro-carbonates and other alkaline powders. Thyroid is of value in some cases, especially when there is definite evidence of osteoporosis or an acromegalic type of bone. A basal metabolism test should be made and if it is found to be below 10, thyroid should be administered. Patients with definite signs of hyperthyroidism should be given 10 drops of compound solution of iodine in a little milk with each meal, or 3 to 6 tablets of diiodo-tyrosine daily for thirty days. The importance of blood chemistry determinations is stressed; these should be made early in all fracture cases so that appropriate medical management can be instituted immediately. —*Practitioner*.

Congestive Heart Failure —According to Dr. Samuel A. Levine, the improvements in the last twenty years in the treatment of heart-failure have come not so much from any notable new discoveries as from a more intelligent and effective use of old remedies. This is true up to a point, but there have been advances which have changed our lines of treatment, for this period has seen not only the increasingly rational use of digitalis and the recognition of the limitations of oxygen therapy and venesection, but also the introduction of the organic mercurial diuretics. Moreover, as Levine says, we have come to realise the vitally important differentiation of peripheral from central circulatory failure, and that to ply the unfortunate victim of lobar pneumonia complicated by peripheral circulatory failure with digitalis and diuretics is not only useless but often definitely harmful. The significance of thyrotoxicosis in the aetiology of heart-failure, particularly with auricular fibrillation, has also been more generally recognised and Hay among others has pointed out that in patients with thyrotoxic heart-failure the thyroid enlargement may not be detectable

clinically, though this is no reason for recommending subtotal thyroidectomy in all cases of heart-failure of doubtful origin. Kinsey and White, too, have clarified the aetiology by their finding that fever, however slight, in congestive heart-failure is evidence of some complicating condition, the commonest being pulmonary infarction, pulmonary infection (especially bronchopneumonia), active rheumatic infection, and coronary thrombosis.

In the management of congestive heart-failure we still rely on the triad of rest, digitalis and diuretics. Of the value of complete rest there can be no doubt, though Levine reminds us that in some patients, particularly elderly ones or those with primary left ventricular failure, rest in bed may aggravate rather than alleviate the condition. For this well-recognised state of affairs in which the heart is embarrassed by the increased return of blood to its right side, the cardiac bed, the top third of which can be raised and the bottom third lowered, is preferable to the old fashioned combination of a comfortable chair and a table on which to lean. Digitalis is still our stand-by in all forms of congestive heart failure, whether with auricular fibrillation or normal rhythm, and the main advances have been in the reliability of the various preparations of digitalis on the market, and in the recognition of the need for adequate dosage, though the massive dosage popularised in America by Eggleston has not been widely accepted here. Expensive proprietary preparations are no longer required in the ordinary case, and Evans has demonstrated that the powdered leaf is the best and also the cheapest form of digitalis for maintaining equable digitalisation. The work of Fraenkel and his colleagues on the value of strophanthin has, for some reason, not received due attention in this country; despite Lewis's teaching, there is something to be said for the intravenous administration of strophanthin in doses of gr. 1/100 in the few cases where immediate control of the ventricular rate is required. Quinidine sulphate by the intravenous route has also proved its value in cases of paroxysmal ventricular tachycardia when all other measures have been tried and the heart is failing; and acetyl-beta-methylcholine has established itself in the treatment of paroxysmal supraventricular tachycardia.

The question of which diuretic to use in congestive failure has now been definitely settled; the organic mercurial diuretics have proved superior to all others. Indeed, in adequate dosage—2 c.cm. intravenously every third or fourth day—they have almost done away with the need for mechanical removal of oedema fluid; certainly Southey's tubes may be relegated to the museum, and there are few cases of hydrothorax which will not respond to these drugs. In ambulant patients who have shown clinical evidence of cardiac oedema and received the appropriate treatment, they often prevent, or at least postpone, a recurrence. Bleeding is now rarely needed, except in a few cases of left ventricular failure, and Ebert and Stead's

observation that as much blood is removed from the general circulation by a venous tourniquet on the limbs as by the usual phlebotomy should tend to diminish still further the need for this traditional line of therapy. The introduction of the B.L.B. mask, whereby oxygen at concentrations up to 100% can be given for long periods, has called for a revision of opinion on oxygen therapy in heart-failure, particularly in view of the successful results obtained in coronary thrombosis. Finally, the problem of the best diet for patients with congestive failure has been at least partially solved by insisting on as little restriction as possible. The Karell diet has received a new lease of life. In view of the hypo-proteinemia present in certain cases of congestive heart-failure the patient's diet should contain as large a proportion of protein as his digestive tract can cope with; whether the Karell diet of 800 c.cm. of milk daily meets these requirements is doubtful. There is now general agreement that salts and fluids should be restricted, though not to the pitch of causing discomfort to the patient. —*Lancet*.

Peritoneal Fluid as an Aid to Diagnosis.

FACED with an acute abdomen, the surgeon of today is still without real help from any of the newer sciences and he must rely almost entirely on his clinical sense. What may be called the laboratory lag makes the clinical pathologist inaccessible, and, even if the radiologist can sometimes help, the decision to act—be it in typhoid fever, appendicitis or in intestinal obstruction—must be an immediate one. A method to make laboratory aid less tardy is proposed by Steinberg, who has studied the pathological peritoneal fluids in over 150 cases of inflammation or irritation. Much is already known from experiments about the cytological response of the peritoneum to bacterial and other irritants, but Steinberg is concerned with peritoneal exudates as a guide to the diagnosis and prognosis of intra-abdominal conditions. Peritoneal fluids were removed by abdominal puncture, at operation or at autopsy shortly after death, and records were kept of the numbers and type of organisms and cells, of structure, of the number of leucocytes with ingested bacteria, and of the presence of extraneous substances in the fluids in different conditions and at various stages of their development. Thus the fluid in early infections of the peritoneum shows about 8% of mesothelial cells, 90% of poly-morphonucleus and 0-6 bacteria free in an average oil-immersion field; while in late infections the exfoliated mesothelial cells may rise to 20%, intact polymorphs may be present only in moderate numbers, and the free bacteria may rise from 10 to uncountable numbers in a smear. Whatever the value of such tables to the skilled interpreter it is better for most of us to place trust only in the grosser features which may make diagnosis certain. The finding of a specific pathogen such as the pneumococcus in the fluid, the presence of numerous intestinal species of bacteria in

appendical peritonitis, the mucinous material and fibre strands in peptic-ulcer perforation and the cholesterol crystals in bile peritonitis are of immediate help. Steinberg suggests that the fluid may be obtained from the mid abdomen by puncture with an ordinary needle and syringe or by a special capillary pipette before operation or immediately the peritoneum is incised; and the microscopic examination of the fluid in stained smear and wet preparations should be made on the spot. The occasions on which this sort of pathological support for the surgeon may be possible are not very numerous but there are times when abdominal puncture might certainly help—for example, after operation when the decision is between distension caused by atony or by infection; or before operation, when salpingitis, appendicitis or ectopic gestation may all be under consideration. The dangers of the exploratory needle are probably not great, as those familiar with animal experiments know, and the operation has often been performed on children without unhappy complications. One point emphasised by Steinberg is that the fluid must be withdrawn from the mid-abdomen but he has yet to show that the fluid from this area adequately represents or even indicates conditions in other parts of the peritoneal cavity.—*Lancet*.

The Treatment of Scabies with Benzyl Benzoate.—Evacuation of children from slum areas, the crowding together of large numbers of people in public air-raid shelters, and the messing of troops, are likely to lead to a spread of scabies. For this reason the report of the successful treatment of one hundred cases of scabies occurring in a naval establishment by R. E. King (*British Medical Journal*, November, 9, 1940, 2, 626) is of interest. A lotion consisting of equal parts of benzyl benzoate, industrial spirit, and soft soap, was used in the following manner: The body is anointed with soft soap, special care being taken to rub it well into those parts most usually attacked (the groins, the inner aspect of the thighs, the axillæ, the abdomen, the wrists, and between the fingers). Then for ten minutes the body is soaked in a bath at 100° F., the patient rubbing the affected parts thoroughly during this time. The lotion is then applied vigorously with a pig bristle shaving brush for five minutes while the body is still wet. The lotion and lather are allowed to dry on the skin and then another vigorous application is made for five minutes, after which the body is dried with a towel. The clothes worn before treatment are then put on, and twenty-four hours later a bath is taken and clean clothes donned; the discarded under-clothing and bed-clothes being sterilized by boiling. It is emphasized that areas of skin showing pyogenic infection must be treated as vigorously as unabraded areas. In the series of cases treated satisfactory results were obtained in all, and no secondary reaction of the skin occurred. The method is cheap, costing only fourpence per head, and the entire treatment takes no longer than

thirty minutes. Close contacts of the patient, i.e. other members of a family or persons sleeping in close proximity, should be treated on the same day. This is important, even though such persons may not show any signs of the disease.—*Practitioner*.

Pneumonia with Reference to Chemo- and Sero-Therapy.—P. H. LONG and J. W. HAVILAND [*Annals of Internal Medicine*, 34: 1042, Dec. 1940] report the treatment of 199 cases of pneumococcus pneumonia in adults with sulfapyridine or sulfathiazole combined in some cases with serum. Only one patient was treated with serum alone, because the history showed that this patient had previously developed a drug rash with fever under treatment with sulfathiazole. The age distribution of the patients in this series, the incidence of major concurrent diseases, and the incidence of bacteremia on admission were essentially the same as in the previous five years, indicating that pneumococcus pneumonia in 1939-40 was as severe as in any year during the past five years. The routine dosage for oral administration in these cases with either sulfapyridine or sulfathiazole was: An initial dose of 4 gm. as soon as the clinical diagnosis of pneumonia was established, 1 gm. every four hours "day and night" until the temperature had been normal for forty-eight hours; then 1 gm. every six hours until resolution of the pulmonary lesion was "well under way"; then 0.5 gm. four times a day until the lungs were clear. If the rectal temperature had not dropped to below 101° F on the day after institution of treatment, or if the concentration of the drug in the blood was less than 4 mg. per cent. 0.06 gm. of either sodium sulfapyridine or sulfathiazole was given intravenously in addition to the usual oral dosage. In 42 cases, type-specific serum was employed in addition to the drug therapy. There were 15 deaths in this series, a mortality rate of 7.9 per cent, but 7 of these deaths took place within twelve hours after treatment was instituted, and in another 6 cases, death was due primarily to a major concurrent disease; there were therefore only 3 deaths "despite seemingly adequate treatment." Complications were rare; 2 patients had empyema on admission to the hospital, and 2 others developed empyema while under treatment; 10 patients developed sterile pleural fluid while in the hospital. This incidence of complications was the lowest in five years. The two drugs appeared to be equally effective in the treatment of pneumococcus pneumonia in adults. Sulfathiazole causes less nausea and vomiting than sulfapyridine but the incidence of drug rash and fever was higher with sulfathiazole. Type-specific serum is of definite value in association with drug therapy in the more severe cases.—*Medical Times*.)

Electrically Induced Convulsions in the Treatment of Mental Diseases.—R. ALMANZI and J. IMPASTATO (*New York*

State Journal of Medicine, 40: 1315, Sept. 1, 1940) report the use of electrically induced convulsions in the treatment of mental disease—chiefly schizophrenia. This is the most recent method of "shock therapy" for this condition. The electrical machine is supplied by the ordinary alienating current; the electrodes are "silver ribbons" mounted on rubber pads and then on metallic tongs that can be easily applied to the head. Treatment is begun with a low voltage (60 volts) for one-tenth of a second; if this does not produce a convulsion, another "shock" is given with a slightly higher voltage in fifteen or twenty minutes; it is rarely necessary to use more than 80 volts to produce a convulsion. The first phase of the convulsion is tonic; this is followed by a clonic phase, then by a brief period of apnea; the patient then goes into a deep stupor that lasts about five minutes followed by a period of confusion. When this clears up the patient has no recollection of the treatment, and does not show any reluctance to continue treatment. Treatments are given two or three times a week; thirty treatments constitute a full course, but if the patient is benefited, improvement is usually noted before the tenth treatment. The authors have used this method for inducing about 100 convulsions, and have had no complications. This "electroshock" method has certain definite advantages over metrazol convulsions; the patients have no "horrible feeling" of impending death prior to the convulsion; no prolonged psychomotor excitement follows; cardiac complications and fractures which have occurred in metrazol convulsions have not been noted with the electrical method. The authors make it a rule, however, not to use the electroshock method in patients with cardiovascular disease, organic disease of the nervous system, or in those over fifty. The treatment has been employed too recently to evaluate the end results, but the results so far indicate that they are equal to those obtained with the metrazol treatment. As with metrazol, the best remissions are obtained in recent cases, in catatonic and depressive stupor and in the schizoid depressive group.—(*Medical Times*.)

The Treatment of acute attacks of Bronchial Asthma by intravenous injection of Aminophyllin: Henry Ashley, Carr, M.D. *J. Lab. And Clin. Med.*, 25: 1295-1299 (Sept.) 1940.

The first example of the use of purine bodies for relief of asthma was the clinical observation that coffee would sometimes relieve an acute attack.

During a ten months period, 41 different patients with acute bronchial asthma were treated by the author.

