

251

MEDICO, SURGICAL, SUGGESTIONS

VOL -VI

NO. -12

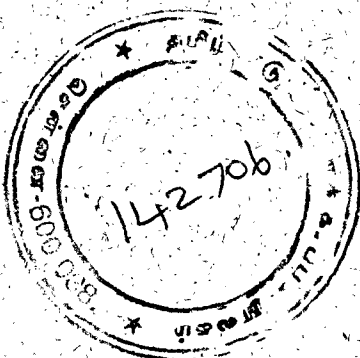
DEC 1937

JL

L: 417m N31M0.

N37.6.12

142706.

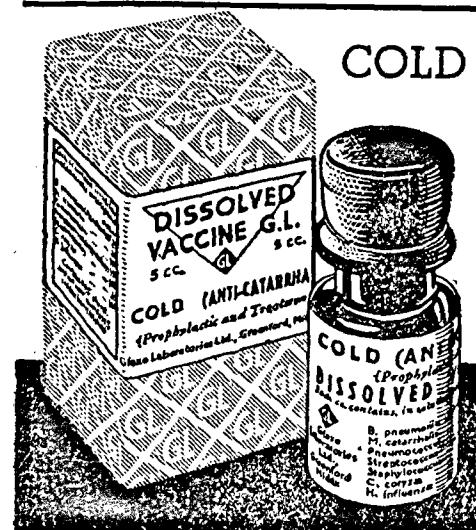


MEDICO-SURGICAL SUGGESTIONS

Vol. VI.

DECEMBER 1937

No. 12.

Verified
M


COLD (ANTI-CATARRHAL) DISSOLVED VACCINE G.L.

For Prophylaxis

0.5 c. c., followed by three doses
0.1 c. c., at 5 or 7 day intervals.

For Treatment

0.25 c. c., followed by 0.5 c. c., on
the next day. To be repeated at
the discretion of the physician.

GLAXO LABORATORIES LTD., GREENFORD, MIDDLESEX, ENGLAND.

Indian Representatives: H. J. FOSTER & CO., LTD.,

P. O. Box 202, Bombay, P. O. Box 2257, Calcutta, P. O. Box 108, Madras

PRODUCT OF THE
GLAXO LABORATORIES

GL

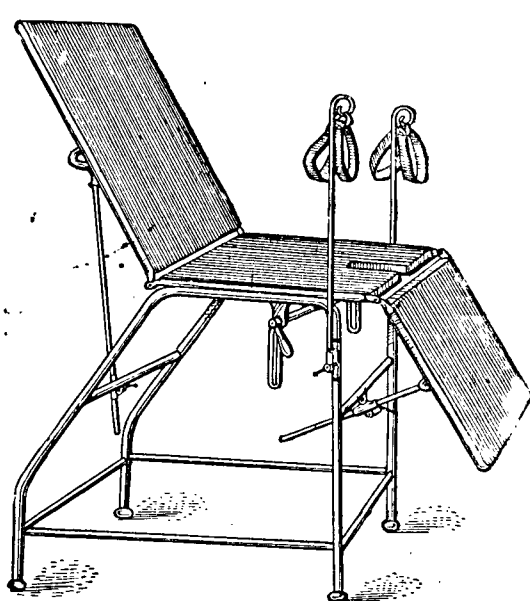
Mixed Influenza Dissolved Vaccine is also available. Details on request.

HEBBAR BROTHERS, LTD.

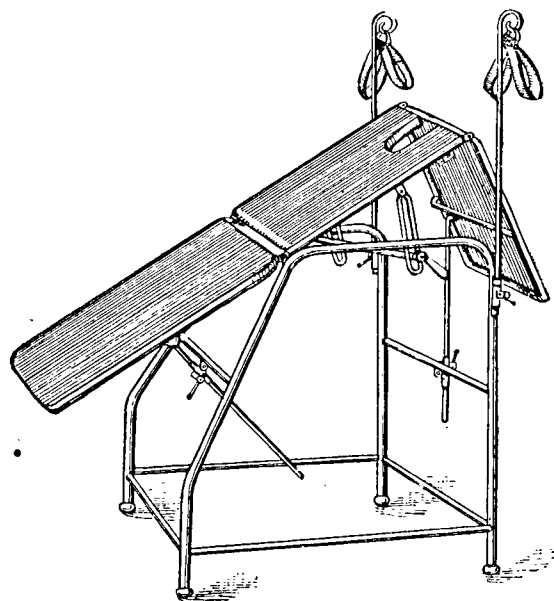
FOR

Aseptic Hospital Furniture.

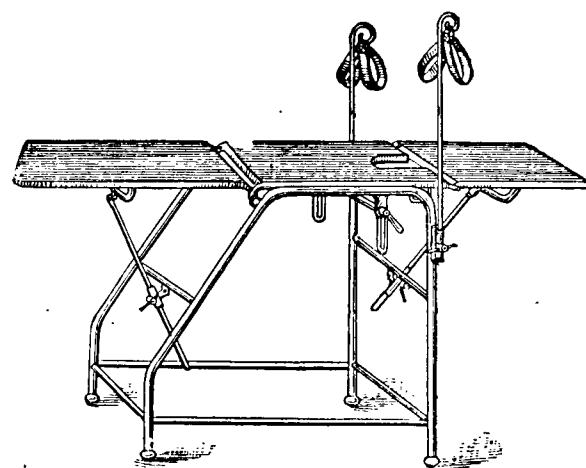
DEPENDABLE OPERATION TABLES.



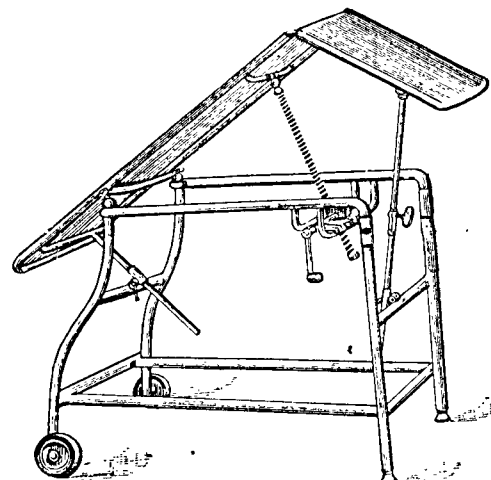
Popular Model as Examination Chair.



Popular Model in Trendelenburg Position.



