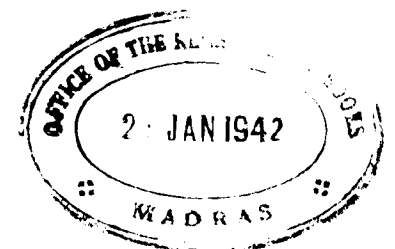


	PAGE
Editorial	
1941—A Retrospect ...	1
Addresses and Articles	
Hygiene Publicity and Health Education in the United Provinces	
Dr. I. N. Saxena, L.M.P., L.P.H. ...	3
Treatment of Bronchiectasis	
Dr. Aktar Hussain, M.B.,B.S. ...	6
A Study of Modern Treatment of Diabetes Mellitus	
Dr. Tarini Prasad Sinha, L.M.P. ...	8
Transmission and Prevention of Malaria	
Mr. M. L. Banerjee ...	10
Pink Disease	
Dr. A. V. S. Sarma, M.B.,B.S., D.C.H. ...	11
Special Article	
Public Health Activities in India ...	12
Indian Medical News ...	15
Epitome ...	16
Abstracts ...	17



WITH MEDICO-POLITICAL SUPPLEMENT

Ergoapiol-(Smith)
REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

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 saffron of the highest quality, this preparation effectively stimulates uterine tone and controls menstrual and postpartum bleeding.

In cases of Amenorrhœa, Dysmenorrhœa, 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.

MARTIN H. SMITH COMPANY
NEW YORK, N.Y., U.S.A.

LIN. BETULÆ CO.

(HEWLETT'S)

Therapeutically equivalent to several times its weight of Sodium Salicylate without causing headache, tinnitus, &c. Has proved most useful in the external treatment of pure Rheumatism, Sciatica, Lumbago, &c. The external dose is about one drachm rubbed over the affected parts.

Mist. Senecio Co.

(HEWLETT'S)

Is an elegant and effective combination of Senecio, Hydrastis, Pulsatilla and aromatics, which have proved very efficient in Amenorrhœa, Dysmenorrhœa and Menorrhagia. The compound has a most beneficial effect in Dysmenorrhœa, relieving pain, and regulating the flow. In acting more particularly on the uterine nerves, it is of special value in the non-inflammatory form of Dysmenorrhœa. When anæmia and chlorosis are present, iron is an essential part of the treatment; but Mist. Senecio is useful as a general uterine and nerve tonic.

Price in England 4 oz. bottles: 10 d. oz. 10, 20, 40 and 90 oz. bottles 12-6 per lb.

Veronigen

Formerly known as MIST. VERNOL Co. (HEWLETT'S)

A liquid preparation of this prompt and reliable HYPNOTIC has long been desired as a useful means of procuring sleep. When given in reasonable doses it is claimed that it does not produce any toxic symptoms whatever, and in ordinary cases of insomnia one fluid drachm of Veronigen (Hewlett's) is quite sufficient dose for an adult.

Dose for Adults.—One fluid drachm diluted, about one hour before going to bed.

For Nervous Sleeplessness in Children.—

10 to 20 minims diluted.

Price in England 12-6 per lb.

Introduced and prepared only by:

C. J. HEWLETT & SON, LTD.

35 to 42, Charlotte Road, LONDON E. C. 2

CALCUTTA:

Smith Stanistreet & Co., Ltd.
M. Bhattacharyya & Co.
B. K. Paul & Co., Ltd.

BOMBAY:

Amersey Khimjee & Co.
Ratilal Hemraj

MADRAS:

Madras Drug Store
Dadha & Co., Appah & Co.

123972

*From one Doctor to another...**

The dangers of prolonged convalescence and precautions against relapse.

In cases where convalescence becomes unduly prolonged, there is serious danger of relapse. The patient, weakened by illness, is in no condition to withstand further drain upon his vitality.

Unless there are complications to account for slow recovery, the period of convalescence can be shortened by the timely prescription of WINCARNIS, and danger avoided. WINCARNIS, because of its pleasant aroma and extreme palatability, is acceptable by patients to whom the thought of food is abhorrent. It stimulates the gastric functions, enabling the system to obtain the full benefit from the strengthening and body-building elements it contains. Easily digested and assimilated, WINCARNIS rapidly renews strength and vitality. It promotes sound, healthy sleep and generally tones the system so that there is no danger of relapse. It may be safely prescribed in all conditions of weakness and convalescence.

WINCARNIS is a blend of pure matured red 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

BACTERODIN

For Solid Defence

This specialised non-specific protein therapy rapidly mobilises the natural defence forces in our body by stimulating the reticulo endothelial system and helps to combat infectious diseases and diverse inflammatory conditions. Bacterodin does not give rise to unpleasant bye-effects.

Please write for our illuminating literature for detailed description

LISTER ANTISEPTICS
CALCUTTA

Agents:—B. V. RAMANJULU & CO., 3, Govindappa Naick St., Madras

Medical Graduates are required for Emergency Commissions in the I.M.S.

Age Limit: 32 years' age limit has now been raised to 50 years.

Rates of Pay: Rs. 450 to Rs. 700 per mensem plus overseas pay from Rs. 150 to Rs. 400 per mensem separation allowance from Rs. 30 to Rs. 60 according to rank; specialist pay Rs. 100 when holding a Specialist appointment; command and charge pays from Rs. 30 to Rs. 240 per mensem. Gratuity, pension, etc., is the same as for regular officers of the I.M.S.

Additional Concessions: Preferential treatment in connection with recruitment to permanent Commissions in I.M.S. after the war and in filling posts in the Provincial Civil Medical Department. In the case of Government servants, retention of lien in civil, confirmation in civil appointments on the occurrence of permanent vacancies, period spent in military to account towards pay, promotion and pension.

Disability and Family Pension: Officers pronounced unfit for general service owing to a disability attributable to military service are granted pension depending on the degree of disability, the maximum pension admissible on this account being Rs. 2,000 per annum.

A widow of a Lieutenant whose death is attributable to military service receives a pension of Rs. 1,200 per annum and of a Captain Rs. 1,340. Children receive each Rs. 320 (if motherless Rs. 535) per annum irrespective of the rank of the officer and in special cases of pecuniary need, an educational allowance not exceeding Rs. 310 per annum is also paid. The gratuity admissible to the widow of a Lieutenant killed in action is Rs. 2,000 and of a Captain Rs. 2,670.

Detailed particulars can be obtained from Provincial Administrative Medical Officers or the Director-General, Indian Medical Service, New Delhi.



Croup
Bronchitis
Cough
Tonsillitis
Tracheitis

Sample on request

In affections of the upper respiratory tract, Antiphlogistine is an ideal adjuvant to the general treatment. Its medication and sedative warmth are an aid to decongestion and repair.

Antiphlogistine

THE DENVER CHEMICAL MFG. CO., 163 VARICK ST., NEW YORK

MULLER & PHIPPS (INDIA) LTD.,
P. O. Box 773 BOMBAY



SUPER D COD LIVER OIL

A palatable cod liver oil of the highest grade obtainable, standardized to contain fully adequate dosage of both the fat soluble vitamins A and D.

Each teaspoonful of Super D furnishes not less than 6,140 U. S. P. units of vitamin A and 1,110 units of vitamin D.

Indication: Growth promotion, increased resistance to infection, control of bone and tooth development during early life. Cure and prevention of rickets in infants, pregnancy and lactation periods, conditions associated with undernourishment, emaciation and debility.

Dosage: Infants and children: $\frac{1}{2}$ teaspoonful to 1 teaspoonful three times daily.
Adults: 1 teaspoonful or more three times a day.

Packing: Available in bottles of 3, 10, 24 and 128 ounces.

SUPER D CONCENTRATE

An assayed solution of natural vitamins A and D concentrated from Super D cod liver oil:

Super D Concentrate is indicated in any condition where the difficulty of dosage with cod liver oil arises. It is particularly useful in feeding premature infants, in severe rickets, osteomalacia, tetany and during pregnancy and lactation where the mother may not tolerate fat or cod liver oil.

Dosage: Three to six (3 to 6) drops three times a day.

Packing: Available in bottles of 5, 10 and 30 c.c.

SUPER D CONCENTRATE PERLES

Each perle contains 14,450 U. S. P. units of natural vitamin A and 1,445 U. S. P. units of natural vitamin D.

Super D concentrate perles are tasteless and make possible the administration of adequate amounts of natural vitamins of the cod liver oil to those who object to the oil itself.

Dosage: 1 to 2 perles a day.

Packing: Available in bottles of 30, 100 and 250 perles.

SUPER D WITH MALT

Super D with Malt contains 25 per cent by volume of Super D cod liver oil. Each ounce of Super D with Malt presents not less than 2,200 U. S. P. units of vitamin D and 12,000 U. S. P. units of vitamin A.

The cod liver oil together with the malt extract in this preparation gives a total caloric value of 150 calories to the ounce.

Dosage: Children: 1 to two teaspoonfuls three times a day.
Adults: 1 to two dessertspoonfuls three times a day.

Packing: Available in bottles of 8 and 16 ounces.

Manufactured by:

THE UPJOHN COMPANY,
KALAMAZOO — MICHIGAN — U. S. A.

Branches:

P. O. Box No. 249, Madras
P. O. Box No. 134, Lahore
P. O. Box No. 461, Rangoon

Sole Agents:

T. M. THAKORE & CO.,
43, Churchgate Street,
Fort, BOMBAY.

Branches:

P. O. Box No. 2111, Calcutta
P. O. Box No. 114, Karachi
P. O. Box No. 2, Nova-goa

POPULAR 'HEALTH' REMEDIES For The WINTER:

SYROCOL

For coughs, colds and all irritable and inflamed conditions of the chest.

PETROSOL

A soothing emulsion useful for the chronic cough of Bronchitis and Tuberculosis.

VINOCOD

Cod-liver Oil extract and wine. The recognised Tonic for restoring vigour and Vitality.

CALGOSAL

Safe, stable, Gold Calcium Complex. Parenterally given for Tuberculosis, Asthma and Rheumatoid Arthritis.

"Health" in War:

"Health" for Ever:

Indian Health Institute & Laboratory, Ltd.