Twenty-two persons with severe bronchial asthma received a total of 78 injections of aminophyllin. Twenty gave almost immediate favorable response. Two responded less favorably. Eight, or 36% were long standing asthmatic patients who had been treated with the usual adrenalin injections but

whose attacks persisted unabated. Twelve persons received aminophyllin alone for their present attack with almost immediate favorable response. All cases were to varying degrees refractory to adrenalin.

Eight cases showed minor toxic symptoms such as dizziness, nausea, retching and vomiting, "pounding of the head," burning in chest and head, or head and chest pain. No untoward effects were noted.

Thus, he concludes that aminophyllin, when given intravenously, is a most efficacious drug in the treatment of intractable acute attacks of bronchial asthma. It is also especially useful in cases which have become refractory to adrenalin.—(*J.S.T.J. of M.*)

Myopia after use of Sulfanilamide.—Emory A. Rittenhouse. *Arch. Ophth.*, Chicago, 24: 1139-1144, Dec. 1940.

The author reports a case of myopia following the use of sulfanilamide for boils, and he reviews the literature on the subject of myopia following the use of sulfanilamide. In all cases the conditions cleared up following the discontinuance of the drug.

This toxic reaction has occurred in connection with sulfanilamide treatment of furuncles, pneumonia, sore throat, and gonorrhea. Transitory myopia has also occurred as a result of influenza, diarrheal conditions, icterus, acute inflammatory renal diseases, acute polyarthritis, arsenical therapy, alkalinity therapy, and diabetes mellitus.

It is possible that the rapid absorption of the drug can affect a transformation of the salt and water metabolism in the organism and thus make for a change in the lens which would be responsible for the disturbances of refraction. There may be a toxic irritation of the para-sympathetic fibres of the ciliary muscles.

In most of the cases the patient used the drug during one course of treatment with impunity, the myopia developing during the next course of treatment. This warrants the conclusion that a sensitivity to the drug might be developed.

Despite the difficulty of deciding on the actual mechanism, the rapid onset after taking the drug and the apparent recovery after stopping the medicine seem definitely to indict sulfanilamide. However, good prognosis, with no apparently bad after-effects, is reassuring to all concerned.—(*V.D.I.*)

Toxicity of Stilboestrol.—English clinical experience has not for the most part found that the toxic side-effects sometimes associated with the administration of stilboestrol are of such a magnitude or severity as to contraindicate the use of the drug. In America, however, there has been more hesitancy about the acceptance of the synthetic product in place of the natural hormones in spite of the advantages offered

by the oral potency and relative cheapness of the former. The reports submitted to the Council on Pharmacy and Chemistry of the American Medical Association were not unanimous enough on the question of toxicity to allow the Council to recommend the recognition of stilboestrol or its inclusion in *New and Non-official Remedies* until further experimental trials had been undertaken. The report which emphasized the toxicity more particularly was that of Shorr, Robinson, and Papanicolaou, who found that only 20% of their forty-four patients exhibited no toxic symptoms. The rest suffered from some or other ill effect, gastrointestinal disturbances such as nausea and vomiting being the most common. Other symptoms noted were lassitude, cutaneous rashes, acute thirst, and a psychotic reaction in one case. The evidence of toxicity in the other two reports on which the Council decision was reached was by no means so striking. Buxton and Engle had laboratory evidence of toxicity (albuminuria) in only one of their sixteen cases, and the nausea and vomiting they occasionally found were not thought by them to be a contraindication to the use of stilboestrol. MacBryde, Freedman, and Loeffel studied thirty-seven patients and reported vomiting in only three, although doses as high as 5 mg. a day were given.

Subsequently American clinicians have not in the main supported the view that the occasional toxic effects of the synthetic oestrogen are pronounced enough to preclude its use in human therapy. Karnaky has treated in all 189 cases and found nausea in only a few, and suggested that this was eradicated if the tablets were taken after meals. Some patients in this series had doses of 90 to 234 mg. given during three days without any ill results. Since the nausea and vomiting occur as readily after parenteral as after oral administration, there is reason to suppose that the origin of the symptoms is to be found centrally rather than in local irritation. As certain animal experiments had suggested that stilboestrol caused liver damage, Shorr and his colleagues performed liver-function tests on their patients, with, however, inconclusive results. Freed, Rosenbaum, and Soskin, in a recent study of this question, were unable to obtain any evidence for such a toxic action on the liver. They carried out bromsulphalein retention tests on eight menopausal patients before and during stilboestrol therapy, and on the treated women compared with normal women of the same age group. They finally gave 5 mg. stilboestrol daily for three weeks to a man recovering from an acute attack of hepatitis without the slightest evidence that his convalescence had been impeded. Von Haam, Hammel, Rardin, and Schoene have also reported the results of their administration of stilboestrol to 125 patients. They find that, although 42% of their patients developed some untoward symptoms, these could be

controlled in all but nine cases by suitable reduction of the dose. These authors carried out very extensive laboratory investigations, but were unable to detect any disturbance of function. Alcohol test meals were performed on some of their patients, and a slight reduction in acid secretion was noted after nauseating doses of stilboestrol.

It is generally agreed that there is considerable individual variation in the tolerance to stilboestrol, some patients feeling nausea with doses as low as 0.5 mg. a day, while others will take 5 or 10 mg. a day without showing any disturbance. In some of the clinical reports there is insufficient indication of the dosage given to the patients, so that one cannot tell whether there has been any attempt to arrive at the minimal effective dose for the individual patients rather than to give some constant dose to each patient purely empirically. Such a report as that of Kurzrok and others, who observed persistent nausea and occasional vomiting in more than one-half of their forty patients, is open to this objection. The experience in France has been somewhat similar to that in the United States in that the first clinical report, that of Varangot, laid heavy stress on the toxic manifestations, while the later reports, such as that of Huet, Comte, and Herschberg, have in general accepted the new substance as a useful therapeutic agent whose toxic effects are slight and can usually be regulated by suitable adjustment of dosage. Huet and his colleagues found that only 10% of forty-six patients developed nausea, and the vomiting which occurred in 3% of cases cleared up rapidly on cessation of treatment.

There seems on the basis of the available evidence little objection to the use of stilboestrol in place of the natural hormones provided that it is used intelligently. There is no point in giving larger doses than are strictly necessary, and each individual case must be studied to find out what is the minimal dose which will yield the desired result. Most clinical observers seem to be agreed that doses of more than 1 mg. a day are very rarely necessary, and that much lower doses are quite effective in a great many cases. The question of the toxicity of stilboestrol may, however, become a purely academic one if the preliminary data on the newer oestrogenic analogue hexoestrol given by Bishop and his colleagues in the form of a report to the Therapeutic Trials Committee of the Medical Research Council are confirmed. Their findings indicate that the new compound, while not so active weight for weight as stilboestrol, gives rise to nausea and vomiting in a much lower proportion of cases. Its oestrogenic activity is in all respects similar to that of the natural hormones. It is hoped that the controversy on the toxicity of the new compound will be slight; so far no clinical reports have appeared except the one referred to above. —B.M.J.

Surgery

The Early Diagnosis of Gastric Carcinoma.—Writing on the early diagnosis in gastric carcinoma and its effect on the prognosis, R. Schindler (*Journal of the American Medical Association*, November 16, 1940, 115, 1693) says "Three diseases have been considered forerunners of gastric carcinoma:—(1) Benign gastric ulcer; (2) benign gastric polyp, and (3) chronic atrophic gastritis. As regards the first the author states that this view is untenable. Gastro-enterologists keeping careful watch on ulcer patients have never seen such an ulcer develop into a carcinoma. The benign gastric polyp is a different proposition and can be easily overlooked at X-ray examination; it is frequently associated with atrophic gastritis, and gastric carcinoma often develops. The condition of first importance as a forerunner of gastric carcinoma is chronic atrophic gastritis. The clinical symptoms include epigastric distress pressure, belching, "bloating," at times ulcer-like pain, the general symptoms of extreme fatigue coming on in spells; headache, nervousness, numbness and tingling of the limbs, these latter symptoms being truly characteristic of the condition. The early correct diagnosis of chronic atrophic gastritis is therefore of the utmost importance, and the patients should be carefully watched, both by X-ray examination and gastroscopically. Three cases are given in illustration—One, a man of fifty-eight, had suffered from typical symptoms, coming on in attacks, for twenty years. Three years before admission to hospital a small filling defect of the greater curvature was found. Careful gastroscopic and relief X-ray examinations would doubtless have revealed the presence of a tumour, which three years later was found lying in a completely atrophic mucous membrane, and was diagnosed as type 1 carcinoma. The second case emphasizes the importance of early detailed examination. The patient had complained for one year of gnawing epigastric distress two hours after meals; belching and poor appetite were also present and at times severe nausea. Gastroscopic examination indicated a small pyloric carcinoma, although at operation the surgeon could feel nothing definite. A resection was made, however, and in the specimen a small shallow ulcer was seen which microscopically was found to be a carcinoma.—*Practitioner*.

A Survey of Sixty-eight Cases of Extra-genital Chancres. U. J. Wile and Herbert H. Holman. *Am. J. Syph. Gonorr. & Ven. Dis.*, St. Louis, 25: 58-66, Jan. 1941.

The material for this report was gathered from the records of the department of dermatology and syphilology in the University of Michigan Hospital over a period of approximately 25 years (1914 through 1939.) The total number of cases of primary syphilis was 84. Of these, 68 (8.0 per cent) had extragenital chancres. The number of these chancres in males was 43 (63.2 per cent of the 68)—24 (35.3 per cent of the 68) on the

lip, 8 on the tonsil, 4 on a digit, 1 on the tongue, 2 on the pharynx, 1 on the palm, 1 on the forehead, 1 on the chin, and 1 on the anus. The number of these chancres in females was 25 (36.8 per cent of the 68)—15 (22 per cent of the 68) on the lip, 2 on the tonsil, 2 on a digit, 4 on the tongue, and 2 on the breast.

The lip was thus by far the most frequent site. Chancres of the lip were initiated most frequently in the act of osculation. A less common mode of transmission of the spirochete was found in sexual perversion, such as cunnilingus or fellatio. Mediate infection may also occur through contact with an inanimate object which harbors virulent spirochetes.

The authors discuss 22 of the cases briefly. Four of the patients were physicians who had been infected by patients. Three of these physicians had digital chancres, the fourth had primary syphilis of the palm.—*Veneral Diseases Information*, March '41.

The Surgical Treatment of Ulcerative Colitis.—J. H. GARLOCK (*Annals of Surgery*, 113: 2, Jan. 1941) states that at the Mount Sinai Hospital, New York, it is now agreed by the medical and surgical staff that surgical treatment of ulcerative colitis is indicated under the following conditions: Uncontrollable hemorrhage; acute ulcerative colitis with profound toxemia; impending perforation; chronic ulcerative colitis resistant to all forms of medical treatment; and segmental ulcerative colitis. In the surgical treatment of ulcerative colitis, the first requisite is "complete diversion of the fecal stream from the diseased bowel." Ileostomy is the procedure of choice in most cases, but this is to be regarded only as "the first step of a graded multiple-stage operation involving subtotal resection of the colon." In cases of segmental colitis involving the left colon and rectum, the use of transverse colostomy instead of ileostomy should be considered. In performing ileostomy, the author employs a two-inch subumbilical right rectus incision close to the midline; the patient is placed in the Trendelenburg position so that the loops of small bowel "fall away" and the terminal ileum can be easily visualized. Handling and manipulation of the colon is to be carefully avoided, as "the lightest touch" will often cause perforation of the diseased intestinal wall. The proximal ileostomy stoma is implanted in the original incision; the distal stoma in a one-inch right McBurney incision. Ileostomy has been done in 15 cases; there were 2 deaths in this series; in most cases ileostomy was followed by cessation of hemorrhage in bleeding cases and by relief of symptoms and gain in weight. The operation is deferred until the maximum improvement from ileostomy has been obtained, usually six to twelve months. Subtotal resection of the colon is carried out in stages. If proctoscopic and sigmoidoscopic

examinations show that the lower sigmoid and rectum are free from disease, the first stage of the resection operation is an ileo-proctostomy. When the rectum is diseased, the lower sigmoid and rectum are nevertheless left in situ "for possible future use in reestablishing intestinal continuity," and the subtotal resection of the colon is done in two stages, beginning on the left side. So far none of the patients in whom the resection operation has been completed have been under observation for a sufficient length of time to determine whether or not the rectum will heal sufficiently so that an anastomosis operation will eventually be possible. In the entire series of 25 cases in which some type of operation has been done for ulcerative colitis, there were 5 deaths, but in 4 cases "an error of technic or judgment" was responsible for the death. With increasing experience in the surgical treatment of ulcerative colitis, the author states such errors will become less frequent, and the mortality will be reduced. Two patients in whom ileoproctostomy was done prior to resection are well and have two or three normal bowel movements daily. In the other cases in which the resection was successfully completed, the patients are in good health.—*Medical Times.*

Incisional Hernia.—Dr. Benjamin after discovering this subject comes to the following conclusions:—

1. The incidence of incisional hernias following abdominal operations is greater than it should be, and is more than most records show.
2. Surgeons should conserve nerve and blood supply and give more thought to the possibility of hernia following a primary laparotomy in order to prevent such an occurrence.
3. Essential vitamins and blood transfusions when indicated should be supplied at the primary operation.
4. The preparatory treatment for an incisional hernia operation is very important.
5. The general condition of the patient should be satisfactory and, except in emergency cases, the hernia should be reduced before operation.
6. The incision for a cure of incisional hernia should be adequate to permit the correction of any obstruction to the bowel, and proper identification of the tissues and all openings.
7. A small single hernia may be repaired by the Mayo method, but a large single or multiple hernia should be corrected by lateral overlapping of tissue with the addition of fascial flap or Gallie's fascial strip where necessary.
8. The mattress Dermol suture has proven most satisfactory in holding the supportive flaps together, when tied over rolls of gauze or rubber tubing on the skin and should be left in place for two to three weeks.