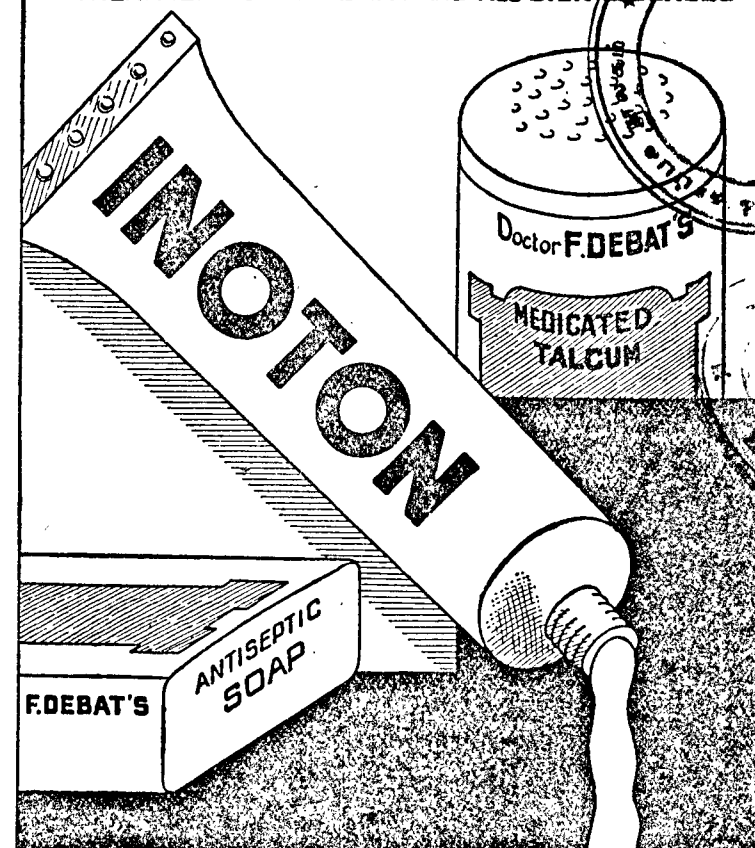
Popular Model: Open out Flat.



1937 Coral Model.

246, Thambu Chetty Street, G. T., Madras.

TREATMENT OF ECZEMAS AND ALL SKIN DISEASES



INOTON OINTMENT

(French Government Laboratory, Control No. 482-4)

COMPOSITION

Primary: Sulpho Schistol, Titanic Oxide, Colloidal Ortho Titanic, Secondary Active Principles: Distilled Extract of fresh Hamamelis, Zinc oxide.

INDICATION

All forms of Eczemas, Ulcers, Pruritus, Burns, Itonic wounds, Irritations and lesions of the skin, All sorts of inflammations.

Incorporated in an excipient with marked smoothing and decongestive properties.

INOTON

French Government Laboratory
Control No. 482-60

ANTISEPTIC SOAP

Made from purest ingredients!
Contains powerful antiseptic!!

**Keeps the skin free
from germs !!!**

INOTON

French Government Laboratory
Control No. 482-5

MEDICATED

TALCUM

**Recommended for Babies
and Children !**

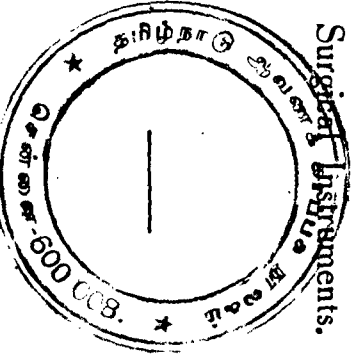
Also for :—

PRICKLY HEAT, DHOBIS ITCH, SORES OF THE FEET, CHAPPED SKIN AND SUNBURNS

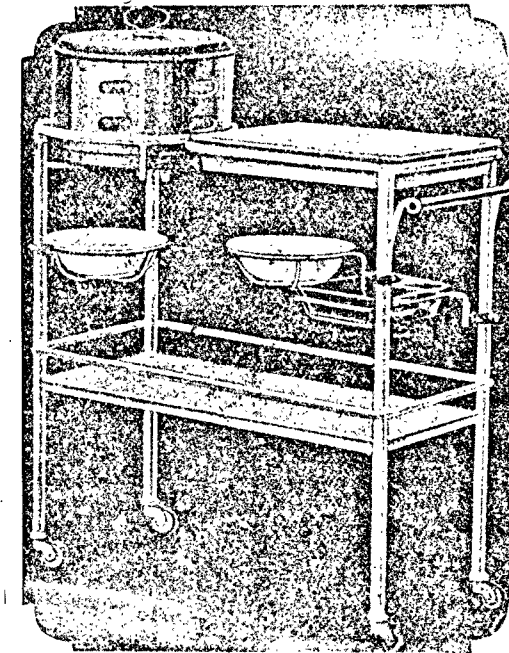
Sole Agents :—**French Medicines Agency,**
Post Box No. 88 Madras.

When ordering please mention *Medico-Surgical Suggestions.*

ANASTIL FORTE
ANASTIL
 NEGATIVE PREPARATION OF PLE-GUACOL SOLUBLE IN WATER
 IN CASES OF
 BRONCHOPNEUMONIA
 ACUTE & CHRONIC BRONCHITIS
 ABSCESS OF THE LUNG
 BRONCHIECTASIS
 EXERCISING A STRONG
 SECRETOLYTIC AND
 SECRETOMOTOR
 EFFECT
 Manufactured by VIAL & UHLMANN, INH. APOTH. E. RATH, FRANKFURT-M., GERMANY. Sole Agents for India, Burma, Ceylon:
ALLIANCE MERCANTILE CO. 65, New Hanuman Lane, BOMBAY 2.

Please Consult us
 FOR
 Aseptic Hospital Furniture,
 Surgical Appliances and
 Surgical Instruments.
HEBBAR BROTHERS LTD.,
 246, Thambu Chetty St.,


When ordering please mention *Medico-Surgical Suggestions.*



Special combined dressing drum and instrument table, made of steel tube, enamel painted with arrangements to take a large tray for instruments and two enamel basins and a smaller tray, with two glass shelves, fitted on cone bearing, rubber tyred castors.

If fitted on ball bearing steel cupped, rubber tyred castors—Extra.

HEBBAR BROTHERS LTD.,

MANUFACTURERS OF
 SURGICAL INSTRUMENTS AND ASEPTIC HOSPITAL APPLIANCES,
 IMPORTERS OF ELECTRO-MEDICAL APPARATUS.