Manufacturers of Biological & Chemo-Organotherapeutic Products
BELIAGHATA MAIN ROAD, CALCUTTA



HIND CHEMICALS Ltd., CAWNPORE

The most recent advance in the Treatment of
Pyelitis and other Urinary Infections

UROMALINE

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

Prepared for the first time in India

One fluid drachm or one tea-spoonful
contains an equivalent of one
gramme of Mandelic Acid

Pamphlets on Uromaline are sent free,
on application to:—

**THE BRAHMACHARI RESEARCH
INSTITUTE**

82-3, Cornwallis Street - CALCUTTA

STILBŒSTROL

(4:4'-dihydroxy- α : β -diethylstilbene)

A Compound Possessing Powerful Œstrogenic Activity

Stilbœstrol is a synthetic compound which faithfully reproduces the effects of the naturally-occurring œstrogens, and may be used in all conditions where the natural œstrogenic hormones are indicated. It is of particular value in conditions of menopausal irregularity and amenorrhœa.

Preparations

'TABLOID' STILBŒSTROL
(4:4'-dihydroxy- α : β -diethylstilbene)
(For Oral Administration)

0.5 mgm., 1 mgm. and 5 mgm. Each in bottles of 25 and 100

'HYPOLOID' STILBŒSTROL
(4:4'-dihydroxy- α : β -diethylstilbene)
(For Intramuscular Injection)

1 mgm. in 1 c.c. and 5 mgm. in 1 c.c. Each in boxes of 6 ampoules

Recent clinical investigations were carried out by the Therapeutic Trials Committee of the British Medical Research Council. During these trials it was shown that oral administration was as effective as intramuscular injection.

Reduced facsimiles



Literature to Medical Men on request



BURROUGHS WELLCOME & CO., LONDON
(THE WELLCOME FOUNDATION LTD. INCORPORATED IN ENGLAND)
AND COOK'S BUILDING, HORNBY ROAD, BOMBAY

M 3870 Ex.

COPYRIGHT

THE Indian Medical Journal

All communications regarding contributions, advertisements, books and reports for review, changes of address and non-receipt of the Journal should be addressed to: "The Managing Editor" INDIAN MEDICAL JOURNAL, 131, Coral Merchant Street, Madras. It is important that the subscribers should report their change of address, if any, immediately to this office to ensure regular supply of the Journal.

All communications regarding subscriptions and remittances of the same should be addressed to Dr. Khan Chand Wohra, Hony. Treasurer, All-India Medical Licentiates' Association, Borstal Institution, Lahore (Punjab).

All communications regarding policy, programme and work of the All India Medical Licentiates' Assn., should be addressed to Dr. Manohar Lal Kapur, General Secretary. M.O., I/C. Eye Centre, King Edward Memorial Hospital, Karnal Post (Punjab).

Associate Editors :

A. N. Roy and Jai Gopal

Co-Editors :

K. S. S. Aiyer and D. V. Venkappa

Advisory Committee :

K. B. Bhujanga Rao, K. Venkat Rao
T. V. Ranganatha Rao, S. Balasundaram
and D. N. Basak

Managing Editor :

A. Viswanathan

Vol. 36 MADRAS : JANUARY 1942 No. 1

1941—A RETROSPECT Ourselves

The *Journal* has passed through a difficult year, and is entering the New Year with the same difficulties to face. They are, of course, due to war conditions and will be resolved only when it ends. The primary difficulty is due to shortage of paper supply and its prodigious cost. This has resulted in increased cost of production and a good reduction in the normal total of printed pages which is the only sensible way to balance our budget. The second difficulty is with regard to our transactions with foreign advertisers, which owing to uncertainty of Mails, due to loss or delay, have resulted in belated advertisement instructions and still more belated payment of our bills. But these difficulties, we gratefully acknowledge, have been recognised by our readers and advertisers, and accommodated by them with much indulgence and understanding.

Contributions

We were not much handicapped by any paucity of contributions. But we were, however, faced with the none too easy task of deciphering illegible manuscripts, of decoding unconventional abbreviations and of deleting unrelated and much redundant matter. The editor is no more omniscient than the man in the street. Besides this, the contributors should also realise that the average reader believes in the printed word so strongly that it becomes the fundamental duty of both the editor and the contributor to place before him nothing but reliable and useful information. We would, therefore, appeal to our contributors to co-operate with us in this respect and to see that their manuscripts are legibly and correctly typed and the matter presented is such as they could vouch for its accuracy, secure the interest of the readers and serve them well. The good name of the *Journal* depends entirely on this factor.

Tuberculosis

Thanks to Vicereine's Anti-Tuberculosis campaign, initiated in 1937, great interest is now being shown in all the provinces in fighting this ubiquitous scourge of civilisation from many fronts. During last year a good number of tuberculosis hospitals, clinics and sanatoria were opened in different parts of our country, and these were financed mostly by public benefaction and partly by the King Emperor's Anti-Tuberculosis Fund. The two outstanding events of the year were the opening of the Kasauli Sanatorium with an accommodation for about 120 beds for teaching and research, and of the T. D. D. course in Madras. There seems to be no doubt that anti-tuberculosis work has started from right points of approach, and given more money, more trained personnel of workers and more sustained public interest and co-operation it would certainly produce beneficent results in goodness of time.

Sulphonamides

Much ground has been cleared regarding the utility of the various sulphonamide derivatives, and their specific application and toxicity. Unfortunately, however, the nomenclature given by the proprietary firms to the different derivatives tends to be somewhat confusing. Broadly speaking they fall under five chemical categories : (1) Domagk's

original Azo compound (Prontosil); (2) the simpler compound, p.-aminobenzene sulphonamide without the Azo part (Prontosil Album); (3) the Benzyl derivatives (Proseptasine); (4) Amino-pyridine derivatives (M. & B. 693); and (5) Thiazole derivatives (M. & B. 760). Their action is now definitely known to be bacteriostatic, and they have been successfully used in all acute streptococcal infections such as puerperal septicæmia, pneumonia, cerebro-spinal meningitis and erysipelas, and in acute gonorrhœa. In the last, the results have been really remarkable. Inspired by such brilliant results, the practitioners have been often tempted to prescribe them in all kinds of infection. But this is certainly unwarranted and we have condemned this promiscuous use in these columns. Another notable development is that the fear of toxic complications is much less now than anticipated at the time of its discovery. Nausea, headache, cyanosis, fever and cutaneous eruptions are some of the minor complications of this therapy. These occur usually at the end of first week of treatment when the drug may either be discontinued or substituted. Agranulocytosis is, however, a fatal complication but fortunately very rare. The latest development in sulphonamide therapy is its topical application to infected wounds, and the results so far obtained are encouraging. It may be of interest to note that sulphonamide preparations are now manufactured in our country and therefore we need not depend on foreign supplies.

Vitamin C

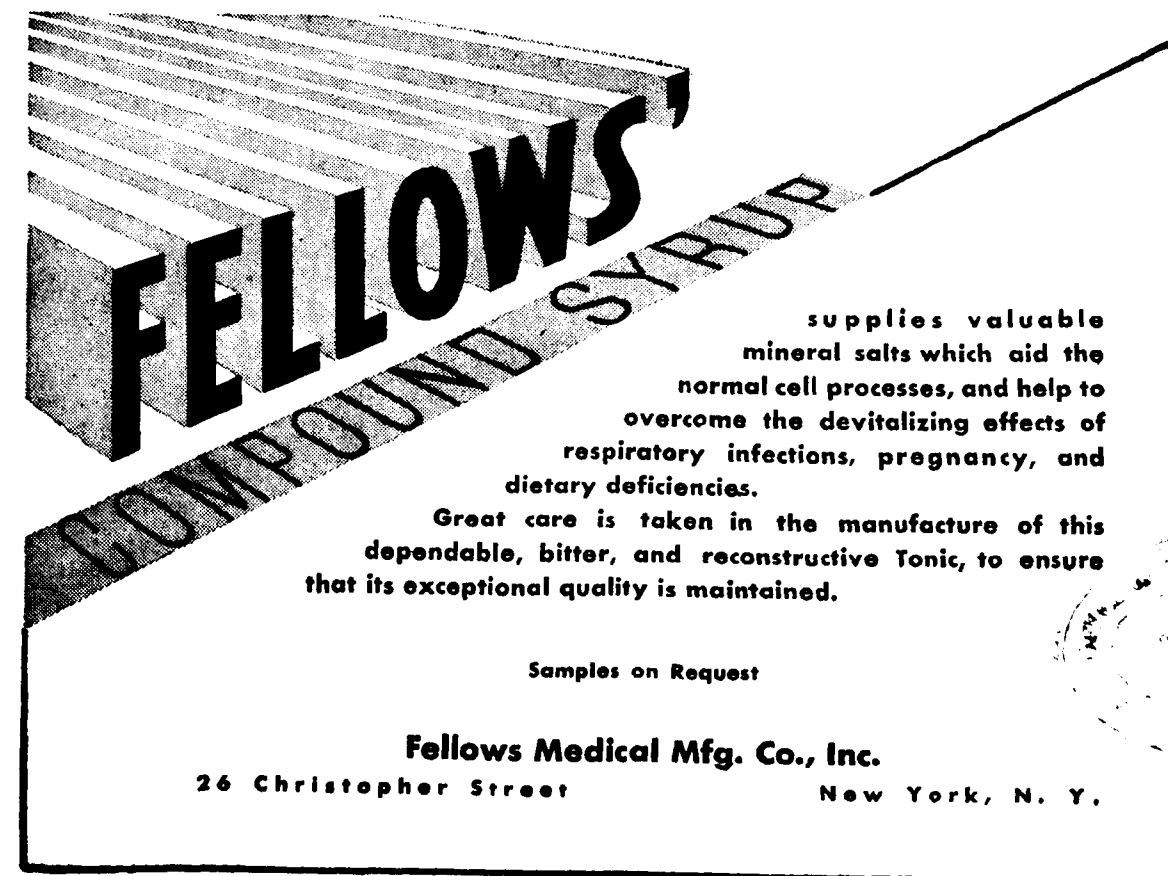
Much work has been done in our country, particularly during last year, in the matter of finding out a dependable cutaneous test for the determination of vitamin C deficiency. The previous method of determination by urine analysis is not as handy and easy to perform as a cutaneous test, and the latter therefore is a welcome addition. 2:6 Dichlorophenol-indophenol is titrated against a known strength of ascorbic acid solution. A drop of this is injected intradermally when a blue discoloration appears. Normally this disappears within ten minutes, but if it takes a longer period, it indicates hypovitaminosis C. This simple test has enabled us to find out the sub-clinical deficiencies of vitamin C in various tropical diseases and to reimburse it as an additional therapeutic measure in the

treatment of these diseases. Thus it has been successfully given recently in rheumatism, kala-azar, infantile hepatic cirrhosis and in specific diarrhœas, and of course in prolonged illness such as typhoid and tuberculosis. Vitamin C is identical with ascorbic acid and was isolated in a pure crystalline form in 1932. For immediate and intensive effect the crystalline form is selected for use, augmented of course by fruit juices. The essential advantage in vitamin C therapy is its beneficent action on the endothelial cells, and the help it gives in keeping them in a state of repair, so necessary for effective resistance against disease.