9. Very small rubber or catgut stands give ample drainage of subcutaneous areas.

10. The nasal suction tube should be used in most of these cases for two to four days.

11. Snug adhesive bands should be applied directly following the operation, and a well-fitting abdominal support worn constantly for several months after these operations.—*Minnesota Medicine.*

Common Errors in the Diagnosis and Treatment of Anorectal Diseases.—Raymond J. Jackman, M.D. writes:—

Most diagnostic errors in anorectal diseases are those referable to omission; that is, failure of the physician to carry out simple digital examination of the rectum which should be a part of every physical examination. A proctoscopic examination should be carried out when anything abnormal is found on digital examination, or when the patient has any symptoms referable to this region. Buie found that one out of every four patients who came to the Mayo Clinic suffering from carcinoma of the terminal portion of the colon had received treatment for some other supposed rectal condition during the period of his chief complaint, the carcinoma remaining undiscovered. The majority of these errors would have been obviated if digital examination of the rectum had not been omitted when the patient first presented himself. Most carcinomas of the terminal portion of the colon are within reach of the examining finger.

Diagnosis and treatment are too closely linked to be separated. Proper treatment depends on correct diagnosis, but in addition to the mistakes which may arise from an incorrect diagnosis, some of the mistakes made in treatment are errors of commission, due principally to failure of the physician either to understand the anatomic aspects of the region concerned, or to apply the knowledge of it which he has.

COMMON RECTAL CONDITIONS.—*Ectropion of the rectal mucosa.* This is a commonly encountered type of deformity which occurs after a procedure that is thought to be the Whitehead operation for removal of hemorrhoids by excision, but actually is not the operation Whitehead described. In this erroneous operation, the rectal mucosa has been sutured to the skin outside the grasp of the anal musculature. Consequently, the mucosa is exposed to the exterior and since it is composed of a columnar type of glandular epithelium, it continues to secrete mucus. Therefore, the patient who has undergone this operation will complain of discharge and moisture in the region. Because of the constant presence of moisture, the adjacent perianal skin will become excoriated and infected, giving rise to symptoms of burning and itching. The ectropion may be annular or may be present only in segments. Unless the physician is familiar with the appearance of the condition, it can be and frequently is mistakenly diagnosed, and is treated as anal ulceration or anal fissure. In contrast to the

adjacent skin, the mucosa appears bright red and bleeds more readily than normal and thus causes confusion if care is not exercised. It is not an uncommon thing to encounter a patient suffering from ectropion of the rectal mucosa who has been treated by application of various cauterizing agents to the exposed mucosal surface under the physician's false impression that he was dealing with a fissure. The only satisfactory treatment for the condition is surgical; which is to say, dissection of the exposed mucosa and restoration of it to the normal anatomic position inside the anal musculature.

The basic cause of ectropion of the rectal mucosa may be said to lie in a faulty conception of the anatomic aspects of the anorectal region. The anal canal is from one to three centimeters in length. The inner boundary of the anal canal is a definite landmark, it is the pectinate line or dentate margin, and it marks the point of dissolution of the anal plate between the hindgut and proctodeum. In this particular region an abrupt transition from skin to mucous membrane occurs. In the normal anal canal the dentate margin is situated well inside the external sphincter muscle, and in the performance of any type of rectal operation it must be maintained there, or ectropion of the mucosa will result.

Anal fistula. All anal fistulas originate at the dentate margin in the crypts of Morgagni. Because of the sequence of the events which occur in the formation of a fistula, Buie has designated the dentate margin as the "primary source" of a fistula and the external opening as the "secondary opening." If the primary source of the fistula is sufficiently large, so that drainage through it is not impeded, a secondary opening does not occur and the fistula is spoken of as being "incomplete." The only satisfactory treatment of the condition is surgical, the aim of which is to convert all fistulous tunnels into open ditches, so to speak; or to state it differently, after a probe has been inserted from the primary source and out through the secondary opening, all tissue overlying or external to the probe must be incised, and debridement of the margins of the resultant wound must be done. This is true, whether or not muscle intervenes. It is not uncommon to observe a patient who has been operated on unsuccessfully many times for a fistula. On examination of the region the wound or scars resulting from previous surgical treatment will have been found to approach the anal margin. The surgeon, fearing that his patient would suffer from anal incontinence if the incision involved the muscle, stopped short of completing the operation. Parenthetically it might be stated that anal incontinence is more often the result of inadequately performed surgical operation and improper postoperative care than it is the result of completed fistulectomy in which part or all of the anal musculature has been severed once or several times.

Rectal bleeding. One of the most common rectal complaints which will cause a patient to consult his physician is bleeding. It is

too frequently assumed that the bleeding is hemorrhoidal in origin and treatment is instituted accordingly. The following report of a case serves well to illustrate this statement.

A woman, forty-four years of age, registered at the Mayo Clinic in May of 1939. Her chief concern was rectal bleeding of two years' duration. She had consulted her physician one and one-half years previous to her coming to the clinic for the same symptom. During the two months ensuing after her visit to her physician she had received twenty-three injections of some type of sclerosing agent for internal hemorrhoids, but the bleeding had persisted. Several months of ingestion of a special diet and various drug and vaccine therapies for colitis had not produced any change in symptoms. Results of the general physical and laboratory examinations were essentially negative. On proctoscopic examination a pedunculated polyp about 2.5 by 2.5 centimeters in size was found. It was destroyed by fulguration and the bleeding promptly subsided. Results of subsequent roentgenologic studies of the colon were negative.

It is true that in most instances bright red blood passed from the rectum flows from internal hemorrhoids. It is incorrect, however, to assume that this is always the case. It is far better to assume that it is always caused by a malignant process or by some other pathologic process of the bowel until it has been proved otherwise.

Hypertrophied anal papillae and polyps. Hypertrophy of the anal papillae is the result of an inflammatory process; any infection in the anal canal or crypts usually will cause papillary hypertrophy. The infection results in edema of the papilla, and after the process has subsided, complete recession of the papilla to its normal size will rarely occur. The differentiation of a hypertrophied anal papilla from a polyp should offer the physician little difficulty, but the two conditions are frequently confused. If the relationship which the mass bears to the pectinate line is carefully noted on examination, differential diagnosis will be simplified. Since the hypertrophied papilla is part of the anal canal or rather, part of the dentate margin, it is covered by stratified squamous epithelium and therefore is the same color as the skin. This is easily distinguished grossly from the adjacent and rectal mucosa. Polyps usually arise above the dentate margin from the columnar epithelium, and when they so arise present a typical adenomatous or polypoid appearance, are more friable and bleed easily. It is important to distinguish between these two conditions, principally because the potentiality of the one is vastly different from that of the other. The malignant propensities of the polyp are well known whereas, on the other hand, hypertrophied papillae cause trouble only to the extent that they cause such symptoms as protrusion, sensation of rectal fullness, pressure or pain.

The treatment of the two conditions is how different. Because of the fact that

that part of the bowel above the dentate margin has an autonomic nerve supply, most small sessile and pedunculated polyps in this region can be destroyed very simply by fulguration without resort to anesthesia. On the other hand, the anal canal and dentate margin (from which enlarged papillae arise) have a somatic sensory supply from the sacral plexus and are very sensitive. Thus, any attempt at removal of enlarged papillae will require the production of some form of anesthesia.

Rectal tumors of chemical origin. This type of tumor results from the use of various sclerosing preparations in the injection treatment of internal hemorrhoids. When the injected agent has an oil base, particularly mineral oil, the resultant fibrous tumor may persist for many years and present itself as a single nodular mass or an annular stricture. It is not uncommonly confused with a malignant tumor in this region. Several instances have been reported in which the condition has been mistaken for a carcinoma, and the patient either has undergone colostomy, or some type of radical operation has been performed to remove the supposedly malignant tumor. The most important feature distinguishing such a tumor from a malignant tumor is the patient's report that he or she has received injection treatments. The overlying mucosa is usually normal, although it may be scarred and adherent. The condition also may be confused with a chronic internal abscess or fistula, and examination with the patient under the influence of anesthesia may be necessary to rule out this possibility.

Rectal shelf. An extrarectal mass situated in the pouch of Douglas or rectovesical space, resulting from metastasis from a carcinoma in the upper part of the abdomen, or some intra-abdominal inflammatory disease, may impinge on the anterior rectal wall and produce a mass which not uncommonly is confused with primary rectal carcinoma. In such cases, the patient's principal complaint may be referable to the rectum, and the finding of the rectal shelf may be the first significant clue to discovery of some obscure abdominal disease.

CONCLUSIONS.—In all fields of medicine and surgery various authorities will differ as to the value of certain features of diagnosis and treatment. Some procedures are more or less orthodox; others are controversial matters. In anorectal diseases most diagnostic errors are not so much the results of mistaken identity as they are the results of failure of the physician to examine the patient. Most therapeutic failures are referable to the physician's faulty conception of anatomic and physiologic aspects of the anorectal region.—*Jl. of Iowa State Medl. Society.*

Vertigo.—Millen A. Nickle, M.D., Clearwater, Fla.:—Vertigo is a disturbance of one's sense of equilibrium. It may vary from fleeting spells of dizziness such as are brought on by some quick movement of the head, like

sitting up in bed or stooping over quickly, to severe attacks attended by nausea and vomiting, totally disabling the individual.

Any disturbance in coordination of the normal functions of the labyrinth, the visual sense and the tactile sense produces vertigo. Nature can compensate for the loss of but one of these functions. For example when the tactile sense is lost, as in tabes, the individual falls if he closes his eyes (Romberg Sign).

Causes of vertigo may be listed as systemic ocular, aural and intracranial.

Systemic causes include arterio-sclerosis, cardiorenal disease, anemia, leukemia, syphilis, gastro-intestinal disturbances; focal infections in teeth, tonsils, sinuses, gall-bladder, colon or prostate; endocrine disorders and vaso-motor disturbances; effects of certain drugs as salicylates, quinine and tobacco. These may act through disturbance of the labyrinthine circulation, such as anemia, hyperemia or hemorrhage, or by toxins acting on the labyrinth. Dederer claims that waterlogging of the labyrinth is an important cause of vertigo. Furstenberg claims further that waterlogging is caused by retention of sodium in the system.

Eye muscle imbalance or anything causing diplopia may produce vertigo, as may improperly fitted or adjusted glasses.

In considering aural causes one must remember that normally waves of sensation are constantly passing from their origin in the semi-circular canals and the vestibule, to the brain and spinal cord centers, maintaining our sense of equilibrium.

If these waves are unduly stimulated or retarded at their origin on one or other side, unequal impulses are produced, the equilibrium is immediately upset and vertigo results. Labyrinthine vertigoes are always rotatory and usually associated with nystagmus. Vertigo may result from the pressure of foreign bodies or impacted cerumen in the external auditory canals, or by extension of infection from acute or chronic suppurative otitis media, or even from simple blockage of the eustachian tubes.

Intracranial tumors may cause vertigo, probably by pressure. Spiegel and Alexander claim that temporal lobe tumors and those close to the Sylvian fissure induce vertigo more often than do those elsewhere in the brain.

Differential diagnosis of the causes of vertigo may require the cooperative study of the Internist, the Otolologist, the Neurologist and perhaps the Neurosurgeon. Associated conditions such as suppurative otitis media, choked discs, blood dyscrasias, the character of the vertigo, its severity and duration etc., usually point the way to the underlying cause.

Treatment naturally depends on the cause. Fortunately most cases clear up with the correction of general systemic conditions, habits of living and dietetic irregularities. Palliative treatment consists of rest in bed, mild catharsis and the use of simple sedatives. Ephedrin is useful during an attack. Avoid measures which appreciably

lower the blood pressure. Surgery is usually necessary in cases associated with suppurating ears or brain tumors. In Meniere's disease, Dandy advocates section of the eighth nerve.

Where no specific cause can be found, Furstenburg's treatment should be employed.

Ophthalmology

The Tragedy of Glaucoma Simplex.

Simple Glaucoma has a benign sound but a malignant action. Unlike the acute type of glaucoma, which manifests itself with violent symptoms, both objective and subjective, this chronic form often produces so little discomfort that the patient ignores the disease until much valuable time and useful vision is lost. The tragedy of simple glaucoma lies in the fact that the disease is so often unrecognized until it is too late to save the eyesight. It occurs in middle life and old age. Many thousands go blind every year while waiting for their so-called cataracts to mature, so that they can be removed. They have been told by their optician, when "fitting" their glasses, and sometimes by their family doctor, that this was necessary. The gradual reduction of vision, and the halos they see around lights, are attributed to the developing cataracts.