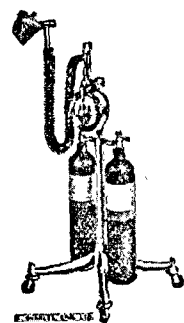
246, THAMBU CHETTY STREET, G.T. MADRAS.

When ordering please mention *Medico-Surgical Suggestions.*

(257)
 JL
 2:4:50
 N3110
 N37.6.12

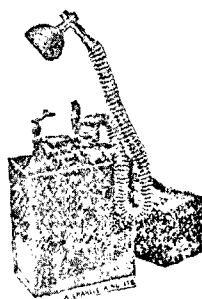
Telegram: "SPLINTWORK"

Phone 42135.



Hospital Model.

To relieve pain during labour without any after-effects. Administer Analgesia by Dr. Minnitt's Gas-Apparatus.



Portable Model.

For further particulars apply to:—

Sole Distributors

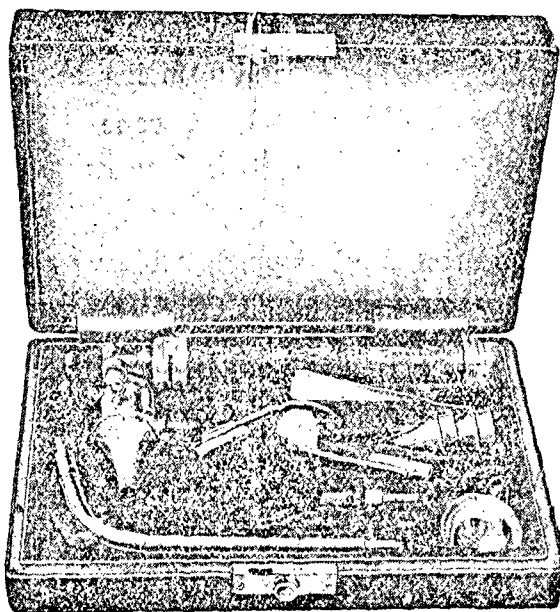
INTERNATIONAL SURGICAL CO.

SANDHURST ROAD

::

BOMBAY 4

Tele { Phone : 24114 (2 Lines)
Grams : 'ELECSTORES'



— Most Reliable
Surgical House —
for
Medical Students and
Practitioners.

Stockists of :
Surgical, Medical & Electrical Apparatus and **ERKA**
Stethoscopes, Blood-Pressures, Diagnostic set
for Eye, Ear, Nose & Throat
purpose, Quarza **ULTRA**
Violet Lamp and other
Varieties.

Concession for
Medical Students.

Dissection sets can be had
at Moderate Rates.

Please refer to:—

**National Surgical
COMPANY.**

Oomarigar Building,
80/82, Lohar Chawl,
BOMBAY 2

When ordering please mention *Medico-Surgical Suggestions*.

MEDICO-SURGICAL SUGGESTIONS

A MONTHLY JOURNAL OF PRACTICAL MEDICINE & SURGERY

Editors : Dr. K. P. Rama Hebbar & Dr. P. R. Venkappaya.

VOL. VI

DECEMBER 1937

No 12

CONTENTS

ARTICLES—

Management of Intractable Asthma—By Charles S. Kibler, M.D. ...	353
Problems of Pneumothorax Therapy—By Jacob J. Mendelsohn, M.D. ...	358
The Treatment of Empyema Complicating Artificial Pneumothorax—By Jerson R. Head, A.M., M.D. ...	364
Social Revolution in Medical Profession ...	367
Recent Studies of the Etiology of Epidemic Influenza—By F. F. Tang ...	371

EXTRACTS ...	378
--------------	-----

MEDICAL NOTES AND NEWS ...	382
----------------------------	-----

Annual Subscription : Rs. 5 ; foreign : 10 sh.; Single Copy : As. 8.

Sample Copy for 4 As. Stamps.

Office of the Editors & Publisher : 246, Thambu Chetty St., Madras, India.

NOTICE

Original articles, case reports, and other topics of medical interest are cordially invited, and are accepted only with the distinct understanding that they are contributed exclusively to *Medico-Surgical Suggestions*. Manuscripts should be type-written, with double spacing. All communications in regard to editorial business, books and journals for review and exchange, samples of drugs and instruments, etc., should be addressed to the Editors. Authors desiring reprints of their articles published in the Journal should specify the same at the time of forwarding them. The Editors accept no responsibility for views expressed by contributors.

All business communications relating to subscriptions, scale of charges for advertisements, orders for copies of the Journal, etc., should be addressed to the Manager, *Medico-Surgical Suggestions*. Only approved advertisements will be admitted, and the Manager reserves the right to exclude any advertisement which is against medical ethics.

CALCIONATES

CALCIUM THAT IS ABSORBED

The daily adult requirement of calcium amounts, according to highest authority, to 0.45 gramme (7 grains) per day. It can be predicted that the intake of a very large proportion of patients is far below this requirement. Our great interest in cod-liver oil, violet-rays, vegetable diets, etc., should not blind us to the fact that after all they contain little or no calcium. The satisfactory use of lime requires a number of considerations such as (1) acidity of the upper bowel, (2) alkaline metabolic end products, and (3) a balanced administration of phosphorus, magnesium and alkaline bases. These considerations are fully met in

CALCIONATES.

Three teaspoonfuls = the lime of 1 pint of milk.
Calcionates is available in 4 and 8 ounce bottles.

CALCIUM
GLUCONATE 15 grs.
FLAVORED WAFERS

The candy-like palatability combined with the pleasant flavour make it a highly acceptable means of furnishing a dietary supplement of CALCIUM where the physiological requirements are unusually large as for growing children, pregnant or lactating women, or for frank calcium deficiency.

Dose:—1 or 2 wafers 3 or 4 times a day according to age. To be chewed like candy.

Supplied in bottles of 60 wafers

DIOSTATE
[Formerly BONE PHOSPHATES]
FLAVORED LOZENGES

The candy-like palatability combined with the fact that three lozenges produce the CALCIUM and PHOSPHORUS of an average quart of milk make them eminently suitable as a dietary supplement in the management of conditions associated with calcium-phosphorus deficiencies or unusual demand for these elements.

Three wafers provide the calcium and phosphorus of 1 quart of milk, and in the same ratio as found in milk.

Supplied in ½ lb. bottles.

Manufactured by:

THE UPJOHN COMPANY, U.S.A.