Drug Supply

There is an acute shortage of quinine and cod-liver oil. The former is due to the short-sighted policy of the Central Government which, instead of encouraging cinchona cultivation in our country, has been buying Java quinine to meet the greater part of our requirement. This, owing to the present war-time conditions, has resulted not only in shortage of stock but also in great increase of its cost. As for cod-liver oil, we were mainly depending on Norwegian supply, and this is not available at present. There is some attempt by the Madras and the Bengal Governments to manufacture oil from Indian fishes, but this is not on a scale commensurate with our needs. Our readers can easily fancy the dire effects of shortage of these two drugs so essential to a country where the incidence of illness and mortality from malaria and tuberculosis is very great. With regard to other drugs, it is gratifying to note that our manufacturing firms (unfortunately very few in number) have made a good use of the present opportunity to manufacture some of the important drugs for which, till last year, we depended on foreign imports. Still, the supply is not likely to equal the demand. But this can be facilitated if our practitioners encourage the use of drugs made in our country in a greater measure than is apparently their habit before.

We are glad to announce that the ex-editor of the *Journal*, Rai Saheb Dr. P. C. Roy, has been recently conferred the Fellowship of the State Medical Faculty, Bengal.



FELLOWS'
COMPOUND SYRUP

supplies valuable mineral salts which aid the normal cell processes, and help to overcome the devitalizing effects of respiratory infections, pregnancy, and dietary deficiencies.

Great care is taken in the manufacture of this dependable, bitter, and reconstructive Tonic, to ensure that its exceptional quality is maintained.

Samples on Request

Fellows Medical Mfg. Co., Inc.
26 Christopher Street New York, N. Y.

JAMBU'S SHARK LIVER OIL

We beg to announce to the medical profession that we have succeeded in manufacturing Shark Liver Oil in bulk, which is equivalent to Norwegian Cod-liver Oil in its standard of vitamins A & D, mineral and other contents.

Each batch is tested at the Indian Institute of Science, Bangalore, before marketing it. A gram of Jambu's Shark Liver Oil has been certified to contain an average of 1500 international units of vitamin A.

Jambu's Shark Liver Oil is 50% less costly than the Cod-liver Oil, of which there has been an acute shortage since the beginning of the War. But its nutritive value is equivalent to high grade Cod-liver Oil, because of scientific methods employed in its extraction.

Available in any quantity.

Packings: 4 gallon and 1 gallon tins, and 1 lb. bottles.

Price on application

JAMBU & CO.

Manufacturers of Pharmaceutical Products

Thyagarayanagar, MADRAS

ESSENTIAL PREPARATIONS for MODERN CHEMOTHERAPY



DAGENAN
TRADE MARK
M & B 693

FOR
GONOCOCCAL INFECTIONS

Allows immediate institution of treatment. Prevents complications.

Supplied in containers of 25 x 0.5 gm. and 25 x 0.125 gm. tablets.

*Sulphonamide
Therapy*
MAY & BAKER

SOLUSEPTASINE
TRADE MARK

FOR
STREPTOCOCCAL INFECTIONS

Colourless aqueous solution for parenteral administration. Singularly low toxicity. Supplied in boxes of 6 x 5 c.c. and 6 x 10 c.c. ampoules 10 per cent solution.

Where it is desired to administer an anti-streptococcal drug by mouth PROSEPTASINE (Trade Mark), in tablet form, is the preparation of choice. Supplied in containers of 25 tablets.



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



ADDRESSES AND ARTICLES

Hygiene Publicity and Health Education in the United Provinces

Dr. I. N. Saxena, L.M.P., L.P.H.
(School Medical Officer of Health, Fyzabad, U.P.)

Introduction

Health Education means the imparting of information to the general public on matters concerning health and sanitation, and includes all health activities whether they are carried out in or outside schools. Thus health education is anything which educates any one in matters of health.

The importance of health education in the campaign of improved national health has been recognised in this province by both educational and the health authorities, and the annual celebrations of Health Weeks and Exhibitions in urban and rural areas have been encouraged by the authorities as effective means of focussing public attention on questions of health.

We have to bring home to the public the necessity of giving up hide-bound insanitary customs and to make them appreciate and put into practice sanitary ideals and principles. We want them to realise the full value and significance of the public health activities, to be convinced that our work is a form of national service, and to comprehend that our aim and endeavour is to build up a healthy race, a healthy nation—a nation with a sound body in a sound mind, a nation fit to take its proper stand in the comity of nations. Every one has to throw his weight in the scale if we are to achieve success. In order to bring forth fruits of the best quality we have to tend this plant of sanitation and hygiene tenderly, patiently and systematically over a number of years. The aim of health education is the healthy man, the man physically and mentally well balanced who knows and perceives what is beneficial for him. In short, it seeks to teach the individual to value life and not to throw it away, and to regard it as sacred trust. This end can be achieved by changing the behaviour of individual, or, in other words, by the awakening of his sanitary conscience or making him health-minded through a scientific and well-planned programme of health education. This is by no means an easy problem as the bulk of our population lives in villages without proper means of communication and with old ideas and prejudices ingrained in their minds. Their age-long customs and habits can only be changed by continuous efforts of the public health workers. The apathetic attitude of the public and indifference of the authorities may be, at times, a great discouragement to many of us, but none can deny the utility of health education as the most important means of improving national health, and the effectiveness of the modern methods of propaganda in this connection.

The kind of publicity we should give to Hygiene and Sanitation is through educational means, so as to develop the consciousness of the public and the individuals to the reality of unseen germs, and the risks to

personal and public health that lurk in every-day life. To this end many ways are adopted by public health workers. Hygiene publicity has a great part to play in the conservation of the health of the people. It should precede, accompany and follow all forms of public health endeavour—legislative, educational, economic and administrative. Hygiene publicity, like other types of propaganda, is a science for the mastery of which talent, efforts and experience are necessary in no small measure. The phenomenal success of certain proprietary medicines which command an extensive sale is no doubt due to the effective propaganda carried out by the manufacturers. If propaganda can stimulate commerce, create war or peace, and bring salvation or destruction to humanity, why, then, should we not use it in the interest of national health?

Classification

For the sake of convenience the hygiene publicity and propaganda work can be divided into (1) rural and (2) urban. This should further be dealt with in two classes: adult and juvenile. Each requires special methods of approach and treatment. This article, however, will only deal with the methods of health education in vogue in the schools of my province, and suggest certain modifications that are necessary to suit our local requirements. My experience has taught me that health education can be more successfully done among the young rather than among the old people. Young minds are like clean slates. They are much more receptive and amenable to persuasion. Older people are much more conservative and dislike change. Finding it difficult to give up old views and beliefs, they seek shelter under fatalistic theories.

Creation of Habits

Our first effort should be directed to the creation of good habits, and this has to be effected by both precept and example. Hygiene should be a compulsory subject not only in English schools from the third to the tenth standard but also in the vernacular middle and primary schools of both boys and girls. The present-day teaching of hygiene in English schools is confined to classes fifth to eighth, and certain books prescribed for the different classes contain such lessons which cannot be assimilated by the boys. The subject of hygiene, although compulsory in these classes, is given no importance—it is scheduled for the last period once or twice a week. The boys thus get the impression that the subject is not at all important with the result that it is generally neglected. Parents also usually neglect to teach their children to cultivate regular health habits, such as bowel and personal sanitation, and keeping up of regular hours of work and sleep.

The teachers should be given a thorough training, more particularly in the practical aspect of the subject. Daily cleanliness, weekly nail-cutting and tooth cleansing parades must be held, and practical aspects of personal cleanliness should be explained to the scholars. During these parades, the boys with dirty bodies and teeth should be made to fall out. There should be a bathing place in each school. When I was at Jhansi, and since I am at Fyzabad, I had introduced a bathing and washing scheme in Municipal Board primary schools, and the Municipal Boards were requested to sanction

some money for the supply of soap, towels, water-buckets, hair combs and neem *datoon* sticks for free use. The dirty boys are picked up at the morning prayer time of the school and made to bathe. At Jhansi, when the water supply was scanty during the time I was there, the Education Superintendent had asked the school teachers to take the boys to the bathing ghats situated nearby. There was a proposal to construct bathing platforms with a dozen water taps at a central place. The boys should be given a thorough wash. Each boy is supplied with a separate piece of khaddar cloth and a soap cake. This scheme worked very well both at Jhansi and Fyzabad, and went a long way to improve the general cleanliness of the body and clothes of the scholars. The cleanest boys, at the time of monthly inspection by the Headmaster and School Health Officer, were given marks which were added to those on other subjects at the end of each quarter, and some rewards were given. I think this is a practical way of not only improving the general personal cleanliness of habitually dirty and filthy boys, but also goes a long way to inculcate in their minds the importance of cleanliness. The teaching of hygiene should be illustrated with posters, generally available from the Red Cross Depot. The present text-books on hygiene should be revised and graded according to the class for which they are prescribed. Practical demonstrations should be given after the theoretical teaching. Periodical competitions between the various classes and inter-school competitions should be held. Prizes for health essays should be given. Excursions should be arranged and students taken to see the various activities of the Public Health Department. *Things seen are mightier than things heard.* In order to fire the minds of the youth, we should weave into the lives of some heroes, events that would bring into bold relief the practice of sanitary principles. Dramas, songs and poems may be composed touching upon those ideals. A sense of cleanliness, fellow feeling and charity should be imbued into them so that when they become city fathers, they may be able to enforce sanitary principles. This is indeed an uphill job, and only several years' regular practice may bring about some improvement. The juvenile health education in schools is really the most important item of activities of the Hygiene Publicity Department and form a vital element in the general scheme of education.

The Need for a Trained Personnel

In such a programme, all available resources should be utilised for disseminating knowledge through suitable agencies and means at our disposal. In so doing we must keep the following conditions in mind:

- (1) Only such facts should be put up before the students and teachers as have been established on a sound scientific basis.
- (2) They should be so presented as to make them easily clear and arouse an effective desire to apply them.
- (3) The teaching must be so planned as to emphasise those things which are vitally important.
- (4) It should be in the language easily understood by the pupils.