It is easy to understand why a non-medical man, or even a general physician, fails to recognize simple glaucoma. Some cases require several complete ocular examinations by a well trained ophthalmologist before he can say with certainty "this is chronic glaucoma." Such an examination must cover a complete family history, as well as that of the patient, and include a careful ocular history of both. A corneal examination for edematous signs; the pupil for dilatation and abnormal light reaction; the crystalline lens and other media for opacities and the optic disc for cupping and atrophy. The tension must be measured and recorded; this may be necessary at different hours of the day, as it usually registers higher in the morning hours and may have to be repeated on several subsequent days.

The fields of vision are always affected in chronic glaucoma and require careful charting of the characteristic changes in the light fields and blind spots. Also any other scotomata present. The symptoms of glaucoma simplex differ widely from the dramatic picture of acute congestive glaucoma. Here we have the sudden onset, with excruciating and almost unbearable pain: attended with nausea and vomiting, swelling of the eyelids, chemosis, widely dilated and fixed pupil, edematous cornea and dimness of vision. In this condition an eye physician is immediately consulted and the diagnosis is unmistakable. Prompt reduction of the increased intraocular tension by miotics or operation, if necessary, will immediately check the progress of the disease and restore the vision with little or no loss.

ed. It consists of salt free diet with lessened water intake, and the giving of large doses (45 grains) of ammonium chloride three times a day with meals, to prevent sodium retention. Give this for three days and omit for two days, continuing as long as necessary.—*Jour. Fla. Med. Assn.*, 27: 293 (Dec.) 1940.—(Medical World).

Iridectomy is the operation of choice in acute glaucoma, with inclusion of the iris root. In simple glaucoma, one of the permanent filtering scar operations should be done. The author considers the corneo-scleral trephine operation the most satisfactory, and also one of the simplest.

Operation is done in these cases, not to restore vision, but to check the progress of the disease. It is impossible to regain the vision already lost, and we only hope to arrest the disease and preserve whatever vision remains at the time of operation. Sometimes there is a slight improvement in vision after a successful operation, when the disease is of short duration and the atrophic changes in the nerve fibers not too extensive. Again, sometimes after a good operation, and tension is reduced to normal, or below normal, the atrophic process continues and all useful vision is eventually lost. The degree of intraocular tension producing glaucoma varies greatly in different eyes. Some eyes can stand much more pressure within than others. A tension which is constant and normal for some eyes will produce a glaucomatous condition in others. A normal tension varies 10 to 15 mm. of mercury.

All glaucoma is characterized by increased intraocular tension. The direct cause of this increased tension is a disturbance of the normal intake and outflow of fluid from the eye. The filtration mechanism in the chamber angle is more or less blocked by inflammatory products, or anterior synechia. The etiology is often uncertain. Among the predisposing causes, we recognize small size of the globe; large size of the crystalline lens; anomalies of the filtration apparatus in the chamber angle; age; senile degeneration of the iris with free pigment deposited in the iris angle; heredity and instability of the vaso-motor system. Exciting causes are emotional disturbances, and sometimes prolonged use of midriatics in one predisposed to the disease.

Chronic glaucoma may be mistaken for immature senile cataract, which may be present also. It may be confused with primary optic atrophy, but careful examination of the disc fails to show the characteristic cupping of glaucoma.

Every active and alert oculist sees these cases of chronic glaucoma come in for treatment of failing vision and dull headaches, who have no knowledge of their eye trouble, or the seriousness of it. They have been

buying their glasses at frequent intervals from department stores or jewelry shops while the destruction of their eyesight progressed. If these patients live at some distant point where they can not be seen frequently, their vision checked, and the effect of miotics noted; then it is better to advise, and insist upon, immediate operation. Most patients will consent to operation if you

explain to them that they will soon be totally, and permanently blind, unless this condition is controlled at once. Few patients can be depended upon faithfully to carry on the necessary treatment over a long period. For this reason it is safer to operate all these cases of simple glaucoma while you have them under observation.—(*Medical World*.)

Obstetrics and Gynecology

Hyperemesis Gravidarum.—Of cases of excessive vomiting in pregnancy, only a proportion can fairly be classed as hyperemesis, and some strict clinical criterion would be a help in assessing changes in incidence and prognosis. Quoting the figures for the last seventeen years from the Royal Infirmary, Edinburgh, Fahmy notes that in the first seven years there were 22 deaths in 206 cases while in the last ten years there were 17 deaths in 603 cases, a fall in fatality from 10.6 to 2.8%. From these figures it seems that with readier admission of these cases to hospital severe hyperemesis is decreasing. Fahmy discounts an element of neurosis in the aetiology for the following reasons: most women desire their pregnancy, yet 40-50% suffer from some degree of vomiting; whereas many unwanted pregnancies are not associated with vomiting at all, nor is the condition relatively more common in pregnancy in unmarried women. Moreover, the average pregnant woman is not predisposed to neurosis, and in a considerable number of cases vomiting precedes certain knowledge of conception. Neurosis may exaggerate but cannot initiate the vomiting. Equally flimsy is the evidence for the toxic theory, since many of the toxic manifestations are the effect rather than the cause of hyperemesis, nor is the theory of syncytial or endometrial embolism more convincing, since sickness is by no means a constant feature in cases of hydatidiform mole or chorion epithelioma, where the absorption of tissue cells from the uterus should be greater than in the normally pregnant. So-called toxic vomiting in most cases is the end-result of a long period of sickness that has been labelled neurotic in the first instance. Any vomiting from whatever cause if unrelieved for a sufficient time results in dehydration, metabolic changes and liver damage. It would therefore be well if the label "neurotic hyperemesis" were abolished, and if this was done many cases would never become toxic. Many a woman with hyperemesis has, owing to her physician's perseverance in his diagnosis and treatment of the case as one of neurosis, insensibly lapsed into a severe and irreparable state of toxicity. If all cases of severe vomiting were primarily treated as toxic and potentially dangerous, valuable time would

not be lost.

Since most cases of hyperemesis develop from persistence or exaggeration of the physiological early morning sickness or nausea of pregnancy, it behoves us to eliminate this early and thus make a prophylactic attack on hyperemesis. Simple remedies of diet and discipline will often suffice. The severer class of case demands immediate and more drastic treatment; it can be recognised by the dehydration, raised pulse rate, depletion of urinary output, dry, furred tongue, sore mouth and sordes about the lips, ketosis, anxious facies, icterus, albuminuria, loss of weight, lowered blood-pressure, insomnia and mental symptoms. Any or several of these are grave phenomena and may suddenly develop in a woman who has merely been vomiting more persistently than usual. Fahmy relies on three essentials in the treatment of these severe cases: rest, fluids and bowel lavage. Rest he obtains by hospital or institutional treatment and the exhibition of bromides or Luminal, he does not advise morphine or opium, since they increase the dryness of mouth and tongue so distressing in these cases. Fluids must be pushed to the point of adequate hydration by the rectal or intravenous route and it is important to be sparing with salt. To overstep the salt requirements in a dehydrated patient will only upset the intercellular metabolism and many lead to oedema of the lungs and embarrassment of an already toxic myocardium. Probably the best prescription for prolonged and heavy intravenous therapy is 5% glucose in 1:5 normal saline as advocated by Avery Jones and Naunton Morgan. Colonic lavage must be used intelligently and sparingly in the severer cases, since its empirical advantages may well be offset unfavourably by the disturbance that an over-enthusiastic cleansing of the bowel causes to an already exhausted patient. The question of when and if to terminate the pregnancy can best be answered by the clinical judgment of the obstetrician. If, after a short period of trial of rest and hydration (at most a few days), the patient is no better, it is justifiable to empty the uterus. If done betimes the operation is relatively safe; later it is not only harmful but useless.—*Lancet*.

Annual Reports—Reviews

Report of the Indian Chemical Manufacturers' Association.—We congratulate the Indian Chemical Manufacturers' Association, on its excellent progress and establishing its position as an All India Organisation within the first two years of its inception. The Association is particularly fortunate in its President Acharya Sir P. C. Ray. It is well-known that India is dependent upon other countries of the world for a regular supply of essential and basic materials, especially for the continued manufacture of pharmaceutical and other products. Since the outbreak of war, the supplies of important materials are cut off. The Acharya is only confident that if essential raw and basic materials are available, the manufacturers in India could supply not only the whole of the normal requirements of this country in respect of medicines but would also be able to cater for the export market. But there is the fear of the dumping of foreign products after the termination of the war, which may discourage the manufacturers from embarking on new lines. In spite of the assurances of the Hon'ble Sir Ramaswamy Mudaliar, on behalf of the Government of India, we wish that the Government of India issued a communique assuring Indian manufacturers that they would be protected from the likely dumping of foreign products. But, assured or unassured, it is better that the manufacturers in India go ahead availing their opportunity with a determination to fight out their cause in case the Government would break their promise after the conclusion of the war.

The Report of the Kishanlal Jalan Free Eye Hospital.—We welcome with congratulation, The Report of the Kishanlal

Jalan Free Eye Hospital, Bhiwani. Rai Sahib Kishan Lal Jalan established it in 1933, all with his own money. The hospital is for the purpose of treating eye diseases free of charge. The fact that in the very first year the number of average daily attendance of out-patients was 75, shows how necessary such hospitals are and we congratulate Lal Ghana Shyam Das Jalan, the son of late Rai Sahib Kishan Lal Jalan, for his maintenance and improvement of the Hospital, thus continuing the good work of his worthy father. It is also reported that a Blind Relief Association has been organised in 1937 for purposes of conducting publicity campaign for the prevention of the eye diseases. This requires equal effort though not more, on the part of such philanthropic leaders as Ghan Shyam Das and we wish him every success in his service to humanity.

The 18th Annual Report for 1940 of the Nowrosjee Wadia Maternity Hospital, Bombay.—The 18th Annual Report for 1940 of the Nowrosjee Wadia Maternity Hospital, has been received with pleasure. It contains 32 tables of facts and figures on particulars such as admissions, deliveries, operations, infant mortality, emergency cases, and various cases of other types connected with the hospital during the year under review. Out of 6874 admissions during the year, only 83 maternal deaths are reported. The daily average of patients is 122.5. The figures show that the hospital is doing a vast service to the society and is a source of great hope for the poor and the helpless. The report gives us 26 causes of maternal mortality on pages 62 and 63, which may be of much value to the students and general practitioners.

Proceedings of Associations.

British Medical Association, Bombay Branch.

With a view to stimulating recruitment to the I.M.S., an appeal to the members of the Medical Profession in Bombay to join the service from a humanitarian point of view was made by MAJOR-GENERAL R. H. CANDY, Surgeon-General with the Government of Bombay, speaking at a meeting held under the auspices of the British Medical Association, Bombay Branch, at the Bai Motilal Hospital Lecture Theatre, on June 16. Dr. JIVARAJ MEHTA, in reply to the speech of the Surgeon-General, criticised sharply the policy behind the recruitment and demanded that discrimination against Indians should be done away with.

In the course of his speech, the Surgeon-General said that Bombay, which was making

a splendid contribution to the war effort, was behind the other provinces in the matter of recruitment to the Indian Medical service. With the expansion of the Indian Army, a large number of medical men would be required for service. It was the duty of medical men to look after the Indian soldiers who were fighting so gallantly in the various theatres of war.

Referring to the lack of response in Bombay, he said that it might be due to the terms and conditions of service not being sufficiently attractive. But he assured them that there were far greater attractions in the service than mere emoluments.

DR. JIVARAJ MEHTA, addressing next, stated among other things:—

"It is good of the Surgeon-General with

the Government of Bombay to come over here and address us on the Emergency Commissions in the Indian Medical Service. He has told us what he wants. Now that he is in our midst and is prepared to meet us and also solve our difficulties, let us be also frank in saying what we may have to say in this connection and speak as man to man.

"What is the cause of this hanging back, as the Surgeon-General calls it in his circular letter? On the proper elucidation and the remedying of the factors concerned would depend the success of his campaign. We have always urged and the experience of the last World War and of the present war has proved to the hilt, and to-day's meeting and the Surgeon-General's anxiety are a proof positive of the fact, that the only dependable war reserve for medical purposes for the Indian Army is the civil medical profession of India, as it is in England and all over the world, and that the War Reserve of the Indian Medical Service as organised on a permanent basis and the Indian Army Reserve Officers in the I.M.S., have proved inadequate and ineffective.

"In so far that a substantial element of this service was foisted on the civil medical administration of the various provinces and with the Central Government as war reserve, it should justify itself forthwith as a genuine war reserve by reverting to military service. In effecting this reversion to military service no distinction should be made between the residuary posts in the I.M.S. which are of only recent creation, and the ordinary war reserve. All officers of the Indian Medical Service must give proof of their primary affiliation being to the Army particularly in a war crisis, and the administration must seek substitutes for them in the Civil Medical profession.

"But what do we find? Officers of the Indian Medical Service still continue to be on the civil side. Some of them, though quite young, are still continued in civil medical administration—some of them are still on the staff of the Grant Medical College and in the Medical Schools at Poona and Ahmedabad, though it should be perfectly easy to enable the professional and administrative work of these institutions being carried out by the non-I.M.S. element on their respective staff, as is done at the Seth G. S. Medical College or at the National Medical College in Bombay.