Sole Agents:

T. M. THAKORE & CO.
43, Churchgate St.,
Fort, Bombay.



Branches:

5, Sunkurama Chetty St., Madras
12, Dalhousie Square - Calcutta
123, Bunder Road - Karachi
124, Anarkali - Lahore
965, Tseekai Mg. Taulay St. Rangoon

When ordering please mention *Medico-Surgical Suggestions.*

MEDICO-SURGICAL

SUGGESTIONS

VOL. VI

DECEMBER 1937

NO. 12

MANAGEMENT OF INTRACTABLE ASTHMA.

CHARLES S. KIBLER, M.D.

Tucson, Arizona.

The medical profession has no reason to be proud of its accomplishments in the treatment of bronchial asthma even though it has been about 20 years since we recognized that asthma is due to sensitizations to foreign protein.

I. Chandler Walker was the main contributor to this pioneer work. This lack of success is not due to a paucity of interested investigators in this branch of medicine, as evidenced by the growing attendance at the meetings held each year that are devoted exclusively to allergy. As yet, it has not been settled as to the relative importance of each causative factor—that is, whether there is a true bacterial type of asthma or whether all asthma is due to sensitization to foods or inhalants. One school inclines to one view, another to the other. Until this question is settled we must have open minds and consider both the bacterial factor and the true atopic factor as possible causes.

Extensive work has been performed to discover the inherent underlying cause of the allergic state without bringing much light to this baffling subject. We are indeed recognizing that allergy is a much more common condition than we thought it was 10 years ago.

By far the most distressing type of allergy is bronchial asthma in its most persistent form—namely, intractable asthma. By intractable asthma we mean that severe form which persists more or less constantly and which does not respond to treatment. This form is all too common and usually represents asthma not of a few months but of years' duration.

The first step in management is to take a careful, detailed history with particular attention to the season of year the asthma originated and in what occupation or environment it started; we should know the earliest symptoms, as for example, whether chronic nasal irritation and discharge preceded the asthma, and whether asthma followed a definite process; we also should learn the relation of climate to symptoms, whether symptoms are worse in damp cold or damp warm weather, and whether relief is obtained by damp or dry climates, suggesting the importance of household inhalants, the pollen factor, and molds.

This information may give one a lead as to its cause ; as to whether it is probably food, air borne pollens, molds, or probably bacterial in type.

The general examination should include x-rays of the lungs and sinuses, lipiodol x-rays of the bronchi, a careful examination of the nasal sinuses by a nose specialist, a metabolism test, and observations as to endocrin imbalance. All to frequent an allergist is too casual in his general examination and overlooks valuable information which can be obtained if it is searched for.

We feel that it is unsafe to perform intracutaneous tests without first preceding them with scratch tests. Several fatalities have resulted in failure to do this. Skin testing must include all pollens in the environment, all the commoner foods, all inhalants, as well as yeasts and molds. When this work is completed one must not feel that the results are conclusive ; though positive skin tests are suggestive of the etiological factors they do not necessarily represent clinical sensitizations. Skin tests to foods are most unreliable for we may have clinical sensitization with negative skin tests even though a skin reacts to other substances. This fact is the reason elimination diets are useful and usually necessary. So when one has completed skin testing it is necessary to correlate these tests with the history and clinical findings. To put too much reliance on skin tests is a pitfall to be avoided. Use them for what they are worth but they are not infallible.

1. Elimination diets, first advocated by Rowe, are well known. At least a 2 weeks trial is needed to come to any conclusion in this regard and frequently it is found that a month trial is necessary. Food allergy is frequently overlooked for this reason.

2. The leukopenic index often gives immediate information as to an offending food and is relatively simple to perform. To be diagnostic there must be a drop in leukocytes of 2000 following the ingestion of a food. It is desirable to perform this test on the most important foods—namely, wheat, milk, eggs, beef, potatoes, and orange juice.

3. Food diary in which is recorded each article of food at every meal so one can look back and try to account for flare-ups of asthma by blaming individual foods that were ingested.

Treatment of skin insensitive case : However, quite frequently all skin reactions are negative. This must not be interpreted as meaning the asthma is due entirely to bacterial sensitization but further study is necessary. Here it is useful to use inhalation tests with the inhalant type of antigens as epidermals, and pollen antigens. A small amount of dry antigen can be instilled in the nose or eye or it can be given in a liquid form. Frequently definite positive reactions are obtained, explaining the cause of asthma by this method

Another useful method is intramucosal testing—injecting the antigen in the mucosa of the nose, the same as intradermal testing, as described by Dean, Linton and Linton (*Annals of Otology, Rhinology and Laryngology*, June, 1935).

If these methods do not result in a definite explanation of the continuation or symptoms, it is desirable to use desensitization to all inhalant antigens to which a patient is in contact.

As a rule, these antigens are not many if the room in which the patient lives is properly prepared. They are usually only cotton, wool, or other necessary articles of clothing and bed coverings, but also must be included housedust and the common molds. During the pollen season the prevailing pollens must also be used. This method was first used by Kahn in regard to pollens but it is also useful with other inhalant antigens in the immediate environment of the patient. Usually this desensitization is not difficult as treatment can be given rapidly, being guided as to dosage by an aggravation of asthma rather than skin reactions.

As to bacterial sensitization, we do not believe this type of sensitization is as common as formerly thought to be. Yet it should be given a trial if other methods fail. It is well to culture nasal secretion, bronchial secretion, pus from sinuses, stools, or any other obvious source of bacterial infection. We use a composite mixture of these bacterial vaccines with little regard to whether or not they produce delayed reactions by intradermal testing. We think that the initial dosage should be very small, 1/10,000 of a c.c of a 1 per cent vaccine strength and proceed very cautiously. If an aggravation of asthma results from any injection the next dose should be 1/10 of the previous dose and then increased very gradually. We consider intravenous injection of vaccines too dangerous a procedure. Failure to derive benefit from vaccine therapy may well be due to over dosage. If using desensitization therapy the dosage should be extremely small, given frequently and gradually increased.

Allergen-free Room : Every asthmatic should have his mattress covered with an allergenproof cover and have pillows of a non-allergic material. There are many on the market. The bed clothing and bed coverings must be of long staple cotton. The room must be so arranged that the floors can be mopped and gone over with dust mop frequently. Rugs and curtains are to be of cotton and washed weekly to avoid mold growth. The clothes of the attendant as well must be of cotton material. The possibility of asthma due to molds can be minimized in this way.

No allergic study is complete without a period of isolation in an allergen-free room with filtered air circulation for at least 5 to 7 days.

Recently it has been found that a person may be sensitive to old cotton lintens or old long staple cotton when there is no reaction to new cotton lintens or new long staple cotton.