In order to achieve the above objectives, one requires specially trained personnel. It is chiefly for this reason that a separate scheme of School Health Service has been organised in this province. If we look at the

medical inspection of schools, it is more a propaganda than anything else. A very prevalent notion is that medical inspection without proper treatment of the diseases discovered at the time of medical examination is a huge waste of time. This is quite true up to a certain point. But one of the scheduled duties of the School Health Officers should also be the imparting of health education. I consider this is the most suitable agency which can carry out the health education work in schools to the best advantage. Their services should therefore be profitably utilised for this purpose. The success of health education and campaign is in direct proportion to the interest taken by the School Health Officer who works from day to day among the scholars and gets opportunity to study the nature and habits of the students. The School Health Officer is thus the first most important agency for supplying the necessary material for carrying on this work.

The other agency for health education work is the Teacher. Through him the school boy can be given health education. This requires that the teachers of the vernacular schools should have some knowledge of public health subjects. Fortunately the teacher of today is now much better equipped in this respect than a few years back, as they are taught something of hygiene and public health in their training colleges and normal schools. But in my opinion this is not enough. They need more practical training and frequent refresher courses in groups to inspire them to work with high ideals. The teacher may take out bigger boys for excursions in the company of the Health Officer, and these occasions may be used to stimulate the boys to make their own observations regarding the health conditions of the areas and the people they visit.

But the real centre of health education is the Home, and it is there where it can be most practically tackled. Over and over again teachers have said in a tone of hopelessness that in all their attempts to improve the health of and arouse the civic sense in their boys, they meet with no response or co-operation from the parents. All the latter care for is that their sons should be promoted and bring all possible pressure on the headmaster for this purpose. There is a great deal of truth in this and when it is combined with the lack of enthusiasm in the teachers themselves, it becomes almost a hopeless task. Still we must make an effort. In Fyzabad and Jhansi, it has been my practice to follow up the medical examination of the school boys by visiting the homes of those to whom vouchers were issued and talking with the parents about the defects found in their wards. This gave me an approach to their homes and a means of gaining their friendship. I utilised these visits for a friendly chat on citizenship and to make concrete suggestions relating to the actual surroundings. This, of course, is not always possible even for the School Health Officer, but I think we can harness the energy and enthusiasm of boy scouts, junior Red Cross members and members of the cadet divisions. An attempt may be made to form a Parents and Teachers' Association on the one hand and Students' Welfare Committee on the other, to supplement the recommendations of the Parents and Teachers' Association. Creation of sound health habits is certainly more important than the mere knowledge of hygiene. The formation of health habits can easily be effected by the parents in the first five years of childhood.

As the proverb rightly says, *What the little Jackie does not learn, adult Jack can never learn.*

Nor should the subject of Home Nursing be neglected. In this matter we may get more encouraging response from the girl schools. Perhaps the best approach to the homes we possess is in the midwives, health visitors, and doctors of maternity and child welfare centres. The authorities should try to arouse the latent enthusiasm and patriotism of the maternity staff and instruct them how to educate the mothers in home and environmental hygiene.

While making school medical inspection or taking spleen census, if short talks on health are given they not only enliven the whole procedure but also provide splendid opportunity to give useful hints about personal hygiene.

Methods of Publicity

They should be both intensive and extensive. But when intensive health education, which is the most effective method, is not possible in schools due to their heavy curricular and extra-curricular activities and reluctance on the part of school staff to take up this work in earnest, at least efforts on an ordinary routine scale should always be made. Possibly for this reason the results achieved so far have not been very encouraging. In the Partabgarh Health Unit where the area is limited and the staff is sufficient, an intensive type of health education not only to the school children but also to the public has been possible. The large maternity staff there is useful in carrying the message of health to the women at home.

One of the chief means of publicity is the spoken word. These should include:

- (1) Lectures on health subjects by Teachers and School Health Officers.
- (2) Lectures illustrated by magic lantern, cinema films and posters.
- (3) Lectures (arranged in schools) by high officials of the Public Health and Educational Department.

Magic Lanterns: They are being used for giving lectures as a routine measure in schools. I am inclined to think that it is now an old-fashioned means of publicity which does not arouse much interest in the audiences, specially in the urban schools. The type of magic lantern provided is too bulky for transport. The stories are much repeated ones and have no charm now for the listeners. It is desirable to change the stories and to put them up in a more attractive language. The lantern lecture should also be supplemented by other modern methods of publicity. Nor should we forget the spoken word from individual to individual. We should see that there is more health education work done by the medical officers and private practitioners treating the sick scholars in hostels and at home. People are more receptive, in times of illness or epidemic, to the teachings of preventive medicine and hygiene than they are under normal conditions. The School Health Officers and attending physicians should regard such occasions as psychologically most favourable for the spread of useful health information, either verbally or by printed material. The attending physician carries a good deal of influence and information and the school health authorities should always try to seek the help of this effective agency in their programme of health education.

Broadcasting: This is now another new valuable means of propaganda and several radio talks have been given by the experts during the past years. It can reach a larger audience than any other means of propaganda. The wireless set should, therefore, be installed (if funds permit) in all the colleges and high schools, and bi-weekly health talks should be arranged.

Posters and Leaflets: The Hygiene Publicity Bureau has brought out a dozen sets of posters on common infectious diseases, school hygiene and sanitation. Their efficiency depends to a great extent on how they are being placed. They are meant for exhibitions and are made use of by school teachers and health officers in giving lectures. There are leaflets on different health subjects which should be widely distributed free in schools and colleges. Printed literature, however, is not believed by many to be a very effective method of health education, but it is necessary when other more modern means are not within easy reach. We must, however, keep in mind their intelligent distribution. They should be given to boys who can read and understand them. Attractive posters of permanent type should be put up in all class rooms and hostel dormitories. Handbills although cheap are often wasteful. But health magazines should be available in each school library. Articles on health and sanitation should be contributed frequently in the school magazines by school teachers and student representatives. This may not only help in the spread of knowledge to the students and teachers, but also serves as a ground for exchange of ideas on preventive measures and special health activities going on in particular schools. Appropriate slogans should be got up and posted prominently to arrest the attention of the students.

Motion Pictures: Nothing can compare with motion pictures for arresting the attention of the audience in a class room or lecture hall, and creating an interest in the subject taught. Teachers and lectures everywhere recognise the value of visual presentation of a subject, and this is by far the most effective method of instruction. The cinema also is an effective means for the liquidation of adult illiteracy and for propaganda of any kind. Night schools are no use for a half-starved peasantry which is too tired to come willingly out of their huts to learn. But they will come out most gladly to watch a film. Thus it is that motion picture is a dynamic method of enriching, intensifying and reinforcing the major activities of the health programme. If talkie films are not possible, at least silent films should be extensively used for propaganda purposes. To meet this growing demand for movie pictures, the best scheme would be to supply a 16 mm. projector to each School Health Officer and sufficient number of 16 mm. films to suit the local requirements. *If the pen has been considered mightier than the sword the film has now proved mightier than both.*

Health Weeks and Health Exhibition: These have attracted a good deal of attention as a means of health education. It is almost an annual feature in most of the districts. Success depends on the attractiveness of the programme chalked out. In my programme of Health Week celebrations, I used to include all interesting activities of various nature. But the most important part of the work is the inspection of the

physical development and personal cleanliness of boys and awarding of prizes for the best developed and most neat and clean scholars. I make the boys themselves prepare posters, models, charts, slogans and albums with the help of teachers. These are put up in their respective class rooms. The best of such class rooms is awarded the prize of a wooden shield to be competed every year. In each school a health museum was opened and all these posters, models and albums prepared by the boys were used to be kept there. A series of useful lectures on different topics of health subjects, physical culture, nutrition and contagious diseases were delivered by eminent medical men and educationists of the city. Student processions, big rallies and mass meetings in the school compound and town halls were also organised and addressed by the leaders of the locality. The boys parade the *mohallas* and streets with posters in their hands and sing songs on health and hygiene and thus attract the attention of the public. The boys stage health dramas, dialogues and songs on health, and a competition is held to award prizes. The parents and the general public are invited to this function in order to secure their good will, co-operation and sympathy. I was able to secure about a dozen trophies for award to schools in connection with Health Week celebrations. They are awarded every year in the inter-school competitions. In my opinion this is the best form of health education in schools. Indeed, the celebration of Health Week in schools is very interesting and useful, if properly conducted.

Junior Red Cross and School Health League : Health education of the children has also been undertaken through the agency of the Junior Red Cross whose object is to promote health by formation of good health habits amongst the members of the groups. Many in this province who are the members of the Junior Red Cross and Health League in schools are not only laying sound foundation for future generation, but also show by actual example how to lead a healthy life. The Counsellors of the Groups—the school teachers—have splendid opportunities to engage their boys in anti-malarial, anti-epidemic and health education works.

Contests and Competitions : These also help a good deal as a means of encouraging health education. The St. John Ambulance Association and Brigade and Cadet Division activities also come within the programme of health education in this province. The chief activities of this Association are the training and qualifying people in courses of first aid and home nursing. The annual provincial and circle competitions have given a great impetus to this movement. In many districts, such competitions have become an annual feature.

Conclusion

It will have to be admitted that in public health work both the methods of persuasion and compulsion have their role to play. There are certain customs and practices which are injurious to public health but which are tolerated in the name of personal and religious liberty. But it should be realised that public health legislation cannot venture to go much in advance of public opinion, as any strong opposition by the people is likely to defeat its object. All opposition and resentment on the part of the individuals or communities are

(Continued on page 7)

Treatment of Bronchiectasis

● Dr. Aktar Hussain, M.B., B.S.

(Fyzabad)

In the absence of any specific treatment, it is natural that every physician has his own story to narrate and his own gospel to preach regarding the treatment of this greatly refractory disease.

In view of the progressive and serious nature of this malady, and the temporary effect of purely medical treatment, the modern tendency is to employ surgery in all suitable cases. But it can only be resorted to when :

- (1) the general health of the patient is satisfactory
- (2) the age of the patient is not over 45, and
- (3) the pathological lesion is limited to one lobe, the opposite lung being sound.

In such cases the operation of choice is lobectomy.

Prevention

Owing to the devastating nature of the disease, and the great discomfort which it entails to the patient, prevention is of utmost importance. In all cases of measles, pertussis, pneumonia and influenza, special care during convalescence is needed. Any pleural effusion or empyema should be recognised and treated so as to result in minimum thickening of the pleura. Great care should be taken in operations on nose and throat to prevent inhalation of foreign bodies or tissues from the site of operation. Often it happens that any foreign body lodged in respiratory passages does not give rise to any symptom for sometime, and when the symptoms are produced they are not relieved if even the foreign body is removed. This would show the importance of immediately removing the foreign body by means of the bronchoscope.