Experiences after the last war.—"In the last war, Indian medical men, some of them with lucrative practice, rushed to enrol themselves; but what a disillusionment it was to them soon, as their services became unnecessary on the termination of the war! But it is quite different at the present moment. I am not going to discuss here to what extent the general political situation in the country may be responsible for this lack of enthusiasm amongst the medical men which has brought the Surgeon-General to address us. It has no doubt its share, but there are elements in the country who do

not take their bidding, cent per cent from the political bosses. Even such elements are holding themselves back. Take the Parsis, for example. Though an overwhelming majority of them are true nationalists at heart, they do not follow the Congress, but they, too, are hanging back, only a few having enlisted so far. In the last war, they were some of the first recruits to come out and they rushed to enlist themselves in the Indian Medical Service in large numbers.

"The fault lies, Mr. Surgeon-General, entirely at the door of the High Command of the Indian Medical Service, which treated the Indian element in the service in such a downright way, so soon as there was no use of the Indians for war purposes. As the proverb goes, 'you reap, as you sow' Since the close of the last war, every kind of indignity has been heaped upon the Indian, desirous of being recruited to that Service.

I really regard it as incredible that the British High Command of the Indian Medical Service, after such a black record in their dealings with their Indian colleagues, should expect Indians to come forward to join such a Service. If you want them to come forward to help you in matters medical in this war, let us start on a clean slate.

Suggestions for adoption.—1. Call up all those I.M.S. Officers, at present on the civil side, to join the colours straight off.

2. Scrap the civil side of the I.M.S. altogether.

3. Let the Service be a purely Military Service and the recruitment to it restricted to Indian personnel only. If there are Europeans in India who may want to join it, let them come on the same terms and conditions as Indians and with no privileges. There should be no special or residuary posts for the European officers, and no special terms of employment.

4. The civil medical administration should be under the entire control of the Provincial Governments and there should be no correspondence behind the back of Ministers where Ministries still exist, between the Head of the Civil Medical Department of the Province and the Medical Advisers to the Central Government.

5. As regards the recruits, the terms of employment and the conditions of service, the seniority in service, the recruitment to the permanent commissions, the gratuity, etc., all these should be on the same basis as are applicable to the R. A. M. C. Officer joining the British Army, the scale of pay being according to Indian conditions. It should be also made clear if any European Combatant Officers are taken in the Indian Army units, they must be made to understand that they will receive medical aid at Indian hands.

6. The men volunteering should be started at a rank and seniority in consonance with their experience and standing in the medical profession. All commands should be open to them on this basis of seniority.

7. The scale of pay and promotion must apply to them.

8. All men who take up temporary commissions must have an inalienable right to permanent commissions in the I.M.S. if they wish to go on serving in the army. About half the posts in the provincial civil medical services should be filled by these officers, the men being selected on the basis of the excellence of their service record.

9. All officers must be allowed to accumulate their leave and should be given this leave in full on demobilisation.

10. The leaders of the independent medical profession should be on the Board which may deal with recruitment and demobilisation on the termination of the war and they should be closely associated in the selection of officers for permanent commission.

11. It should be also agreed that the recruitment to the permanent commissions after the war should be restricted entirely to officers holding temporary commissions in the I.M.S. and no demobilised R. A. M. C. Officer or a Colonial Officer should be taken in that Service.

Need for guarantees.—We want solemn guarantees for the due fulfilment of these and similar conditions and also for the eschewing of all racial discrimination against Indians.

After the termination of the last war, out of over 1200 temporary Indian Officers who had then volunteered, over a hundred only got regular commissions. The remaining, who were unceremoniously thrown out, had to restart their lives at an age when they felt inadapt for settling down.

The 1937 arrangements of recruitment to the I.M.S. smack of thinly veiled efforts of creating cushy jobs for the Europeans, even at the evident sacrifice of military efficiency. These arrangements also paralyse the civil medical administration. What can you expect when one had in Bombay about 10 Surgeon-Generals (including those in acting leave vacancies) during the course of the last 15 years; the medical policy of the Province, not unoften, changing with the whims of each new incumbent of the post.

This is the position and if the I. M. S. Officers who desire proper recruitment to their Service are agreeable to see that the very reasonable conditions of recruitment—I have mentioned—are accepted by the powers-that-be, I have no doubt that they would be getting a full and free response from a large section of the medical profession in the country."

The Bhagalpur District Medical Association.

The District Medical Association, Bhagalpur, at a meeting held on 11-5-41 in the

District Board Office, Bhagalpur, and attended by 15 medical officers, elected their Office Bearers and Executive Members and passed the following main resolutions stated briefly as follow:

1. Resolved that our resolution No. 5 dated 24-4-40 be kindly considered by the District Board. The resolution runs as follows: "Resolved that the scale of pay be fixed from Rs. 60 to Rs. 100 with an annual increment of Rs. 2 and the present pay be adjusted accordingly".

2. Resolved that the Chairman, District Board, be requested to pass orders to his office to give us an annual account of our Provident Fund.

3. Resolved that two medical journals be subscribed, one for north and one for south. Each Medical Officer will please keep a journal for a week only and will circulate from one to another in order and will return to the organiser who will remain in charge of the journal.

4. Resolved that the 3 lady doctors in the three Sub-Divisional Hospitals be co-opted as members of the Association.

The President stressed for the post-graduate training of District Board doctors for the benefit of their professional knowledge as well as for the public.

The Kistna District Medical Association, Masulipatam.

The monthly meeting of the above association was held on 28-6-41 at the Government Head Quarters' Hospital, Masulipatam, with Dr. N. N. Sujee, L.M.S., District Medical Officer, in the chair, and the following resolution was unanimously passed.

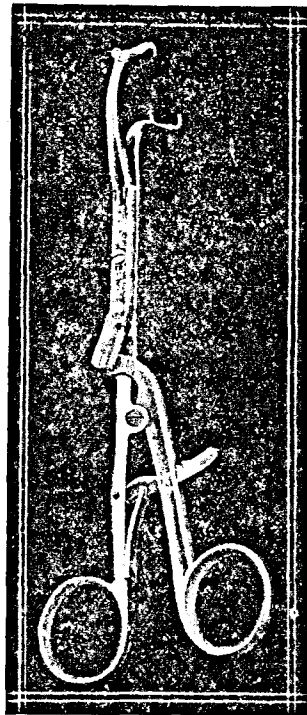
"This Association views with alarm the restricted number of admissions into the Andhra Medical College, Vizagapatam this year, there being only 55 admissions out of the total admissions of 230 in the whole Presidency i.e., about 25% of the total. This means preventing Andhra Districts from making full use of the College wholly intended for them. So, this Association requests the Government and the Principals to increase the admissions so that the total number of the admissions into that College will not fall below 40% of the total."

The Association, then appointed a Committee to examine conditions relating to recruitment to Indian Medical Service.

The meeting concluded with a vote of thanks by the Joint Secretary.

Preparations and Inventions

Tetra Towel-holding Forceps "Andreasen Pattern"—"These Towel holding Forceps have been designed for Capt. A. T. Andreasen I.M.S., by the Times Surgical Company, Sialkot City, Punjab, according to his indications. They are made so as to bite vertically and yet the handles to lie flat. In this way, the annoying Towel Forceps handle which continually catches in the Surgeons suture and interrupts work is eliminated.



The forceps are also slightly curved in the shaft so that they lie snugly to the curve of the patient's body on either side of the incision. This curve is a further factor in keeping the handles out of the way.

The forceps are made of stainless steel, and have been in constant use by the designer for over a year and given him every satisfaction.

'Methedrine' (*d*-methylisomyn), Burroughs Wellcome & Co., Snow Hill Buildings, London E. C. 1. This is a recently discovered synthetic compound belonging to the sympathomimetic amine group. Given orally, it produces a prolonged rise of blood-pressure and stimulation of the central nervous system, especially of the cerebral cortex. 'Methedrine' is particularly indicated in the treatment of narcolepsy. It may also be of value in certain depressive psychopathic conditions, as an analeptic in barbiturate poisoning, and as an anti-spasmodic in the X-ray visualisation of the gastro-intestinal tract.

The compound is issued for oral administration as 'Tabloid' 'Methedrine' Hydrochloride, 0.002 gramme, in bottles of 25 and 100.

Hewsol.—Manufactured by C. J. Hewlett & Son Ltd., 35/43, Charlotte Road, London, E. C. 2.

This is a germicide with a Rideal-Walker Carboic Acid Co-efficient of 5.2 and is therefore superior to Iodine, Lysol, Phenol, etc. whilst it has the added advantage of being non-corrosive and non-staining. It is pleasant and economical in use and the formula conforms strictly to the modern conception of a germicide, being a clear non-poisonous fluid with a pleasant odour and at the same time possessing a much greater activity on micro-organisms than was possible with the earlier disinfectant fluids.

Hewsol contains three separate germicidal principles which enable it to destroy many different types of bacteria as well as fungi. The neutral soap basis, which is perfumed with oil of pine, is of a very high quality and especially non-irritant to the skin, so that high concentrations can be used without fear of damage to the tissues.

For use on the hands to sterilise the skin a few drops of undiluted Hewsol will be found to produce in a very short time a dry film, which has a protective action and also acts as a deodorant.

Aktisol 'Shiono'.—Manufactured by Shionogi & Co., Ltd., Osaka, Japan (Representatives: Ranbaxy & Co., Hassan Chambers, off Sir Phirozeshah Mehta Road, Post Box No. 303, Bombay. Two distinct preparations have recently been placed on the market with the above brand name viz. *Aktisol Rubrum* and *Aktisol Album*, both available in the form of tablets for oral administration as well as injections. *Aktisol Rubrum*, although derived from the "Azo" dye stuff, where it closely resembles prontosil, it is distinct from the latter in that it combines the "Azo" group of this with another chemical compound derived from the pyridin group, namely, it is a fusion of Acethyl-amino-Oxynaphthalin-Trisulfonsaures Natrium from Naphthalin with Benzolazodiamino-Pyridin-Methansulfonsaures Natrium, and having as it has a PH of 7.5, it may be used either by intravenous or intramuscular injections without fear of any undesirable reactions. It is well known that the introduction of this chemotherapy, first begun with the experiments carried out by Domagk and his colleagues, has solved the great problem of the treatment of diseases of bacterial origin. Needless to say, *Aktisol-Rubrum* with its combined formula as described above and the advantages attached thereto is a distinct improvement in that direction.

AKTISOL-ALBUM is a colourless chemotherapeutic remedy of the sulphonamide group, which again is distinct from the other sulphanilamide preparations on the market. Nearly all sulphanilamide preparations,

except Prontosil-Album (with which Aktisol-Album is identical) consist, in the opinion of a well-known authority on the subject, "of a Benzene ring to the opposite ends of which are attached respectively an Amino-group and a sulphonamide group". "The Amino-group is in the *para* position and the activity of the compound is lost if the Amino-group is transferred to the *ortho* or *meta* positions." This is exactly what happens in the case of all sulphonamides possessing a Benzene ring, while the formula of Aktisol-Album as well as that of the original prontosil-Album, is para-amino-phenyl-sulfonamide.

The injectable form of Aktisol-Album is known by the brand name of AKTIWEISS.

Nunal.—(Phenyl-ethyl-malonyl-Urea). It is mainly indicated in epilepsy. It has a strong hypnotic action and induces sleep even in cases of insomnia due to pain. It can therefore replace morphine in suitable cases. It is also suitable for conditions of excitement, mania and alcoholic delirium and is also recommended in the treatment of eclampsia, tetanus, hyperemesis gravidarum. In fractional doses excellent results have been obtained in relieving spasms. For this reason it has gained success in bronchial asthma, whooping cough, migraine etc.

The preparation is contra indicated in cases of asthenia and great debility where it should be used with caution and only in small doses. In patients with marked diseases of the liver, heart or kidneys the product is not advised.

Issued in Tubes containing 10 tablets of 1½ gr. for administration strictly under medical advice.

Samples and literature will be gladly sent by Manufacturers: Union Drug Co. Ltd., 285, Bowbazar Street, Calcutta.

1. **'Alebrin'**—manufactured by Messrs. Doz & Co. (British India), is a derivative of Benzo-Dihydrochloride Methoxy Diamino-Acridine. It is yellow in colour, water soluble, has neutral reaction, with a slight bitter taste but very much less than Quinine. It is excreted with urine without altering the faeces.

2. It is indicated in (a) All types of malaria in various forms such as Plasmodium Vivax, Plasmodium malariae, Plasmodium Falciparum and in all stages of Benign, Quartan and Tertian.

(b) Blackwater fever.

(c) In quinine Idiosyncrasy as a Quinine substitute.

3. It is claimed that Alebrin has a Co-efficient of 1:5 in 1:100 dilution, it kills

M. P. in one day and is thus 20 times more efficient than even quinine.

4. It is also claimed that it does not influence the cardiac activity, that it does not act upon the small or large intestine or the uterus, that it does not possess any destructive action upon R. B. C. and W. B. C. that it never forms methemoglobin and that it is readily absorbed from the small intestine into the blood. Although the drug is excreted within 96 hours, traces of the same may be found in the excretion even after a fortnight.