Sensitization to drugs : Drug sensitization must be borne in mind. The commonest sensitization is to aspirin—perhaps because it is the most common medication used. Next in importance is the coal tar group as amidopyrine, phenacetin, acetanilid, and others. However, it must be borne in mind that practically no drug or substance is known to which a patient is not occasionally sensitive, even ephedrine or adrenalin. Perhaps the safest drugs are sodium iodide, sodium bromide and the opiate group. It is well to limit medication sharply and bear in mind that the remedy may aggravate the asthma.

Sinus operations : An allergic nose is a fertile field for sinusitis to develop in and contrawise sensitizations are more apt to develop in noses with poorly draining sinus infections. There is still controversy as to which is first—sinusitis or allergy. The importance of sinusitis as a cause of asthma is still an open question. It is certainly true that washing out a maxillary sinus containing pus frequently relieves asthma. Our feeling is that most sinus operations do not benefit asthma and that radical surgery should be a late rather than an early treatment. In other words, everything else should be tried first. One should not expect to derive benefit from radical sinus surgery in a short time. Any benefit ensuing from these operations usually requires 6 months to a year. Radical sinus operations are more likely to result in better nasal ventilation than actual relief from asthma.

Radium therapy in recent years has been used in the nose for chronic sinusitis associated with allergy, or in allergy alone, to relieve hyperplastic nasal mucosa and polypoid degeneration with considerable success. Needless to say, however, it is a procedure to be used only by well trained and experienced physicians as over-dosage may produce undesirable atrophy and other permanent damage. Radium is probably safer than zinc ionization.

Non-Specific treatment : It is well to bear in mind that pulmonary emphysema entirely independent of bronchial asthma and a decompensated heart resulting in pulmonary congestion from failure of the pulmonary circulation may give dyspnea and wheezing which is actually relieved by adrenalin by hypodermic injections or inhalation or by ephedrine sulphate by mouth. Recognition and treatment of cardiac failure will relieve this condition. It is embarrassing to be found treating a decompensated heart with asthma methods.

All too frequently all these methods fail to relieve severe prolonged asthma and we are obliged to resort to methods of a non-specific nature to at least obtain temporary benefit.

Complete bed rest combined with intravenous injections of 31 grains of sodium iodide and a pure carbohydrate diet is often helpful—the latter consisting of a pure carbohydrate as dextrin given in a

10 per cent watery suspension. Iodized oil instillations in the bronchial tree sometimes are of benefit.

Oxygen administration for the more severe conditions gives relief even given temporarily by nasal catheter or continuously by a nasal shield made of celluloid.

I can not concur in the advice of some that opiates are too dangerous and harmful to use. I am afraid that those loudest in condemning morphine are obliged to use it in spite of their opinion of its harm. We feel that its judicious use is often life saving.

Iodized oil : Iodized oil instillation into the bronchial tree as a non-specific treatment has been carried out by Balyeat for several years. He reports this beneficial. We have had no experience in this form of therapy.

Artificial fever therapy : Even a casual observer has noted a remission of asthma from 2 to 4 weeks following an infection accompanied by fever of 101° or over. A fever of 102° or even more may not eliminate asthma promptly, however, for it may continue severely even with this amount of pyrexia. Usually, however, fever is beneficial and artificial means of producing this condition have been used. Under of Chicago reported a series of cases treated with the Kettering diatherm with indifferent success. This past winter we have used sulphur in oil injections into the thigh muscles as a means of producing fever. We have found that the temperature can be satisfactorily controlled either by the amount of the injection or by applying blankets and external heat. Fever initiated by this method usually lasts 36 to 48 hours. It gives a painful leg, lasting for several days, which is benefited by moist heat. No permanent damage to muscle tissue results. I have given 4 injections in the same area without harm. The results of this method of treatment have been encouraging; in the majority of cases a marked remission of asthma has resulted corresponding in duration to the benefit derived from an infectious fever. One advantage of this method of fever therapy is that it is simple and easy, not requiring special nurses.

We consider vaccines given to initiate fever as unsafe. A less dangerous physical method is the hot blanket and baker system.

Ether and avertin : In desperate cases one is often obliged to use anesthetics to give temporary benefit even for a comparatively few hours. Ether in olive oil, 1½ ounces of each by rectum, usually induces moderate anesthesia. Avertin by rectum, given in approximately 1/10 to 1/4 of an anesthetic dose every 4 hours, gives even more benefit than does ether in oil—the latter having a disagreeable aftermath due to the objectionable odor of ether that remains.

Sodium bromide and chloral hydrate are by far the safest mild sedatives and can be used with decided benefit in fairly large doses

to the point of drowsiness. Asthma in general is reduced by any sedative drug.

Allergic resistance: Now, in closing, a word about allergic resistance. By this term we mean a building up of a certain something enabling the subject to fail to respond with clinical allergy to offending substances even though he shows positive reactions. This resistance can be built up by desensitization but as well it can be raised by any measure increasing bodily vitality or general health.

It is common knowledge to instructors in boys schools in the Southwest and elsewhere that after a time of simple out-of-door living, pupils lose their clinical sensitization to foods and inhalants until they no longer need to avoid these offending substances.

It is advisable, unless there are contra-indications, to have a patient on a nourishing, well-balanced diet, high in vitamins for too much dieting may diminish resistance to other allergens aside from foods.

Perhaps this so-called allergic resistance is really resistance to infection rather than an intangible something we can not define and that sunlight, open air, regular living, and even building up of vitality in general is simply increasing our protection against infections as well as hypersensitivity to bacteria.

(*South Western Medicine*, June 1937.)

PROBLEMS OF PNEUMOTHORAX THERAPY

JACOB J. MENDELSON M. D.

Chicago.

Reviewing the history of pneumothorax therapy, we find that its value in the treatment of pulmonary tuberculosis, was slow in receiving general recognition. Favourable reference to the procedure by so strong a personality as John B. Murphy in 1898 was apparently too premature to create any great amount of interest in its therapeutic application. As late as 1929, in an address before the American Association for Thoracic Surgery, in a discussion of induced paralysis of the diaphragm, the statement was made that "pneumothorax properly induced and repeated will provide an inconstant reduction in intrapleural negative pressures. It creates a lesion, a cavity filled with an irritating gas. Instead of effecting a natural and dangerless adaption, it imposes an abnormal state, not without danger, that is less beneficial."