The Need for Early Diagnosis

Every effort should be made to arrive at early diagnosis. Exact site and extent of the disease should be determined by bronchoscopy, and X-ray in both lateral and antero-posterior planes, both before and after injections of Lipiodol. The possibility of any tumour or aneurysm causing bronchiectasis should by no means be ignored.

Medical Treatment

Drainage is the main purpose of medical treatment and this can be carried out by various methods such as :

- (i) Postural drainage
- (ii) Bronchoscopic drainage (aspiration)
- (iii) Inhalants (this excite cough and thus help in expectoration)
- (iv) Expectorants.

Postural drainage : In the King George Hospital, Lucknow, all the cases are put in special postures suitable to each case, and it has been found that by this method the patient becomes afebrile, gain in weight and improve in appetite and appearance, provided the case is not one of tuberculosis. Though the postural methods are troublesome at times to the patient, yet they are worth trying in view of their good results. Special adjustable

The Emulsion for Children

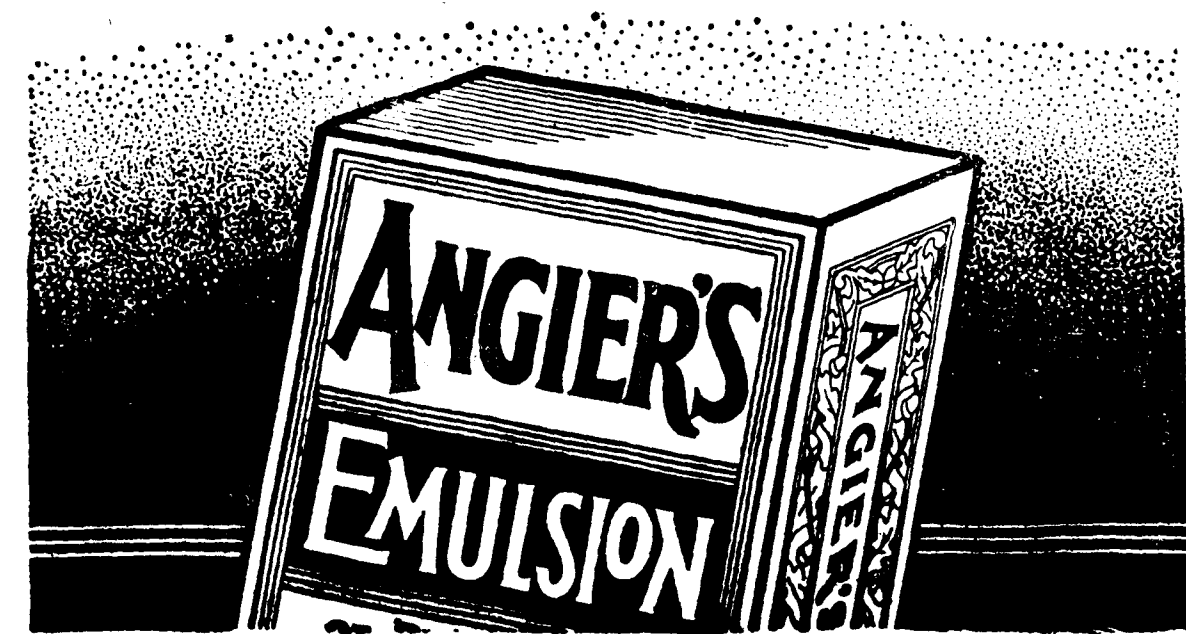
In many of the wasting diseases of childhood, a sensitive, irritable stomach and intestines preclude proper nourishment.

Under the administration of Angier's Emulsion these organs become pacified and retentive, digestion is strengthened, and the assimilation of food is normal and complete. It is oftentimes surprising how quickly pale, flabby, weakly infants and children gain flesh, strength and vitality when they are given the Emulsion systematically.

We confidently urge its trial in marasmus, scrofulosis, inherited tuberculosis, anæmia, and in the malnutrition associated with acute infectious disease. It is likewise one of the most useful and dependable remedies for the treatment of bronchitis, whooping cough and the respiratory affections associated with measles and scarlet fever.

The pleasant, cream-like flavour of Angier's and its ready miscibility with milk or water, make it eminently suitable for administration to children.

Free Samples to the Medical Profession.



Compounders, Radiographers and Laboratory Assistants are required for service in the Army as Warrant Officers Class II in the Indian Medical Department. Candidates must have passed the Matriculation or an equivalent examination of a recognised Indian University. Preference will be given to those possessing previous training and experience in their special subject.

Pay will be **Rs. 50-5-75** p.m. Candidates who are already in Government service may, however, draw the civil pay of their substantive civil appointment plus 25% of that pay as compensatory allowance while serving in India and 50% when serving overseas, if more favourable.

Copies of application form and other particulars are obtainable from the Director-General, Indian Medical Service, New Delhi, or from the Civil Administrative Medical Officers of the Provinces.

DIRECTOR-GENERAL,

I. M. S.

The Government of India have decided to offer a limited number of Special Emergency Commissions in the Indian Medical Service to Specialists from among civil medical practitioners possessing appropriate post-graduate medical qualifications and sufficient experience in the special subjects of Medicine, Surgery, X-Ray and Anæsthetics.

These officers will be commissioned as Lieutenants in the first instance but would only hold that rank for a day or two before receiving the acting rank of Major which will be granted to them in virtue of their Specialists' posts.

They will be exempted from preliminary military training.

The initial pay for Majors in the Indian Medical Service is **Rs. 800** with overseas pay if admissible. Disability and family pensions will be as for other I. M. S. officers. Appointments will be made on the recommendations of an Indian Medical Service Selection Board and physical fitness of Army Category of A or B will be required.

Full particulars of these appointments may be obtained on application to the Director-General, Indian Medical Service.

beds for postural drainage are available, if cost is no consideration. In lower lobe bronchiectasis, the foot of the bed should be raised and the patient should lie on the sound side. If the upper lobe is affected—this is rather uncommon—the patient should sit up. Alternatively, the patient should assume the knee-elbow position or lean over to the side of the bed with his head nearly touching the floor for a definite period at regular intervals during the day. In fact, every possible position should be tried, from raising the foot of the bed to complete inversion of the trunk as well as lateral positions, and that which gives minimum trouble to the patient should be chosen. The principle underlying postural method is that the mucus is enabled to travel to trachea where it excites cough resulting in copious expectoration. Sometimes the results are miraculous. The moment the cavities remain free of septic material, the temperature comes down and absorption of septic material is much reduced or abated.

Bronchoscopic aspiration: It affords a valuable and efficient means of emptying the cavities of much muco-purulent matter. It is specially useful in bilateral cases and when swelling of the mucosa prevents proper emptying of tubes. It is also used as a procedure preliminary to the operation of lobectomy.

Expectorants: Antiseptic expectorants are commonly used. They are given in the following combination:

R.	Pot. iodide	..	..	3 gr.
	Creosote	..	..	3 m.
	Rectified spirit	..	..	7 m.
	Ext. Glyc.	..	..	20 m.
	Aqua ad	..	..	1 oz.
	1 oz. every 4 hours or			

R.	Am. carb.	..	..	5 gr.
	Tr. scilla	..	..	15 m.
	Tr. ipecac	..	..	15 m.
	Spts. chloroform	..	..	10 m.
	Inf. senega ad	..	..	1 oz.
	1 oz. every 6 hours			

Other antiseptic expectorants are: guaiacol carbonate, terebene, balsam of tolu, Tr. benzoin co., or benzoates.

Inhalants: The object here is to excite cough and thus help to bring up a good deal of sputum. Solution of volatile antiseptics are usually tried.

R.	Creosote	..	..	2 parts
	Liq. iodine mitis	..	..	1 part
	Spts. chloroform	..	..	2 parts
	etheris	..	..	1 part
	Carbolic acid	..	..	2 parts

Terebene, menthol and eucalyptus may also be used. The solution is dropped on a pad placed in Burney yea's mask and is held on to the face from 15 to 45 minutes daily. Care should be taken to protect the eyes by close-fitting goggles. Creosote and alcohol (15 minims each) may be inhaled through a respirator. But creosote vapour bath is, however, the most satisfactory form of inhalation treatment, and is of great value. This should be given only in a concrete-floored room without furniture. The eyes must be protected by goggles, and nose by cotton wool plugs. One ounce of creosote in 170 cubic feet of water is vaporised in a metal dish, and the patient is made to inhale for 10 to 15 minutes twice or thrice a week. The deep inspiration carries down the creosote-laden air into the air passages. This excites a violent cough and thus the cavities are emptied.

When the patient gets accustomed to creosote bath, it may be given daily and continued for months.

Surgical Treatment

Lobectomy: This means the removal of the affected lobe and operation is completed in one or two stages. The mortality from this operation is now about 10 per cent. as compared to 48.6 per cent. a few years back. This means that the technique of operation has been greatly improved in recent times. But the cases should be properly selected. Patients with persistent fever or bi-lateral disease are unsuitable for this operation. The ideal indication is when only the lower lobe of one lung is affected. The possible post-operative complications are: primary or secondary hæmorrhage, basal empyema, sub-phrenic abscess, broncho-pneumonia, bronchial fistula, and cerebral abscess.

Other operative procedures employed sometimes are:

- (1) Artificial pneumothorax,
- (2) Pneumolysis,
- (3) Phrenicotomy,
- (4) Caution of the diseased lobe.

Conclusion

Medical treatment must be tried first. Sepsis in the mouth and nasal sinuses must be eradicated. Auto-genous vaccine may be employed with some benefit. The introduction of Lipiodol for diagnostic purposes has also a beneficial effect on the cavities, and may therefore be repeated. When these measures prove a failure surgical methods must be thought of and chosen according to the indications in each case.

(Continued from page 6)

to be guarded against. A sympathetic attitude, a well-developed sense of humour, and a missionary spirit must precede public health legislation. I shall quote an example: I introduced at Fyzabad a Students' Welfare Committee. Many guardians and students were opposed, in the beginning, to the use of spectacles or to get their dental cavities filled up. The Students' Welfare Committee offered quarter to half the cost of dental treatment and spectacles to those who were willing to provide the rest of the cost. This induced a large number of students suffering from defective vision and bad teeth, to come forward to have the requisite treatment. A stout flabby student may be coaxing to take to exercise to reduce his weight and a lean boy to develop his muscles if persuasive methods are adopted. The sight of a gymnasium where people are engaged in exercises, games and recreation, induces always a feeling of emulation. Thus by pecuniary help and example, more than by preaching or precept, we can mostly gain the co-operation of the patients and the pupils.