5. It is however contra indicated in complicated malaria with extreme anaemia due to advanced ankylostomiasis, advanced Bright's diseases, extreme cachexia, toxæmia in pregnancy and cirrhosis of the liver.

It is said that it is safe, highly effective, non-toxic and the short duration of cure being entirely free from undesirable bi-effects in therapeutic doses.

It is issued in packages of several sizes ranging from 8 tablets upwards.

Special rates are quoted for Hospitals.

Serpina Tablets.—(Himalaya Drug Co.) SERPINA TABLETS are prepared from the ROOT BARK of Rauwolfia Serpentina, specially cultivated and collected in the proper season. Two alkaloids are found present in the root-bark—Ajmaline and Serpentine. Ajmaline acts as a general depressant of the nervous system and is characterised with a comparatively very low toxicity, while Serpentine is much more toxic, increases the heart beats and paralyzes the respiratory system.

The principal action of SERPINA TABLETS is to reduce High Blood Pressure, within the quickest space of time, both Systolic and Diastolic.

Owing to the marked sedative effect and direct action on the sensorium, Serpina Tablets are valuable in the treatment of insomnia, epilepsy, hysteria and insanity.

Gharbinol.—Manufactured by The Vijaya Pharmacy, Cochin.

This utero-ovarian tonic has been prepared out of the well-known and non-poisonous Indian drugs such as Tribulus Terrestris, Asparagus Racemosa etc. It is indicated in leucorrhoea, dysmenorrhoea, menorrhagia, metrorrhagia, chronic endometritis and a number of similar complaints. Many experienced medical men have given a favourable opinion of it. It is issued in bottles of ½ lb. and 1 lb. costing Re. 1-6-0 and Rs. 2-8-0 respectively.

News and Notes

With reference to the Notice "Indian Equivalents of Foreign Medicines" published in the March '41 issue of the *Antiseptic*, we have been informed by the Pharmaceutical and Allied Manufacturers and Distributors

Association Ltd., Bombay, that on a careful scrutiny of the list published by the Indian Chemical Manufacturers Association, they find that, in the majority of cases, the equivalents are not at all true equivalents.

They will say also that large stocks lasting for more than two years are held of many of the foreign preparations and the prices also remain unaltered at the pre-war figure. Many of the Proprietors in Great Britain and America are making arrangements to manufacture their preparations in this country, in order that there shall be no shortage in this market.

They therefore assure the readers that they may not have any apprehension as regards shortage of supplies or increase in the prices.

Football Team's amazing Recovery —

Playing East Freemantle in the final of the West Australian National Football League's Competition, under Australian rules recently, Claremont made an astonishing recovery in the second half, and finished the game with a 23 point lead after being 38 points in arrears at half-time.

The secret of their amazing rally, when all seemed lost, was that at half-time, each member of the team was given "Dextrosol", which, in the words of a spectator, 're-energized them to such an extent as to make them almost a new team'.

Interviewed after the game, the Claremont chairman frankly admitted that the success of his team was largely due to "Dextrosol".

One week later, again pinning their faith to "Dextrosol" as a re-energizer, Claremont lifted another trophy in the final of yet another cup competition.

Horlicks sponsors free Theatre in London for Defence Forces—Horlicks Limited of England has instituted a daily three hour entertainment in a West End London theatre, where all 1,200 seats are free and are set aside for the exclusive use of the Civil, Navy, Army, and R.A.F. Defence Workers, and the women's branches of the various services.

The entertainment consists of films, a well-known orchestra, four or five caudeville "turns" and community singing. On Sundays, one-half hour of the programme features the country's leading theatrical talent with such outstanding stars as Vivien Leigh.

Lawrence Olivier, John Gielgud and others.

This half hour has become such a feature that, under the title of "Colonel Horlick's Matinee of the Forces and Civil Defence Services", it is broadcast by the B. B. C.

The project has been a success from the first, according to the London Office of J. Walter Thompson Company, which produces the show and handles Horlicks advertising. The theatre has been packed every day.

Beware of Imitations.—The physicians and members of the allied professions throughout India usually see to it that the layman is warned against buying the so-called "substitutes" but, sometimes, a doctor will take a chance on prescribing unknown products because he wants to save the patient money.

Imitations are always sold, especially during times of unrest and disturbance when, the makers of these unknown inferior preparations derive the greatest amount of profit at the expense of the public health. The reliable and ethical practitioner will not deviate from prescribing Antiphlogistine because, he has the interest and welfare of his client at heart, and will make it his business to discourage the practice of using imitations and will not succumb to the inducement of "cheaper products".

Antiphlogistine has been ethically and scientifically compounded for over 50 years, and, from time to time, it has been imitated, but never has it been duplicated. We know that there are dangerous substitutes in INDIA today, and we are warning doctors, chemists and laymen that Antiphlogistine cannot be successfully imitated. The silicate of aluminium base used in its manufacture is obtained from private owned mines available only to the Denver Chemical Manufacturing Co.

In acknowledging the confidence which the Medical profession has shown towards our unrivalled clinical Antiphlogistine, we the manufacturers suggest that, when prescribing or ordering a Kaolin Cataplasm, for pneumonia, bronchitis or pleurisy, physicians should specify the original genuine product.

Correspondence

Messrs Frank Ross & Co., Ltd., Calcutta, have requested us to publish the following:—

Dear Sir,

In your Journal "The Antiseptic", would it be possible for you to place before your readers the following facts of a patient. He is curious to have a reply to his enquiry.

"The patient in question will be nameless, is a strong man who has never been sick or sorry in any serious way, but has had the usual colds, fever, Influenza for a day or two or so, which come and go and are cured by ordinary patent medicines.

Whenever he gets an attack of influenza or has a deep flush of fever, he cannot stand

anyone smoking, nor can he smoke, and if anyone is with a cigarette in a lower flat of 60 feet or even 100 feet, he can detect that a cigarette has been lit in the house; this comes as an indication to him, which immediately conveys that he is not well, and after treating the fever with a few doses of medicine, he regains his normal health, he enjoys a cigarette as any one else, when well, and does not feel repugnant of the smell which to him is suffocating and abhorrent when he is sick".

The probability is, that you may be able to furnish the reply, if so, we shall be glad to hear from you.

PRESENTING
ORGADUINE
(A SISTER-PRODUCT OF PANGADUINE)
400% Opothropic Extract of COD LIVER with GOLD, Manganese, Calcium etc. etc.
SWEET ———— O ———— FRAGRANT



Assures MAXIMUM THERAPEUTIC ACTION :
Insures PLEASANTEST POSSIBLE TREATMENT :
Dismisses NAUSEA & INDIGESTIBILITY :

FORMULA
Each fluid oz. contains:—

Vitamin A	... 22,000 I. U.
" D	... 6,000 I. U.
400% Con. Codliver	... dr. 3
Ext-Hyssop Co.,*	... " 1½
Gold.	... gr. 1/10
Calcii Hypophosphites	... " 10
Sodii	... " 4
Pot.	... " 2
Manganese.	... " 1
Syrup, Aromatics and flavouring.	... q. 8.

* This compound extract comprises of Hyssop, Lobelia, Pleurisy Root and Wintercherry Bark.

DOSE: 2 drs. after each meal gradually to be increased to 3 drs.

To be had in two sizes viz. 175 c.c. and 350 c.c.
at Rs. 2-8 and Rs. 4-4. respectively.

Imported in bulk prior to occupation of France and bottled in India to reduce cost to consumer.

Sold by all Leading Chemists.

Literature and Stock from:—

B. V. Ramanjulu & Co., 159, Broadway, Madras. or P. O. Box 857, Bombay.

NUNAL

(phenyl-ethyl-malonyl-urea)
for

Calm sleep and Bright awakening.

Other indications include:

Status Epilepticus, Acute Psychosis,
Vomiting of pregnancy etc.

TABLETS FOR ORAL USE.

For detailed literature, please write to:

UNION DRUG CO. LTD. CALCUTTA.

285, Bowbazar Street.

T'phone:

Cal. 1159.

Cal. 4975.

Sole Agents for Madras Presidency:
MESSRS. APPAH & CO., MADRAS.

T'Gram:

"BENZOIC"

Cal.

New Edition Revised and Enlarged, 1941.

Now Ready, Price Rs. 7-8.

The latest methods of malaria control and a complete bibliography of literature on the subject.

COVELL'S

MALARIA CONTROL

BY

ANTI-MOSQUITO MEASURES

THACKER'S :: 3, Esplanade East
CALCUTTA.

EVERY DOCTOR

OWNER OF PHARMACY, MANUFACTURER, IMPORTER
AND DEALER OF MEDICINAL PRODUCTS AND PATENTS

WILL FIND

INDIAN & EASTERN CHEMIST

Official Monthly Organ of

BENGAL PHARMACEUTICAL ASSOCIATION

Full of *vital information* and valuable Expert Advice, not only for improving efficiency of the Profession, Trade and Industry but also for safeguarding from penalties provided by the Drugs Act 1940.

ALSO MOST EFFECTIVE ADVERTISING MEDIUM.

Annual Subscription (Including Membership):

Dealers and Manufacturers: Rs. 12/- Doctors and Scientists: Rs. 6/-
Compounders: Rs. 3/- Advt. rates on application.

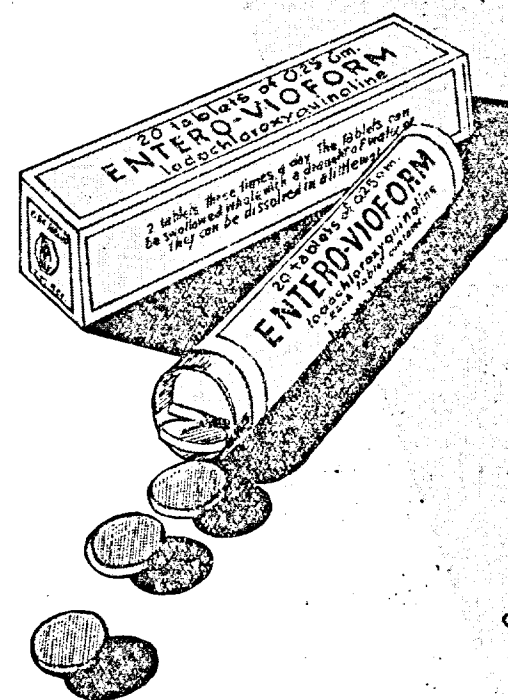
Apply to-day to: MANAGING EDITOR,

INDIAN & EASTERN CHEMIST 6, Bentinck St., CALCUTTA.

When writing to advertisers, please mention the "Antiseptic"

Entero-Vioform

Iodochloroxyquinoline + Sapamine



A specific for the treatment of

Amoebic dysentery

Highly efficacious in all infectious and parasitic intestinal affections.

It is a reliable prophylactic against the common gastroenteric disturbances which occur in tropical and subtropical countries.

The toxicity of Entero-Vioform is extremely low.

CIBA  BRAND
T. M. Reg.



SOCIETY OF CHEMICAL INDUSTRY IN BASLE [SWITZERLAND]

CIBA PHARMACEUTICAL SPECIALITIES

Information from: Mr. W. EVERARD NENNINGER, P. O. BOX 479, BOMBAY.

ELIXIR

PENTA BROMIDES

Combination of five bromides—Calcium, Potassium, Sodium, Ammonium and Strontium, in a delicious medicine

for

Sleeplessness, concussion & congestion of brain—in all reflex neurosis

Dose:—One to two fluid drams or as directed by the physician.

RADIO-LACTOL

for

Non-specific Protein Therapy
—dependable milk—

ORIENTAL CHEMICAL WORKS, LTD., CALCUTTA

Messrs. R. MACLURE,
36, Wallers Road,
Mount Road, Madras.

HEPATOZYME

for

Oral administration

Each fluid ounce contains:—

- (1) Conc. Liver Extract.
- (2) „ Stomach and Red bone marrow extract.
- (3) Vita B Complex.
- (4) Ferri et Ammon. Citras and Manganese, Cobalt and traces of Copper.

Indication:—Primary & Secondary Anaemia.

Dose:—1 to 2 teaspoonful.

ELIXIR

PENTA VALERIAN

with

Bromides & Gold Arsenic.

for

Hysteria & Neurasthenia

Dose:—1/2 to 1 Fl. dr.

Messrs. BHENDE BROTHERS,
Dias Lodge, Cursetji Rana St.
Grant Road, Bombay No. 7.

CALCUTTA MEDICAL JOURNAL

(Journal of the Calcutta Medical Club)

A Monthly Record of the
Medical Sciences as applied to the Tropics

Annual Subscription

In India	...	Rs. 9/-
(For Junior Practitioners	...	Rs. 5/-)
Foreign	...	18 sh., \$ 4'00

*****THE BEST MEDIUM FOR ADVERTISEMENTS*****

For specimen copies, please send two annas in stamp to:

Editorial & Publishing Offices at

91B, Chittaranjan Avenue, Calcutta, India.

Contract Rates on Application to:

THE PUBLICITY SOCIETY OF INDIA LTD. 1, Waterloo St., CALCUTTA.