The present regard for pneumothorax therapy as contrasted with the indifference toward its value for so long a period is of more

than passing interest. Why this procedure which frequently lends itself so ideally to the cure of pulmonary tuberculosis, should have been so tardy in receiving general acceptance, may in a measure be evident upon consideration of the problems involved in its successful application. Their manifold and complex character and the difficulties attending their satisfactory solution are familiar to the phthisiotherapist. The present status of pneumothorax treatment is based upon a better understanding of these inhibitory factors, increased knowledge of which may serve to further enhance its therapeutic possibilities.

Indications for Pneumothorax Therapy. The tendency to limit the indications for pneumothorax therapy has been largely responsible for its failures. Originally employed in unfavourable cases, recent years have witnessed a more liberal attitude toward its use. Delay in its application continues to retard its therapeutic potentialities.

A definite diagnosis of active pulmonary tuberculosis should demand early consideration of pneumothorax in the plan of treatment. In the presence of positive sputum or repeated hemoptysis there is a little point in waiting to see whether an active lesion will recede or advance or if a cavity will decrease in size. The observation that some patients improve without the benefit of pneumothorax is not an adequate reason to delay its application. A wealth of statistic confirms the fact that conservative measures in patients with positive sputum fail to compare in any manner at all favourable, with the results of this type of lung compression.

With the exception of chronic fibroid tuberculosis, bilateral bronchopneumonia and miliary involvement, pneumothorax offers the patient the best chance of cure both in unilateral and bilateral involvement. The striking results not infrequently observed in the latter type of cases, even in the presence of advanced cavitation constitute an outstanding achievement in therapy. Its prompt use in unilateral tuberculous pneumonia may be a life saving measure.

Limitations. Pneumothorax has its limitations. No free pleural space may be found. In the greater number of patients the character of the collapse is only partially satisfactory and in many instances of no definite value from a therapeutic standpoint. Its use does not permit exclusion of the conservative measures which have proved to be of value.

The use of pneumothorax in the individual patient must of necessity depend upon the judgment of the clinician. Differences of opinion exist with regard to the advisability of its application in exudative lesions in the absence of cavity formation. The importance of these divergent views lies in the fact that air induction is in many instances delayed to the disadvantage of the patient. It has been often observed that x-ray plates taken immediately after

pneumothorax reveal that a lesion regarded as purely exudative shows definite areas of cavitation.

Pneumothorax therapy has no place in the presence of circulatory or respiratory involvement associated with more or less permanent dyspnea. While the presence of severe complications such as advanced laryngitis, enteritis and genito-urinary disease may contraindicate its use, we not infrequently observe a salutary effect upon these conditions. I might state that patients under pneumothorax treatment are apparently less prone to develop the complications mentioned.

Progress in the Untreated Lung. The effect of pneumothorax on the untreated lung is problematical. No definite changes are apparent, involvement, especially in old chronic cases, a decided improvement may occur in the other lung. In relatively few patients, usually in the presence of an unsatisfactory collapse and more often in bilateral cases, the progress in the untreated lung is unfavourable. It is difficult to analyze the factors controlling the phenomena in the contralateral lung in the individual case. In some instances the unfavourable manifestations appear almost immediately; in others they may be long delayed. It is questionable whether pneumothorax itself has any direct bearing upon the development or the progress of the disease in the untreated lung.

Adhesions. The problem of adhesion formation is closely interwoven with the success or failure of pneumothorax therapy. Adhesions not only interfere with favorable lung compression, but constitute the chief cause of the complications which may develop during treatment. Adhesions are found in the majority of patients treated. G. L. Stivers in a recent article presents an insight into the problem of adhesions and their role in preventing satisfactory artificial pneumothorax. He summarizes the average results of compression in 100 cases as follows:

- 10 cases—complete collapse—satisfactory.
- 10 cases—selective collapse—satisfactory.
- 20 cases—partial collapse—eventually may be satisfactory.
- 20 cases—incomplete collapse—unsatisfactory—pneumothorax given only to prolong life.
- 15 cases—unsatisfactory collapse—unsuitable for intrapleural pneumolysis—other surgery indicated.
- 3 cases—accepted for intrapleural pneumolysis but found unsuitable at time of thoracoscopy.
- 22 cases—declared appropriate by thoracoscopy for intrapleural pneumolysis.

These statistics show that at least 60 per cent of patients were unable to benefit by pneumothorax alone and that adhesions constituted a problem in about 80 per cent of cases.

The favourable results of pneumothorax therapy in the absence of adhesions as contrasted with the limitations of the procedure in their presence, have given impetus to the development of pneumolysis, the discussion of which is not within the scope of this paper.

It would seem desirable to consider the question of interference by adhesions from the stand-point of prevention as well as treatment. The fact that most patients are far advanced when a diagnosis is made, combined with the frequent delay in the application of pneumothorax, may have an important bearing on the problem. Adhesions have had ample time to become firm and well organized. Earlier diagnosis or at least early use of pneumothorax would tend to favourably influence the situation. A relatively short period of waiting may determine the difference between an adhesion which will stretch sufficiently to permit of a satisfactory collapse and one which will not.

Cavities located in the periphery of the lung should be collapsed at once. Their marked tendency toward adhesion formation and the likelihood of these adhesions to interfere with satisfactory compressions as the cavity increases in size has been often observed. Thin walled cavities located near the pleural surface are always accompanied by a localized pleuritis. The thickened pleura may mask the outlines of the cavity so that an x-ray plate taken subsequently may leave the impression that the cavity has healed, only to reveal in later films that the observation was incorrect and that cavitation has progressed. The pleural adhesions have had ample time to become well organized and compression is not only impossible but dangerous.

A more radical attitude towards the use of pneumothorax before cavitation has occurred may minimize the possibilities of interference by adhesions. A moderate collapse may be sufficient under such conditions to obtain a favorable result. This may be accomplished even in the presence of thick well organized bands. With cavitation, however, compression must permit of cavity closure to attain the desired result. It is here that adhesions play an important role. The larger the cavity, the greater the possibility of failure resulting from progressive adhesion formation.

The handling of adhesions which prevent a satisfactory collapse is a delicate matter. High tension pneumothorax should as far as possible be avoided. It is the chief cause of complications which often terminate fatally. In the absence of positive intrapleural pressures, when adhesions prevent the proper compression of a cavity it may be advisable to continue air induction for a period of three months before direct treatment of the adhesions is undertaken. If adhesions prevent cavity closure it is unwise to continue pneumothorax indefinitely. Supplementary measures must be employed to facilitate compression.