There is no quick or royal road to reach our goal. We have to plough on patiently and courageously using both persuasive tactics and stern measures as the occasion demands, with tact, sympathy and forbearance. We must be prepared for set-backs but we must carry on the fight and gain ground inch by inch if need be. Our average schoolboy has now more knowledge of common infectious diseases and health habits than a boy of decade back. No lasting results can be obtained by using force or coercion. Persuasion should, therefore, be the method of choice in all public health work.

A Study of Modern Treatment of Diabetes Mellitus

● Dr. Tarini Prasad Sinha, L.M.P., M.O.

(Jamo Hospital, Dt. Saran, Bihar)

Diabetes is a disease of well-to-do, middle aged persons who take rich food and lead a sedentary life. In other words, according to Joslin, diabetes is the penalty for obesity.

Methods for Proper Diagnosis

Before starting to treat a case first, one should try to know if the particular patient is suffering from true diabetes or from temporary glycosuria. It is wrong to conclude that a case is one of diabetes on examining only a single specimen of urine. The best sample will be the urine passed three hours after a starchy meal, for, in early cases, only this specimen will contain sugar and not the later one. If we find sugar in the urine, probably the case is one of diabetes unless and until otherwise proved. It is also very essential to do blood sugar and glucose tolerance test to reach a definite diagnosis.

The prevailing practice of stating sugar in the urine in terms of percentage is often misleading. The total quantity of sugar passed daily should be ascertained from the total quantity of urine passed in 24 hours. This can easily be done by collecting the urine for 24 hours, and adding a few drops of formalin in order to avoid fermentation. If, for example, a man passes 30 ozs. of urine daily and if the report indicates 10 per cent., the total amount of sugar passed in urine that day will be 8 grms. To know exactly the severity of the case one should not only take into account the quantity of sugar passed in 24 hours but also the nature and quantity of diet which was responsible for the production of sugar in the urine. Urine, preferably a fresh sample, should also be tested for acetone bodies which are due to incomplete combustion of fat.

It is essential to be acquainted with the blood sugar curve on fasting before we start to treat a case. It is sometimes seen that some aged persons who are passing sugar for a very long time begin passing albumen. The kidney becomes damaged and consequently the urinary sugar gradually becomes less and disappear altogether in the long run, whereas the blood sugar goes on increasing. The blood sugar of a normal person while fasting is from .08 to .12 gramme per 100 c.c.

Advances in the Dietary Treatment of Diabetes

The main aims of our treatment are (1) to remove glycosuria and ketonuria, and (2) to restore the patient's health to normal by bringing his blood sugar to the normal level.

Our main line of treatment was and still is the restricted diet with or without the aid of Insulin. In early cases, and specially in elderly people, slight restriction of carbohydrate is sufficient to control sugar in urine and blood. Similarly more advanced cases were at one time treated by further restriction of carbohydrate. This was probably done with a view to give complete rest to the alimentary system or, in other words, to the cells of islets of Langerham. Only on this basis but quite

independently, Allen introduced his starvation diet in America, and Graham the ladder diet in St. Bartholomew's Hospital, London. But as the pancreatic lesion is gradually increasing, a treatment which is quite good in early cases do not help any longer in severe cases.

The essential principle underlying the dietetic method of treatment is to ask the patient to take only so much carbohydrate as can easily be tolerated by the internal secretion of pancreas.

It is known that carbohydrate yields 100 per cent. glucose, protein 58 per cent., and fat 10 per cent. So carbohydrate was curtailed, and, instead, fat and protein were added to complete the total amount of food.

But such a diet almost universally led to ketosis. It became necessary that correct amount of carbohydrate, fat and protein should be given for repair, growth and energy. In order to avoid the possibility of ketosis it was found that the proportion of carbohydrate to fat must not exceed 1 : 3 on any account and that minimum quantity of carbohydrate should not be less than 10 grammes instead of 50 as thought before.

After sometime, it was observed that the ratio of carbohydrate to fat (C : F = 1 : 3) was not sufficient to prevent ketosis, as in many men, and also in children, the tolerance of carbohydrate became very low probably through disease. Increase of carbohydrate certainly stimulates the cells of pancreas to a certain extent under certain conditions. So, now, the carbohydrate has been increased and fat decreased and this diet is called *high carbohydrate diet*. The present view is to give this high carbohydrate diet on the ground that this gives better result than the low carbohydrate given in early days of insulin as mentioned before. The point is that carbohydrate should not be less than fat, and some believe that it should be three or four times higher than fat. Further it has been observed that increase of carbohydrate does not necessarily call for larger doses of insulin as was thought before. Probably the cells of islets of Langerham become accustomed to it.

Further, high blood pressure and arteriosclerosis, found to be very common in diabetes, are generally produced by a diet which has got more protein in it.

Ordinarily a healthy adult's diet consists of three to four parts of carbohydrate and one part each of protein and fat. It is interesting to note here that in former days this ratio was drastically curtailed in order to control sugar but our present high carbohydrate diet nearly suits every Indian patient whose chief diet is carbohydrate, and they are saved from unnecessary hardship which was caused to them by previous restricted carbohydrate diet.

Let us now consider the other aspects of the diet, viz., vitamins and minerals which are so very essential for the proper growth and nutrition of the body.

The food we take leaves behind after digestion and assimilation a residual ash which is excreted through kidneys and consequently we must expect variation in the reaction of urine in accordance with the type of food taken. Consequently the food is divided into three main types: viz., neutral, acid, and alkaline ash food. Amongst the neutral ash food are butter, cream and most vegetables. Fruits give alkaline ash whilst rice, meat, bread and chicken give an acid ash. So

keeping in mind these facts, we should prescribe a diet which is neither acid nor alkaline but of neutral ash.

The basal requirements diet varies according to the individual weight and age, but on an average it is about 12.5 calories per lb. of body weight at rest. For pregnant women and labourers an extra 10 to 20 per cent. is added. Generally women do well with 10 per cent. less, whereas growing children do well with 40 calories per pound of weight. Now, we generally allow 1/2 gramme of protein per lb. of body weight for an adult, whereas for child 1 gm. for each pound. Roughly speaking an Indian generally requires 60 to 80 grms. of protein.

Then we divide the remaining calories between carbohydrate and fat.

Now suppose a man's weight is 120 lbs. He would require at rest approximately $120 \times 12.5 = 1,500$ calories.

As said before, 1/2 gramme of protein per pound of body weight is allowed. So he will require $120 \times .5 = 60$ grammes of protein if we allow carbohydrate and fat in equal quantity, i.e., C : F = 1 : 1 (viz., C = F) when his carbohydrate allowance would be :

$$\begin{array}{rcl} \text{Total calories} & = & \text{Protein calories} \\ \text{Calories derived from 1 grm. of C} & + & \text{1 grm. Fat} \\ = \frac{1500 - 60 \times 4}{13} & = & \frac{1260}{13} = 96.9 \text{ grammes.} \end{array}$$

Therefore he will get 96.9 grm. of fat and 96.9 grammes of carbohydrate as his fat ratio is equal to carbohydrate. Now if we allow carbohydrate : fat 2 : 1, viz., C = 2 fat his fat allowance would be :

$$\begin{array}{rcl} \text{Total calories} & = & \text{P. calories} \\ \text{Calories from 2 grms. C and 1 grm. F.} \\ = \frac{1500 - 240}{17} & = & \frac{1260}{17} = 74.1 \text{ grm.} \end{array}$$

His carbohydrate allowance will be $74.1 \times 2 = 148.2$ grms. as C = 2 F. Therefore the total requirement comes to 148 grms. carbohydrates, 60 grms. protein and 74 grms. fat.

Having calculated the amount of carbohydrate, protein and fat requirement of the patient, our next step will be to construct the diet by consulting the food table in such a way as to give the most of the carbohydrate in two principal meals, i.e., breakfast and dinner. The diet thus constructed should be followed rigidly.

When to Give Insulin

Now the question arises when to give Insulin and what are the procedures to be followed?

(1) Put the patient to bed for 24 hours on his usual diet and take his weight.

(2) After 24 hours rest, estimate his basal metabolic rate and find out from day to day for one week his weight, and see if his basal diet (i.e., 30 to 40 grammes of carbohydrate) is supplying him with calories sufficient for his weight.

(3) If he is passing sugar after a week's basal diet, daily estimate the sugar value of his food. From all these deduct the grains of sugar passed in the urine. This will give us an idea of his sugar tolerance.

(4) He is rendered sugar-free by giving him rest and allowing him to fast. During fasting he is encouraged to drink plenty of fluid, coconut water and *matha* (skimmed curd). This should be done for a day or two till he is sugar-free. Then we should go on adding fat upto 1 grm., protein and carbohydrate upto 5 grms. till sugar reappears in the urine. Our aim is to allow him sufficient diet according to the caloric value of his body weight, and if sugar does not appear he should be allowed to follow the above diet, and insulin need not be given. But if, while under controlled diet, sugar appears in the urine we should either reduce his diet to slightly below the basal level or if his tolerance on basal diet is very low, feed him up and at the same time inject insulin. Insulin is best given before principal carbohydrate meal, i.e., midday and night meal. In severe cases with hyperglycaemia specially with ketosis, coma or gangrene, it is wise to begin insulin at once with patient on bed. It is also wise to regulate the diet to a certain extent when the patient is under Insulin treatment.

The dose of insulin is regulated by the amount of sugar passed daily. Usually one unit of insulin burns two grammes of sugar. All samples of urine passed after night meal and till the next day meal is collected mixed together and total content of sugar in it is estimated. Similarly the urine in the day time (till night's meal) is tested for the amount of sugar. Now to render him sugar-free he should be given insulin as follows : Total quantity of sugar. For example if his sugar

in the urine before midday meal is 16 grms. he is injected 8 units of insulin before that meal to render him sugar-free. Roughly depending on the quantity of sugar daily excreted, 5 to 20 units of insulin is injected 15 to 20 minutes before breakfast and dinner if his urine is not sugar-free. If either of them is not free from sugar each dose is successively increased by 5 units every alternate day until urine is free from sugar.

But it should be made a rule never to increase the dose of insulin when once glycosuria has disappeared unless blood sugar test is done. However, it may be increased in cases where infection is present.

A careful watch for early signs of hypoglycaemia must be made. Patient should keep some sugar or oranges with him and should take them if necessary. The chief signs are giddiness, perspiration and nausea.