When writing to advertisers, please mention the "Antiseptic"

A SHORT PRACTICE OF OPHTHALMOLOGY

(Ancient & Modern)

By

Dr. K. Krishnamurty & Bidyadhar, M.B.B.S.
in Collaboration with

1. **Rai Bahadur Dr. Mathradass Pahwa,**
2. **Late Dr. S. K. Mukerjee, F.R.C.S., D.O.**
3. **Dr. Dubash, M.A., D.O.M.S. (Lond.)**
4. **Dr. P. V. Paul, M.B.Ch.B.,**
5. **Dr. B. P. Banaji, F.R.C.S.I.**
6. **Dr. G. S. Guha, M.D., D.T.M.**
7. **Dr. Jadavji Hansaraj, D.O.M.S. (Eng.)**
8. **Dr. R. E. R. Mitton, M.D., F.R.C.S., D.O.**
9. **Major Annaswami, I.M.S., F.R.C.S.**

CONTENTS:

The Book deals with Modern and Ancient Systems of Ophthalmology with special articles like Keratoplasty; Surgical Treatment of Detachment of Retina; Ocular complications in Diabetes, Infectious Diseases, Chemotherapy, Shock therapy, Modern Methods of Anæsthesia and Analgesia, Ultra Violet Ray, Radium and Röntgen Ray Therapy in Eye Diseases; Ionic medications of the Eye; Short Wave Therapy and a few more. The book is well illustrated. Price Rs. 6. Pre-publication Price Rs. 4.

Book your order to avoid disappointment.

The Ophthalmological Books Publishing Co.,

CHODAVARAM (South India)

GUARANTEED HARMLESS TREATMENT**LEUCODERMA
&
LEPROSY**

*The suffering public know this full well
—so also the Medical world about our
success.*

Says Dr. I. Sreeramulu, M.D. F.R.S (Cho.),
Representative to the **All-India Leprosy Association:**—"Did good results both on acute and chronic cases where other remedies failed."

Dr. B. Gopal Rao, B.Sc. M.B., Bangalore:—"We have used in cases of Leucoderma and found very efficacious."

45 days' internal and external specifics including those for fumigation and bath to cure all types of Leprosy: Rs. 10 per full set.

30 days' internal and external Specifics for Leucoderma (white patches): Rs. 7-8-0 for full set.

V. P. Charges Extra.

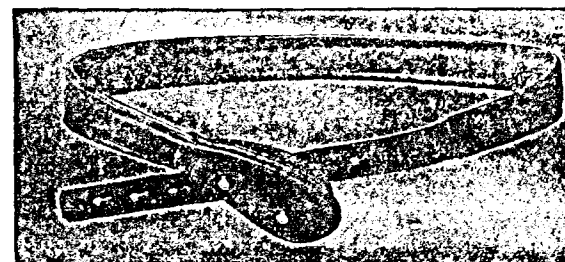
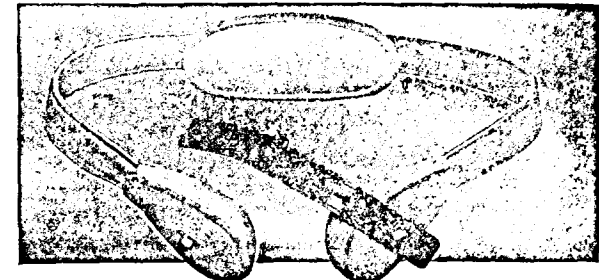
**BEHAR CHEMICAL WORKS,
BHAGALPUR**

Madras Agents:

Messrs. DADHA & CO., & APPAH & CO.

**Trusses for
Hernia**

We have a large assortment of various sizes for infants and adults.

**PRICE**

Leather, Single	Rs. 6
Do Double	Rs. 12
Vulcanite, Single	Rs. 10
Do Double	Rs. 20

Booklet how to measure for and fit up a truss for hernia will be sent free.

From **SRI KRISHNAN BROS., Post Box 166, MADRAS.**

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

INDEX TO ADVERTISERS, JULY '41.

	PAGE.		PAGE.
Alembic Chemical Works Co. Ltd.	10, 43	Ilford-Selo Ltd.	... 10
Allen and Hanburys Ltd.	... 5	Indian & Eastern Chemist	... 34
Antiseptic	40, 41	Indian Health Inst. & Lab. Ltd.	... 18
Antiseptic Press	... 42	John Wyeth & Brother Ltd.	... 30
Atlantis (East) Ltd.	... 22	Journal of Indian Medical Assn.	... 38
Banerji P.	... 12	Lister Antiseptics & Dressings Co.	... 12
Behar Chemical Works	... 37	Martin & Harris Ltd.	... 6
Bengal Chemical and Pharmaceutical Works.	... 37	Martin H. Smith Co. N. Y.	9, 15
Boots Pure Drug Co., Ltd.	Inside of back cover	May & Baker Ltd.	... 24
Brand & Co. Ltd.	... 32	Menley & James Ltd.	... 13
British Drug Houses Ltd.	... 2	Ophthalmological Book Publishing Co.	... 37
Burroughs Wellcome & Co.	... 17	Oriental Chemical Works Ltd.	... 36
Calcutta Clinical Research Association Ltd.	... 23	Parke Davis & Co.	Last cover page.
Calcutta Medical Journal	18	Paragon Products Co.	... 33
Ciba Ltd.	... 36	Petrolagar Laboratories Ltd.	... 20
Coleman & Co., Ltd.	... 35	Ranbaxy & Co.	... 28
Cow & Gate	... 11	Rendell W. J. Ltd.	... 3
Crookes Laboratories Ltd.	... 25	Scientific Instrument Co.	... 43
David I.	... 7	Seller L. H.	... 38
Denver Chemical & Mfg. Co.	... 41	Sihna Medical Stores	... 38
Doctors' Ltd.	... 4	S. Krishna Laboratories	... 41
Doz & Co.	... 41	Sri Krishnan Bros.	37, 38
Eli Lilly & Co.	... 42	Stephen Smith & Co. Ltd.	... 16
Galleno Pharmaceutical Works	Inside Front Cover	Thacker Spink & Co. Ltd.	... 34
Glaxo Laboratories Ltd.	... 22	Thakore T. M. & Co.	9, 19
Hanovia Ltd.	1, 26, 27, 29	Union Drug Co. Ltd.	... 33
Health	... 31	Vax Institute	... 41
Hewlet C. J. & Son Ltd.	... 44	Victor X-Ray Corporation Ltd.	... 39
Himalayan Drug Co.	... 15	Vijaya Pharmacy	... 18
Horlick's Malted Milk Co.	... 42	William R. Warner & Co., Ltd.	... 14
	... 8	Zandu Pharmaceutical Works Ltd.	... 21

CHYAVANPRAS

CUM

THEOCOL et GLUCO-CALCIUM
(with Vitamins A & D)

A unique combination and sovereign Remedy in all stages of Tuberculosis of Lungs, Pre-Tubercular tendency of Weak-Lungs, Chronic-respiratory diseases such as Asthma, Chronic-Cold, Bronchitis, Hacking cough of old age, etc., and used as a Tonic by the old and children.

Price Rs. 2 per phial of full course.

Prontosil Album (Bayer) tablets can be had to the medical profession.

Literature and stock from:

SINHA MEDICAL STORES,
MAHUWA: MOZAFFARPORE.

YOUR EYE

Does it trouble you? If so, try SELLER'S LOTUS HONEY, the safest, surest and most highly praised Nature's cure for Eye-diseases. Cures even Cataract etc. Literature free.

SRI KRISHNAN BROS.,

Post Box 166, : : G. T., MADRAS.

When writing to advertisers, please mention the "Antiseptic"

JOURNAL OF
THE
Indian Medical Association

EDITED BY

SIR NILRATAN SIRCAR,
KT., M.A., M.D., D.C.L., ETC.

WITH THE HELP OF

A STRONG ALL-INDIA EDITORIAL
BOARDThe Official Monthly Publication of the
Indian Medical Association.

Features:

1. Original Articles.
2. Case-Reports.
3. Society Proceedings.
4. Valuable abstracts from leading Medical Journals from all over the world.

Published on the First Day of the Month

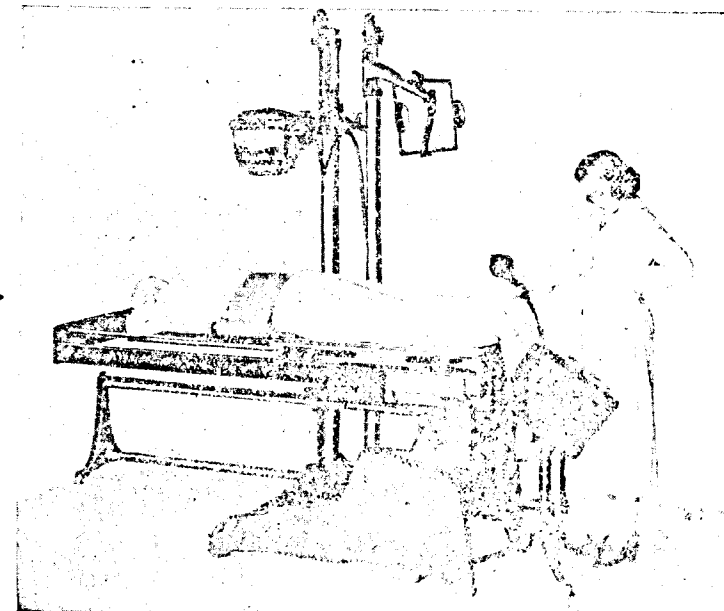
Annual Subscription Rs. 6 post free.

Free to members of the Indian Medical Association.

AN EXCELLENT MEDIUM FOR ADVERTISEMENT

For particulars write to Secretary,
Samavaya Mansions, CalcuttaCheck Every Feature of this EFFICIENT
COMPACT FLEXIBLE Combination X-Ray Unit

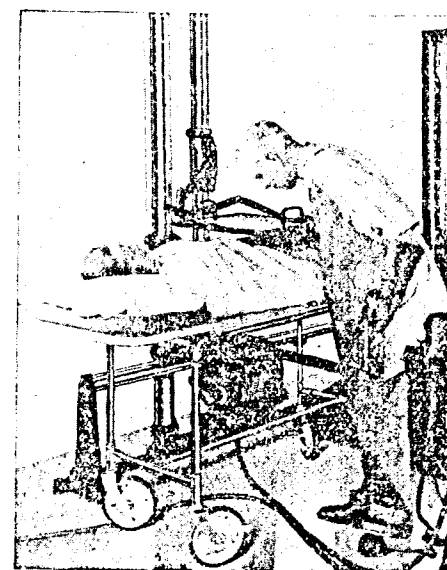
You can depend on the G-E Model D3-38, with its wide range of service, its refined, simplified control, its flexible tilt-table with built-in Potter Bucky, to produce routinely - and duplicate accurately - end results of uniformly high diagnostic quality. Completely self-contained and unusually compact, it needs but little floor space.



BEFORE you invest in any x-ray unit, you owe it to yourself to check every feature of the G-E Model D3-38. Moderately priced, it offers you more value for your x-ray money than any comparable equipment. Designed and built to meet your need; incorporating the many valuable sug-

gestions you have made, the D3-38's unusual worth will be recognized readily by medical men with a keen sense of value.

Start checking, today. Use the coupon to request your copy of the D3-38 catalogue.



The D3-38's wide range of service includes horizontal and vertical fluoroscopy or radiography. With the table vertical, ample clearance is provided so that horizontal, vertical, and lateral x-ray or fluoroscopic examinations can be made of a patient on a hospital cart.

CHECK, SIGN, and POST

EP

Your Name and Address

☐ Please send me my copy of the G-E Model D3-38 catalogue and include full information about this modern, combination x-ray unit.

Name.....

Address.....

City.....

Exclusive Distributors in India: "Victor X-Ray Corporation (India) Ltd."

'THE ANTISEPTIC'

A Monthly Medical Journal

Est'd. 1904

T'phone 2163.

T'grams: "ANTISEPTIC"

All literary communications should be addressed to the Editors and business communications to the Manager

323.24, Thambu Chetty St., Post Box 166, Madras.

London Office: 34.40, Ludgate Hill E. C. 4.

EDITORIAL

Contributions are invited from the medical profession in India and abroad in the form of original articles, clinical lectures, medical society addresses, reports of interesting cases, condensed extracts of useful articles appearing in other journals with or without comment, practical hints and recipes, experiences with new preparations and inventions, vital statistics, therapeutic notes, communications etc. Contributions should ordinarily not exceed 8 pages of the journal excluding spaces occupied by illustrations if any.

Exclusive Publication:—Contributions are accepted on the distinct understanding that they are sent solely to the "Antiseptic."

Editors accept no responsibility for the views and statements in the contributed articles. They, however, reserve the right to accept, reduce, alter or reject any article without assigning any reason.

Letters to the Editors should be written on separate paper from the contribution

Anonymous Contributions or letters whether for publication, or information or by way of criticism, are consigned to the waste paper basket.

All articles intended for insertion in any particular issue should reach the editors at least 30 days prior to the scheduled date of publication.

Copyright:—The Publishers reserve the copyright of everything published in the journal. Reproduction in reputed medical journals is permitted, if proper credit is given, but not for commercial purposes.