Pleural Exudates. Serous exudates are usually observed during pneumothorax treatment. As a rule the amount of fluid is insufficient to cause respiratory embarrassment and the constitutional symptoms are relatively mild in character. As long as there is a negative pressure in the pleural cavity, air should be administered, regardless of the effusion. If the intrapleural pressure becomes neutral or positive the fluid should be removed and replaced by air. The tendency not to disturb large effusions in the absence of symptoms or discomfort based upon the idea that they maintain compression the same as air, may interfere with the success of the treatment. A thickening of the pleural surfaces with gradual absorption of the exudate may mask the expansion of the compressed lung, leading to an obliteration of the pneumothorax cavity.

Acute tuberculous pleurisy is a serious complication. The high fever and other constitutional symptoms may continue for many weeks to the marked disadvantage of the patient. Removal of the fluid is usually followed by improvement which, however, may only be transient in character. The condition usually terminates in pyopneumothorax. If the pneumothorax cavity does not communicate with a bronchus, the course of the latter condition is frequently favourable. Removal of the purulent exudate and the injection of small amounts of sterile olive oil has been followed by recovery. If a bronchial fistula is present the situation is more difficult.

I shall not discuss the question of endogenous or exogenous infection in connection with pleural exudates except to state that the probabilities are, that these conditions are endogenous in origin, and that high tension pneumothorax, whether due to the administration of excessive amounts of air or undue strain upon adhesions may be a factor in their cause.

Technic. It is not my intention to elaborate upon the fundamentals of pneumothorax technic aside from discussing its possible relationship to the occurrence of pleural shock, air embolism, spontaneous pneumothorax and surgical emphysema. A proper appreciation of the elementary principles of pneumothorax administration should accomplish much in the elimination of these hazards.

A cautious and deliberate approach along with the generous use of local anesthesia is essential in every case. Every effort should be made to render the procedure painless, beginning with an intradermal wheal and continuing with a slow infiltration of the deeper tissues until the parietal pleura is anesthetized. The syringe should at all times contain novacaine solution. The free entry of air into the syringe is at once apparent and the basis of any interference easily determined. Adherence to this simple method of thoracentesis will in the majority of instances eliminate the syndrome of circulatory collapse ascribed to pleural shock and will materially lessen the possibility of air embolism. It would seem

unnecessary to advise that no air be given unless the manometer shows a definite and repeated negative excursion of at least three c.m. of water. The several cases of air embolism which I have seen, occurred in connection with an attempt to induce a little air in the absence of a definitely negative reading.

With the exception of treatment of hemoptysis it is desirable to administer small quantities of air at frequent intervals rather than large amounts. A positive manometer reading even in the presence of a good negative pressure should always be regarded as a danger signal. Positive pressures may mean tension on adhesions, and tension on adhesions may result in tears of the lung with consequent air embolism or spontaneous pneumothorax and its resulting complications.

Factors concerning the efficiency of pneumothorax must be recognized and carefully evaluated. In this connection, frequent fluoroscopic examinations and x-ray plates are indispensable. The basis of symptoms arising during treatment should be ascertained. They may be the forerunners of serious complications.

Under satisfactory circumstances, pneumothorax should be continued for at least 3 years. In a previous publication, I stated that "artificial pneumothorax once established, should be maintained as long as the pleural space permits of the injection of air under negative pressure." I am still inclined toward this opinion.

CONCLUSIONS

Pneumothorax when applicable is the most desirable and efficient method of lung compression. Its prompt use in positive sputum cases and in repeated hemoptysis due to pulmonary tuberculosis should be encouraged.

Tardiness in its use has been largely responsible for its failures.

Early diagnosis and the early use of pneumothorax will favorably influence the solution of the problem of adhesion formation and its interference with satisfactory lung compression.

Careful and painstaking technic will avoid many accidents and complications.

The phthisiotherapist is now in position to offer a constructive plan of treatment in the individual case as well as an improved prognosis. This has resulted from the wider appreciation of the therapeutic value of pneumothorax therapy and other methods of lung compression developed as a corollary to its use.

(Illinois Medical Journal, June 1937).

THE TREATMENT OF EMPYEMA COMPLICATING ARTIFICIAL PNEUMOTHORAX.

JEROME R. HEAD, A.M., M.D.

Chicago.

Next to air embolism, empyema is the most serious complication of artificial pneumothorax. In spite of the most painstaking technique, it develops in a sufficient number of cases to make its treatment an important and ever recurring problem.

In considering the therapy of any disease it is well to bear in mind the objective which one wishes to reach. In every instance this is cure, but cure by the simplest and safest means and with the least permanent impairment of function. The disease which we are discussing to-night is a complication of a treatment of pulmonary tuberculosis and, in this instance therefore, we must consider not only the empyema but the basic tuberculosis. Our object must be to cure the empyema as simply and safely as is possible, but in such a manner as to assure also the healing of the pulmonary disease and in the end to leave the patient with a maximum amount of functioning lung. How one handles the empyema must be determined in each instance by the condition of the lung.

Purulent effusions complicating artificial pneumothorax can be classified under three headings:

1. Tuberculous empyema without secondary infection.
2. Empyema with secondary infection, but without bronchial fistula.
3. Empyema with mixed infection and bronchial fistula.

Tuberculous empyema without secondary infection usually produces few symptoms. It is serious and demands treatment because in a very high percentage of cases bronchial fistula and secondary infection eventually ensue, and because always it leads finally to such thickening of the pleura that re-expansion of the lung becomes impossible.

Confronted with a patient with tuberculous empyema, one must first consider the condition of the underlying lung. If a satisfactory pneumothorax has been maintained for some time and the sputum has been negative, the complication is an indication for permitting the lung to re-expand. Repeated aspiration is all that is required.

If the pneumothorax is satisfactory but has been maintained too short a period to assure healing of the tuberculosis, one must aim to cure the empyema without sacrificing the collapse. This can be done either by aspiration and pleural lavage or by inducing an oleothorax. If the former course is pursued the fluid aspirated must be replaced by air. Oleothorax, I believe, should be reserved for the resistant cases. The pleural thickening which it produces prejudices the chances of re-expansion of the lung.

If the pleura is so thick the lung will not re-expand or if the pneumothorax is unsatisfactory—if a cavity is still open and the sputum still positive—in other words, if the condition of the lung is such as to warrant thoracoplasty, then thoracoplasty is indicated. It will cure both the empyema and the tuberculosis. When thoracoplasty is performed in the presence of pyopneumothorax, the pus and air must be aspirated before and after each stage. Otherwise, the collapse will be compromised and a dangerous positive pressure created in the pleural cavity.