There are two forms of insulin in the market besides ordinary insulin. Protomine insulin (Retard insulin)—its action is over in 12 to 18 hours. Protomine insulin with zinc—its action often exceeds 24 hours. Both are sold in two strengths of 40 to 80 units per c.c.

In practice, protomine zinc insulin generally requires only one injection.

Diabetics should keep themselves free from exposure and chill. Any tendency to obesity must be checked. Even slight injury must be treated at once. He should live a calm and well regulated life without worry and excitement. Regular moderate exercise is useful as it keeps the blood sugar low, but fatigue must be avoided.

Transmission and Prevention
of Malaria

● Mr. M. L. Banerjee

(Keyhung Malaria Laboratory, Assam)

Mosquitoes can be broadly classified under three common genus: (1) Anopheles, (2) Culex and (3) Stegomyia. Anopheline larvæ lie flat just under the surface of water while culicine larvæ hang down in water. It is only a few species of the anopheline group that are responsible for conveying malarial parasites. Since the male anopheline subsists on juice of plants, fruits, etc., and the female on the mammalian blood, it is the latter that is really responsible for the transmission of malaria.

The infectivity rate of anophelines in Assam varies widely as the following analysis would indicate :—

Total number of mosquitoes dissected :—			
By Ross Institute in Assam and North Bengal	..	100,272	
.. Assam Medical Research Association	..	22,286	
TOTAL		122,558	

Infectivity rate :			
A. Annularis	..	..	0.03
.. Culicifacies	..	..	0.60
.. Maculatus	..	..	0.06
.. Minimus	..	..	2.70
.. Ramsayi	..	..	0.10

The above infectivity rate relates only to those species with salivary gland infection. It may be noted here that the Assam Medical Research Society has shown 0.10 per cent. *A. Philippinensis* with mid-gut infection but with no salivary gland infection. Though the infective rate of *A. Annularis* is very low, and though *A. Philippinensis* has so far been found with only mid-gut but no salivary gland infection, yet, owing to their numerical prevalence, they may probably be vectors of some importance in some communities. More investigations are required to confirm this possibility.

It is obvious from the above analysis that *A. Minimus* is the main species in Assam to convey malaria and that *A. Culicifacies* could by no means be neglected. The main anti-malarial measures are, therefore, taken against these two species in Assam.

We should know the breeding habits of these two anopheline species of Assam to enable us to adopt suitable anti-larval measures. It is not usual to find *A. Minimus* breeding in stagnant pools. Their natural habitat lies in streamlets of running water edged with grass. But *A. Culicifacies* are usually found breeding in sandy pools with clear water in river breast. *A. Minimus* larvæ have a thorax particularly well developed which enables one to distinguish them with the naked eye from most of the other species. Their longevity under natural conditions and different areas should be observed and recorded. The longevity of this species in different stages of their growth and the percentage of female mosquitoes hatched out during the cold season (middle of November 1939 to third week of February 1940), as worked out in our Laboratory, is tabulated below. These observations were made with a meal of sugar solution (soaked in cotton) to the adult mosquitoes, and full grown larvæ.

Table I

Total number of <i>A. Minimus</i> larvæ kept	..	31
.. .. died	..	65
.. .. turned pupæ	..	16
.. .. pupæ died	..	7
.. .. turned adult	..	9
.. .. male	..	6
.. .. female	..	3
Percentage of female mosquitoes hatched out	..	3.70%

Table II

Longevity in different stages :					
Died in larval stage within 7 days	..	..	..	..	70.60%
.. .. after ..	..	..	..	..	0.40%
.. pupal .. within ..	..	..	..	..	43.70%
.. .. after ..	..	..	..	..	nil
.. female adult stage within 7 days	..	..	..	..	66.70%
.. .. after ..	..	..	..	..	33.70%

Principles of Prevention

Though the mosquitoes are tiny ones, yet they are more dangerous than tigers. One tiger may kill a man in a night whereas a tiny infected mosquito may kill three or more persons in the same night. A man cannot get malaria unless he is bitten by an infected mosquito and mosquito also cannot get the infection unless it has fed on the blood of an infected man. There are two possible ways to prevent malaria infection :

- (1) By treating the infected person and thus prevent the man-mosquito cycle of infection.
- (2) By anti-larval and anti-mosquito measures.

This paper would deal with the latter only.

Anti-Larval Measures

Anti-larval measures differ according to situation and conditions of the place. A preliminary survey of the locality in question should therefore be made to find out the breeding places of the carrier species of the anopheline. Careful periodical inspection of such areas is also essential since, not unoften, it may tend to breed in other situations after the favourite breeding places have been eliminated.

Anti-larval measures may be permanent or temporary. Permanent measures are carried out by (1) complete abolition of breeding places wherever possible, (2) changing the composition of water concerned, and (3) the use of larvicidal fish. The growing of shade-giving plants and trees over tea-garden drains, small streams and swamps have been practised with great success by Ramsay and his co-workers in Assam. Such plants as are ever-green and give a dense and complete shade are selected. Black *Bashak* is the one commonly selected for this purpose in Assam. Certain species of small fish was observed by Ross in 1889 to prey on mosquito larvæ, and was for the first time used in Bombay in 1902. Since then larvivorous fish are commonly used as an anti-larval measure, and the three species of fish commonly used in our country are : (1) Chela, (2) Haplochilus and (3) Bodies. But the use of fish as a measure of malaria control cannot be said to be of great importance in India since they are completely ineffective in the presence of weed, and floating debris and require constant supervision to see that they are flourishing and in sufficient numbers. They are most useful for wells and ornamental waters.

SUPPLEMENT TO

THE INDIAN MEDICAL JOURNAL

MADRAS

JANUARY 15, 1942

Vol. 4, No. 1

CONTENTS			
	Page		Page
Leading Article : 1941—A Retrospect	1	Proceedings of Medical Councils	4
The Bombay Debacle—Dr. U. B. Narayan Rao	2		

1941—A Retrospect

Organisation for Medical Relief

The population of our country, according to the recent Census, has increased from 300 to 380 millions. But we find that the total number of hospitals and dispensaries, inadequate even before, has, according to provincial administrative reports, remained the same throughout the year. Thus the inadequacy of medical relief becomes more pronounced now. Neither have any schemes for Health Insurance been initiated by the Provincial Governments or by Local Bodies. What this inadequacy costs the people in terms of invalidism and death may easily be imagined than described. Area under agriculture also has not increased. But there has been some marked industrial development in connection with the war which has given a somewhat larger scope for employment. But it is merely a drop in the ocean. These factors are bound to affect the health of the people. The practical unconcern of the Provincial Governments in the matter of enlarging the existing sources of medical relief is somewhat disconcerting.

Medical Education

When the medical schools of Madras and the United Provinces were abolished and converted into University medical colleges, it was thought that other provinces would follow suit, and thus establish one uniform standard of medical education throughout our country. But unfortunately this did not materialise. On the other hand, such changes were made which confounded the whole issue and disrupted the structure of medical school education. The Punjab L.M.S. Scheme with seven years' course (two years pre-medical and five years medical) was introduced in that province in 1938. Leaving apart the question whether this would ultimately be recognised by the Indian Medical Council or whether affiliation to the Punjab University is not better than experiment with this ingenious scheme of the Punjab State Medical Faculty, and granting also that this new-fangled L.M.S. Scheme is an effort in right direction, we are amazed to find that its working has been halted at the Arya Ludhiana Medical School while allowing it to go on at the Amritsar Medical School. This does not indicate any good intention behind this nebulous reform. In Bombay, the position is

very curious. When the College of Physicians and Surgeons raised the standard of general education from Matric. to Inter. Science in 1937, they cut the course from four to three and a half, and now, even before the first batch under old regulations has come out, the course has been raised to four and a half years—just six months less than the University medical course. It looks as if this wonderful Bombay College will do things by halves only—a sort of morbid love for fractions! In Bengal and Assam, the mad proposal of opening Barisal and Sylhet medical schools is still warm in the ministerial bosom, and whether it is going to be aborted or born none can foretell. The medical schools in the Central Provinces and Orissa are still running in the old grooves, but those who control them, it must be said to their credit, have not imitated the shapeless and soulless inanities of their northern and western neighbours created in the name of reforms in medical education. Well, there is a great need now that the regional branches of our Association should be alert and aggressive, and thus combat the evil of half-measures and soapy reforms in medical education.

Medical Councils

Abortive attempts were made by our Branches in Bengal, Bombay and the U. P. to amend their Provincial Medical Acts on the lines of Madras. A bogey was created in these provinces that if such amendments were effected, the medical licentiates would swamp the Provincial Medical Councils. Of course, this is no more than a bogey, trotted out just to emphasise the selfishness of the programme of the licentiates in this matter. For, if anyone of the authors of this unctious bogey had cared to know the actual composition of the Amended Madras Medical Council, he could have easily found out that under any circumstance the licentiates would always be in a minority. Out of 15 seats, 8 would always be for graduates. (Medical colleges 3; Universities 2; Nominated 3) and the rest 7 would be contested both by graduates and licentiates. We hope that attempts would be renewed this year also, and they are worth the trouble. This problem should never be viewed as one of licentiates *versus* graduates, and *vice-versa*, but from the point of effacing the class distinctions and differences in the profession, which, in fact, was the specific, and openly published, statutory object of the Madras Medical Amendment Act of 1939.

Medical Councils

Bombay. A summary of proceedings of the meeting of the Bombay Medical Council held on 22nd, 23rd and 24th September 1941 :

As regards the memorandum from the Surgeon-General with the Government of Bombay in respect of an application from Mr. S. R. Machave, the Council decided that the Surgeon-General with the Government of Bombay be requested to inform Government that the Council do not see fit to recommend his application for recognition of the qualification said to have been obtained by him from the College of Physicians and Surgeons of India, Calcutta, in 1913. It was also decided that the Council would not recommend recognition of qualifications (other than those recognised in Government Resolution No. 7898, dated the 6th November 1939, amended up-to-date) obtained from such institutions in Bengal unless they are so recognised by the Bengal Council of Medical Registration, Calcutta.

It was decided that in view of Government reply regarding the interpretation of the phrase "Province of Bombay" the resolution of the Council adopted on the 10th February 1941 in respect of item No. 12 of the said meeting be revised so that the whole amended resolution would read as under :—

"No amendment in the orders contained in the Government Resolution No. 7898, dated 6th November 1939 (amended up-to-date) is necessary and that such cases of those practitioners only who are domiciled in the Province of Bombay (including the Indian States in Karnatak, Maharashtra, Gujarat, Kathiawar and Cutch which are generally known to be territorially associated with the Province of Bombay) or Sind, should be considered hereafter."