Manuscripts should be concise, type-written, double spaced or legibly written on thick paper, on one side only with sufficient margin on either side, and original copy submitted. The author should keep a copy with him. Sheets should be numbered and name of the author should appear on each sheet and his address somewhere on his mss. Manuscripts should be carefully revised and should not be rolled. The editors cannot promise to return unused mss. but will try to do so in every instance. Used mss. are not returned.

Illustrations:—The preparation of all blocks from photographs or drawings is done free. But satisfactory photos or drawings should be supplied. Photographs should be clear and distinct and preferably black and on glazed paper; drawings should be in black (never in blue) on white paper. On the back of each photograph or drawing its number, the author's name, an abbreviated title of the article and an indication of the top of the picture should be written in pencil. Descriptions of illustrations should be type-written at the end of the mss. in a single list, with numbers corresponding to those on the photographs or drawings. The Editors reserve the right to return the photos or drawings which are not satisfactory or unnecessary. Contributors are respectfully requested to limit illustrations to such as are absolutely necessary. Used photographs and drawings are returned after the article is published, if requested.

Reprints of Articles and Case Notes to Authors:—25 Copies are supplied free. Larger numbers may be obtained on written application at the time of sending the article; then the cost of paper alone will be charged for the extra copies.

Advice to Correspondents:—The editors cannot advise correspondents with regard to prescription, diagnosis etc. nor can they recommend individual practitioners by name, as any such action would constitute a breach of professional etiquette.

Book Reviews:—Publishers are requested to send advance copies of new books of importance whenever possible. They will be reviewed in an early issue of the Antiseptic.

News:—Readers are requested to send in items of news, also marked copies of newspapers containing matters of interest to physicians.

BUSINESS.

Date of Publication of The "Antiseptic" is 15th of every month.

Subscription:—The annual advance subscription in India and Ceylon is Rs. 5, Burma Rs. 6 and foreign sh. 10 post paid. There is no concession of any kind. Half yearly subscriptions are not accepted. Copies not paid for in advance will be charged at the retail rate. Retail price per copy of the current and the previous Calendar year is 0.12.0 for an ordinary issue; and Rs. 2 for a special issue, post-paid.

Back Numbers which are available are charged 4 as. extra per copy for each year preceding the last calendar year.

Specimen Copy of current issue can be had at the retail rate and if enlisted immediately from that issue, this amount can be deducted from the subscription.

New Volume begins with the January issue. Subscription may, however, begin from any period for one year or more. It may be dated as far back as the beginning of the current volume, provided copies are available.

Remittances should be made to the Manager either by Money Order, Postal Order, Draft, Cheque, or Currency note. The last should be sent by Registered Post only. It is cheapest to send a Money Order. All cheques on Banks other than in the City of Madras, should include a collection fee of 4 as. Copies sent by V.P. will be charged 3 as. extra. Receipts will be granted for all payments except for M.O. and V. P. In the latter cases, they will be sent only when asked for.

Caution:—No money should be paid to an agent unless he produces a letter of authority for making collections.

Renewal:—Unless notice is given to remove the subscriber's name from the list, it will be carried on for a further term and the first copy, after the expiry of the previous subscription, will be sent by V.P.P. for the annual subscription, plus the V.P. charges. To avoid this, remittance or notice for discontinuation should be sent five days prior to the date of publication.

Change of Address should be intimated before the 10th i.e. five days prior to the date of publication. While doing so or referring to the subscription, the subscriber is requested to quote the number given above his name in the wrapper and also give his old as well as new addresses.

Temporary Change:—When there is a temporary change in address or when it is not possible to intimate it before the 10th, arrangement should be made with the local post-office for redirection of the copy to the proper address.

Non-receipt of copies should be intimated before the end of the month. Complaints received after that will not be attended to.

ADVERTISEMENTS.

Rates for Contract Advertisements:

One page: Rs. 50.0 Half page Rs. 27.8; Quarter page Rs. 15.0. per insertion.

Special pages and pages facing reading matters when available, will be charged 50% extra.

Series discounts of 5% and 10% will be given on contracts for six and twelve insertions respectively. A rebate of 5% is allowed for pre-payment of 6 months advt. charges.

First advertising forms go to Press 30 days prior to the date of issue. Copy must be sent in time for setting up advertisements and correcting proof.

See next pages for short and casual advts.

Short Commercial Advertisements

Short advertisements pertaining to any business are published at Rs. 5/- per insertion upto 1 inch single column; Over 1 inch and upto 2 inches—Rs. 8/-; Over 2 inches and upto 3 inches—Rs. 12/-; Over 3 inches and upto 4 inches—Rs. 15/-. Rates for larger space on application. Instructions and copies of advertisements for insertion in the next issue should reach before the 5th proximo. Copies of advertisements should be legibly written or typed to avoid error in printing. Payment should be made in advance. No free voucher copies are supplied. No page or position guaranteed. Results are better when advertisement is repeated. Special discounts will be allowed for 6 & 12 consecutive insertions. The Management reserves the right to refuse, modify or, in the case of orders for a series of publications, suspend the publication of any advertisement or terminate any contract at any stage and under any conditions without assigning any reason.

Manager: ANTISEPTIC.

A simple and cheap all glass three-way two-valved Adaptor made to fit any Record Syringe for Blood Transfusion. It can be used also for Infusion, Aspiration and Irrigation of ear, nose, pleural and other cavities. (Dr. I. David's) Each Rs. 4. 50.

Agents:—

Messrs. Bole Brothers, Bombay.

Encourage Home Industry, get all your requirements of all kinds of medical instruments and hospital accessories from **Doctors Limited, Sialkot, Punjab.** Factory runs under the supervision of a medical graduate, repairs a speciality. Charges moderate, satisfaction guaranteed.

'OPACITINE' (Regd.)

A guaranteed sovereign remedy for Corneal Opacity (a Nabula, a Macula and even a Leucoma). It has succeeded where yellow Ointment, Dionine and artificial Dyes have given way. Tried by Eminent Eye Specialists, Thousands are radically cured. Prices: Large Phial, Rs. 10. Medium Rs. 5. Sample: Rs. 2-8. Sold by all leading Chemists and by **S. Krishna Pharmaceutical Specialities 101, Railway Road, PASRUR (N. W. R.)** Madras Stockists:—Sri Krishnan Bros. 323-24, Thambu Chetty St., Madras.

FIRST MANUFACTURED IN INDIA

From Indian Barley

MALT EXTRACT

Malted Milk under Trade Name

VAX'MALTED MILK

HYDROGEN PEROXIDE

Under Trade Name

VAX-OZONE

BY

VAX-INSTITUTE LABORATORY LTD.,

13, Dasapara Road, Ultadanga,

CALCUTTA.

3 inches
TO LET
Rs. 12 per insertion.

1 inch
TO LET
Rs. 5-0-0 per insertion

When writing to advertisers, please mention the "Antiseptic"

DIABETOX

The purely herbal specific for Diabetes.

Composition: Ext. Gymnema sylvestre, Pithecolobium lobatum, sweet-bark, Pterocarpus marsipium, Eugenia Jambolana, Bassia longiflora, Ashtwarga, Tribulus terrestris, Saxifraga ligulata, Pure sun-refined Shilajeet, Ashes of genuine pearls, Cowry, Mrighshr-ingh and extracts and juices of many rare Himalayan Herbs.

Tried and recommended by thousands of Medical men.

Descriptive literature and clinical sample free from:

THE HIMALAYA DRUG CO.,

(of SERPINA fame)

179, Samuel Street, BOMBAY. 9.

ALEBRIN

(Synthetic acridine derivative)

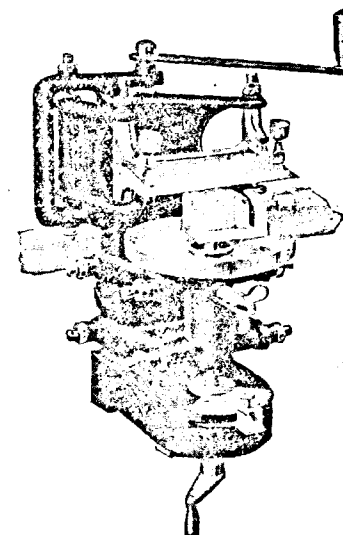
1. It is highly efficacious in the treatment of Malaria.
2. There are no untoward secondary effects.
3. The relapse ratio is lower.
4. The spleen undergoes a rapid diminution in size.

Dose:—1 Tablet thrice daily with Alkaline drinks for 5 days.

Enquiry to:

Messrs. Doz & Co.,

NABADWIP, (BENGAL).



SPENCER AUTOMATIC CLINICAL MICROTOME

Specially designed for use in the laboratories of hospitals and clinics. Frozen tissue or specimens embedded in paraffin or celloidin may be cut almost as rapidly as they can be mounted. When frozen sections are to be made in addition to paraffin or celloidin sections a carbon-dioxide freezing attachment is supplied. The illustration shows the clinical microtome without the freezing attachment.

Spencer Automatic Rotary Microtome (closed form) is also available.

Write for full particulars to:

The Distributors:—

THE SCIENTIFIC INSTRUMENT CO., LTD.,

5A, Albert Road, 240, Hornby Road, 11, Esplanade East, 30, Mount Road,
ALLAHABAD. BOMBAY. CALCUTTA. MADRAS.

Letter Heads **VISITING CARDS**

PATIENTS RECORD SHEETS

FOR GOOD & NEAT PRINTING

PRESCRIPTION PADS

POWDER COVERS **MIXTURE LABELS** **Bill Forms**

Consult THE ANTISEPTIC PRESS
10, THAMBUCHETTY ST. MADRAS.

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

Alembic

OPHTHALMIC OINTMENTS

ARE PREPARED UNDER ASEPTIC CONDITIONS WITH SUITABLE STERILE BASES, HAVING GOOD ABSORPTIVE POWERS. THEY ARE RELIABLE FOR THEIR STRENGTH, QUALITY AND ACTION. THEY CAN CONFIDENTLY BE RECOMMENDED FOR VARIOUS TROUBLES OF THE EYES, A LIST OF OPHTHALMIC OINTMENTS TOGETHER WITH THERAPEUTIC NOTES WILL BE SENT ON REQUEST.

Yellow Oxide of Mercury

ALEMbic CHEMICAL WORKS COMPANY LTD. BARODA

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

HEALTH

[ESTD. Jan. 1923]

An Illustrated Monthly devoted to Healthful Living
Published in English.

Editors and Proprietors:

Dr. U. RAMA RAU and U. KRISHNA RAU, M.B., B.S.

Perhaps you are already aware of our monthly publication "Health," which is being published from 1923 and is devoted to healthful living.

"Health" aims at bringing into every home, in a simple and informal way, the truths about health and disease as discovered by eminent Medical and Public Health authorities. It advocates vegetarianism, temperance, purity, simplicity and moderation in all phases of life—in short, nature's way to better health and longer life. The social and health worker find it as the best means to keep him informed of the progress made in kindred subjects throughout the world.

We invite from the Medical Profession and Public Health Authorities in India and abroad, contributions on Vital Health Topics, such as Diet, Nutrition, Prevention of Disease, Care and feeding of infants, Child training, Management of the sick, Guidance for the prospective mother, Healthful beauty, Exercise, Occupation, Recreation, Contagious diseases, School hygiene, Sanitation, First-Aid in accidents, Health News, Views and Inventions, Vital statistics &c. Each article should not exceed about 2000 words in length.

The contributions may be in the usual form or in the form of Dialogues, Dramas, Poetry, Court Proceedings, or Personal stories of health building or even pen pictures (line drawings), condensed extracts of useful contributions appearing in other journals with or without comment, practical hints, recipes, healthy menus, experiences, statistics, communications &c. The choice of the subject is left to the contributors so that they may select the best subject in their own special line. Contributions should be in an entertaining, non-technical style, and must pass the acid test of scientific approval before being published. No questionable or unproved theories can find a place in the Journal. Contributions are accepted on the distinct understanding that they are sent solely to "Health."

Further details may be had from:—

THE EDITORIAL AND PUBLISHING OFFICES.

THE "ANTISEPTIC" Post Box No. 166, Madras.

P.S.—Annual Subscription for Health (inland) is Rs. 2/- post-paid. A specimen copy will be sent on request.



A Quality Product ANTIFLAMIN

Removes

Local congestion

in all inflammatory conditions:

Bronchitis, Pneumonia, Pleurisy,
Phlebitis, Arthritis etc.

Specify 'Antiflamin' to avoid Substitute

Supplied in 5 oz, 11 oz, 17 oz, and 33 oz Aluminium Pots.

BENGAL CHEMICAL AND PHARMACEUTICAL WORKS, LD.
CALCUTTA :: BOMBAY

Madras Agents:—N. DASAI GOWNDER & CO., 41, Bunder Street.

*A palatable combination of Pure
Hæmoglobin and Hæmatogenic
active principle of Liver*

HEMOBIN

WITH LIVER EXTRACT

with or without

Arsenic & Strychnine

for

Anæmias

Pernicious & Secondary



BENGAL CHEMICAL AND PHARMACEUTICAL WORKS, LD.
CALCUTTA :: BOMBAY.

Madras Agents:—N. DASAI GOWNDER & CO., 41, Bunder Street.