The Council next considered the recommendation of the Committee regarding recasting of clauses (e) and (j) of rule 1 of Section II of the Code of Medical Ethics, and decided to incorporate certain additions and alterations in the recommendation of the Committee in that regard. The revised clauses (e) and (j) of the Code of Medical Ethics would read as under :—

(e) "Taking part in the manufacture or sale of proprietary foods or medicines or surgical instruments and appliances: It will, however, be permissible for a practitioner to be associated with limited liability companies manufacturing such articles (other than those of concealed formula) only as a Director, or a Shareholder or a Technical Adviser or a Technical Assistant, provided that the name of such a practitioner does not appear in any publications other than the Prospectus or Memorandum or Articles of Association of limited liability concerns or the Annual Report.

Note.—Concealed formula will mean those cases in which essential ingredients are not given."

(j) "Associating with medical agents or manufacturers whose sole object is to advertise products of particular manufacturers.

Note.—This clause will be subject to the provision in clause (e) above."

The Council considered the representation of the Bombay Nurses, Midwives and Health Visitors Council, urging the desirability of medical practitioners not associating with or employing unregistered or unqualified nurses, midwives, or health visitors, etc., and decided that the views of Medical Associations, Societies, and Unions in the Province of Bombay and Sind on the point be elicited, inviting their attention to clause 7 of the Warning Notice relating to association with uncertified women practising as midwives, and the requirements of developing the nursing profession.

The Council decided to grant recognition to D.P.H. & Hy. of the Faculty of Medicine and Hygiene, Bengal, for registration as an additional qualification under the Bombay Medical Act, 1912.

Memorandum from the Surgeon-General with the Government of Bombay forwarding copy of Government memorandum along with a petition from Mr. Chhotubhai Parikh regarding registration of his name under the Bombay Medical Act, 1912, was next considered and it was decided that the matter be referred to the Committee for consideration and report to the Council.

With reference to the letter from Dr. Mangaldas J. Shah, M.B., B.S., seeking opinion of the Council, regarding an article by him entitled "Some Problems of Gujarati Vegetarian Diet" over his signature in a non-medical Journal, etc., it was decided to refer the matter to the Committee for consideration and report to the Council.

The Council decided to reiterate its former resolution for having an elected President of the Council and to request the Government to so amend the Bombay Medical Act, 1912, as to enable the Council to elect its own President, at least, when the new Body may be formed in 1942.

It was also decided that in the opinion of the Council there should be only one standard of education in western medical science, and with that end in view to request Government to appoint a Committee consisting of the representatives of (1) Government, (2) Bombay Medical Council, (3) Bombay University, (4) College of Physicians and Surgeons of Bombay, (5) Medical Colleges and Schools and (6) Independent Medical Associations, to examine the question in all its details and to submit their recommendations to Government at a very early date.

The Council considered the question of interpretation of the status and reciprocity between registered medical practitioners holding qualifications granted in the United Kingdom and those holding registrable qualifications but obtained outside the U. K., arising out of the address of the President of the General Medical Council to the One hundred and fifty-third session of the Council on "Medical Reciprocity," and referred the matter to the Executive Committee for consideration and report.

Bengal. Abstract of the resolutions of the Bengal Council of Medical Registration at their meeting held on the 12th August 1941.

The Council directed that special attention of the Government should be drawn to the following matters :

- (1) amendment of the Bengal Medical Act, 1914, on the lines suggested by the Council from time to time since 1934 ;
- (2) revision of the curriculum of the Licentiatehip Examination on the lines proposed in 1937, viz., with I.Sc. as the preliminary qualification and a course of five years ;
- (3) amendment of the Government resolution of 1936, so as to permit the Council's nominee on the Bengal Sanitary Board to be a member of the Council ;
- (4) necessary legislation on the lines suggested by the Council in August 1939, so as to prevent the use of the prefix "Dr." as a medical qualification by unqualified medical practitioners ;
- (5) necessary legislation on the lines suggested by the Council in August 1940, so as to prohibit teaching of Western Medicine in unrecognised institutions ;
- (6) necessary legislation on the lines suggested by the Council in February 1941, for penalizing display of unauthorised medical diplomas, titles, etc.

With the sanction of the local Government reciprocity of registration with the Central Provinces and Berar Council for qualifications registrable under the Bengal Medical Act, was recognised.

With the sanction of the local Government, the qualifications of D.P.H. & Hy. from the Faculty of Tropical Medicine, Calcutta, and the D.O.M.S. and D.G.O. of the Bombay College of Physicians and Surgeons, were recognised as additional qualifications of a practitioner already registered on a qualification initially registrable under the Act.

On the question of Birth Control Centres, the Council expressed the opinion that they would not be objectionable provided that they are run by properly qualified registered practitioners and provided further that they do not offend any of the existing ethical rules regarding advertisements, solicitations, etc., or the criminal laws of the country.

A registered medical practitioner who was associating himself with practitioners not registered under the Bengal Medical Act, in the teaching of clinical subjects in an Ayurvedic institution and in practice outside, was held to be a violation of Rule 3, para. 2, in Part I (Warning Notice) of the Ethical Rules of the Council, and his name was ordered to be removed from the Registrar.

Temporary anti-larval measures consist of treatment of water with special chemicals, oils or by artificial flushing. This has to be done once a week, since an adult mosquito takes 10 to 14 days to hatch out. Paris Green (copper aceto-arsenite) is the chemical larvicide of choice. As a diluent, road dust, slaked lime, saw-dust, etc., can be used. It can be blown by hand or by blowers of different patterns. It kills larvæ by poisoning, but it has no effect on the eggs or pupæ of mosquitoes or on the very young larvæ of anophelines. Its chief use is in places where for some reason or other oil cannot be employed and where breeding sites are difficult to approach. There are many grades of oil which may be used for killing larvæ and they range from light oils such as kerosene to the heavier forms known as crude oil. There are also different methods of applying oil. Artificial flushing is done by putting sluice gates which are opened at intervals to flush out larvæ.

Anti-mosquito Measures

It is equally important to kill the adult mosquitoes also. There are many methods by which this can be done, and I detail below a few of the common methods employed.

Destruction by hand : A chloroform tube may be used with effect. A layer of rubber band or pieces of old tyres are placed in the bottom of the tube, held in place by a plug of absorbent cotton-wool or blotting paper. A small quantity of chloroform is poured into it, and kept corked. To catch the mosquito, remove the cork and place the mouth of the tube quickly over the insect as it rests on some object.

Spray : Various hand sprays are available, of which 'Flit' is the most popular. "Bomber oil" or "Parasite 20" is used for the spray. These sprays kill not only the mosquitoes but other insects also.

Traps : Different types of traps are used by different workers. An ordinary tea box, painted black, with a vertical opening on one side and fitted with a shutter can be kept in a corner of a room overnight and emptied in the following morning. Although this method has not achieved much success as an anti-mosquito measure, yet it is useful, at any rate, to give us valuable information as to the species of mosquitoes present in a particular locality.

Mosquito net : Mosquito net should always be used in any malarious locality whatever may be the other precautions adopted. The net should be white so as to allow detection of mosquitoes and bigger than the size of the bed so that hands or legs may not protrude out of it and thus allow mosquitoes to enter during sleep.

Screening of houses : It is an excellent measure, but is only possible when cost is no consideration. It is used in the barracks of certain cantonments in India with good results. The screening, however, should be thorough and frequent inspection is necessary to detect rents in the wire or defects in the wooden frame work.

How Malaria is Transmitted ?

Mosquitoes generally live for several months, but more commonly from one rainy to another rainy season. As mentioned earlier, it is only the female anophelines that are responsible for the transmission of malaria,

because the male mosquito cannot obtain a blood meal under natural conditions, and their proboscis is not able to pierce the skin.

Although there are three distinct malarial parasites, namely, the benign tertian, the malignant tertian and the quartan having different microscopic appearances and clinical manifestations, yet the life history of each of these parasites is the same. There are two phases in the development of the malarial parasite, namely, the sexual cycle in the mosquito and the asexual cycle in man. How these cycles are completed in the man and the mosquito is known to physicians practising in the tropics, and I need not describe them in any detail. Three conditions are necessary for the transmission of malaria : (1) A reservoir of infection, (2) Anopheline species of mosquitoes capable of transmitting malaria and (3) climatic conditions to allow the mosquito to live long enough to allow the completion of the sexual phase, which takes about two weeks.

Acknowledgment

My thanks are due to my Chief Medical Officer for his guidance in the preparation of this short paper.

(A paper read in the monthly meeting of the Tingri Valley Branch of the A.-I. M. L. A., on 29-12-1940.)

Pink Disease (Endothro-œdema Vegetative Neurosis)

● Dr. A. V. S. Sarma, M.B., B.S., D.C.H. (Lond.)
(Govt. Stanley Hospital, Madras)

Swift first described Pink Disease in Australia in 1914. The disease is either due to an unknown infection or some dietetic deficiency. Findlay and Stern have produced in rats a condition analogous to Pink Disease by means of a diet in which the sole source of protein was egg-white. Though pellagra may stimulate Pink Disease, Trowell stresses on the combined therapeutic utility of marmite and liver in pellagra while either one may be relevant in Pink Disease.

This disease occurs in children between four months and four years.

Peripheral neuritis and lymphocytic infiltration of the cord have been recorded by *post-mortem* examination.

The following is a record of a case deserving the diagnosis of Pink Disease.

PONNUSWAMI, a male child, aged 4 years, Hindu, non-brahmin, admitted on 6-11-1940 for dropsy of one month's duration and discharged against medical advice on 21-12-1940, in a state of terminal gastro-enteritis. The father and mother are victims of migraine and asthma respectively. The previous history of the child is interesting in that he was breast-fed till about the end of the 3rd year. The dietetic supplements were rice, pepper water, *iddli*, *dosai*, *appam* and eggs ; the last one being the only source of quality protein. The child had diarrhoea even a month prior to his admission into the hospital.

On examination the child looked miserable, shunned light, and lay in bed on one side in an attitude of complete flexion. Walks on broad base when compelled to walk. Slight conjunctivitis and stomatitis present. The extremities were cold and swollen, the œdema being non-pitting in nature. The skin did not appear pigmented and was seen scaling over. Liver and spleen not enlarged. Heart—rapid and feeble. Lungs—slight diffuse congestion. Photophobia present. Cranial nerves not impaired. Abdominal and cremasteric reflexes brisk on both