Mixed infection of the pleural cavity is a much more serious complication than simple tuberculous empyema. In this, toxemia is usually marked and failure rapid and progressive. If there is no broncho-pleural fistula one must strive to sterilize the pleural cavity by aspiration and irrigation without resorting to surgical drainage, aspiration every day and lavage of the pleura with azechloramide or gentian violet solution.

If one fails in this, drainage must be instituted, and, regardless of the condition of the lung, every attempt must be made to secure its re-expansion and the obliteration of the empyema cavity. Closed drainage low in the axillary region is the procedure required, closed drainage because it permits the use of suction and favors expansion of the lung, and drainage in the axilla rather than behind so that the thoracoplasty, which will probably be needed, can be performed in a clean field. Usually one need be in no hurry to proceed with the surgical collapse. Occasionally the empyema cavity can be completely obliterated without it, in which case, if the tuberculosis is arrested, one's problem is very simply solved. In any case, the smaller the empyema cavity when surgery is finally resorted to, the less extensive will the procedure have to be. Obliteration of the whole pleural cavity by resection of ribs is difficult and deforming.

Empyema with mixed infection and broncho-pleural fistula presents the most difficult problem. It is particularly hard if the fistula and infection develop when the lung is not adherent, the pleura not thick, and the mediastinum still mobile. Under these conditions, the lung collapses completely. Closed drainage, suction and irrigations are impossible on account of the fistula and one is confronted with the necessity of establishing open drainage under conditions in which it is particularly contraindicated. I know of no satisfactory way of treating these cases. The problem of getting them into sufficiently good condition to go safely through a very extensive thoracoplasty is frequently insoluble. Closed drainage with frequent small irrigations (small enough so that the fluid will not reach the fistula) or open valvular drainage may be used. In spite of everything, the temperature frequently remains high and the patient goes steadily and rapidly downhill.

Empyema with fistula is a less serious matter if extensive adhesions have prevented a complete pneumothorax and the pocket is localized and fairly rigid. Open drainage is then definitely indicated. This is usually followed by a prompt fall in temperature and a gradual reduction in the size of the cavity. The fistula occasionally closes spontaneously. The patient's conditions is usually so good that thoracoplasty can be postponed until the cavity has ceased contracting. This may require a year or eighteen months. The time, however, is well spent, for the smaller the cavity becomes, the smaller the operation which will be required.

If the residual empyema cavity is small it may be closed by a local Schede operation. In all other instances, a typical posterior extrapleural thoracoplasty is required with axillary stages to permit complete removal of all the ribs. At the final axillary stage it is usually necessary to carry the incision into the drainage wound and perform a more or less extensive Schede operation with resection of the chest wall over the remaining cavity. This is the most deforming and incapacitating part of the operation. It necessitates section of the intercostal nerves, which produces a bothersome paralysis of the abdominal muscles, and it leaves a portion of the chest wall unprotected by ribs. Paradoxical respiration over the area may seriously reduce the vital capacity. In several recent cases I have been able to obviate this stage by re-establishing closed drainage and suction. After the chest wall has been collapsed by thoracoplasty the lung can frequently be drawn into opposition with it and the cavity thus obliterated.

SUMMARY.

1. Purulent effusions complicating artificial pneumothorax can be classified under the following three headings:

- a. Tuberculous empyema without secondary infection.
- b. Tuberculous empyema with secondary infection but without broncho-pleural fistula.
- c. Tuberculous empyema with secondary infection and broncho-pleural fistula.

2. Treatment of those conditions must aim to cure the empyema as simply and safely as is possible, but in such a manner as to assure also the healing of the original tuberculosis.

3. If the pneumothorax has been satisfactory and has been maintained for a year or more, re-expansion of the lung should be encouraged.

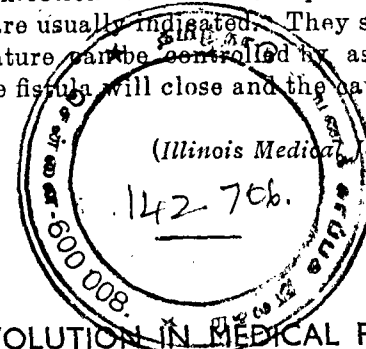
4. In simple tuberculous empyema repeated aspiration will frequently accomplish this.

5. In empyema with mixed infection but without broncho-pleural fistula, daily lavage with azochloramide or gentian violet solution will frequently sterilize the cavity.

6. If the pneumothorax is satisfactory but of too short duration, it should either be continued after sterilization of the cavity or oleothorax should be induced.

7. If the pneumothorax has not been satisfactory, sterilization of the cavity should be followed by thoracoplasty.

8. In mixed infections with broncho-pleural fistula, drainage and thoracoplasty are usually indicated. They should be delayed as long as the temperature can be controlled by aspiration and lavage in the hope that the fistula will close and the cavity become smaller and more rigid.



SOCIAL REVOLUTION IN MEDICAL PROFESSION.

DAYS OF PHYSICIAN'S LEADERSHIP AHEAD VALUE OF HUMAN JUDGMENT TO STUDENT

Lord Eustace, Percy, P.C., LL.D., Rector of King's College, University of Durham has contributed the following article on "medicine and Government" in "THE LANCET."

I know little of medical science, but as an ex-politician with some experience of the Ministry of Health and a fairly large experience of the Board of Education. I do know something of what I may call medical politics. I know what doctors think of statesmen—but most of that is scarcely quotable. I know, too, what statesmen owe to doctors and (more important) what they expect from doctors—and it is on that subject that I should like to say a few words. For these expectations seem likely to affect profoundly the future of the medical profession.

Already, within the lifetime of a man of fifty (which happens to be my age), the profession has undergone almost a social revolution. I was twenty months old when (as I have subsequently learned) the Pasteur Institute was opened by the President of the French Republic; my school years coincided with the culminating researches of Ross in India and of Reid and Agramonte in Cuba; I went to Oxford in the year that General Gorgas was appointed medical administrator of the Panama Canal Zone. In those first seventeen years of my life the researches of two generations had, it seemed, suddenly borne fruit: scientific knowledge had been transmuted into social power. As the physician's knowledge had grown, as his attention had been increasingly directed not merely to the cure, but to the prevention of disease his social function had changed. The family adviser had become suddenly a State counsellor; he had been called on to formulate State policies and to administer

great communities. Moreover, great communities had learnt to put money at his disposal. The foundation of the Rockefeller Institute in 1901, and the appropriations of the American Congress to medical administration in Panama and the insular possession of the United States, gave the physician for the first time command of resources on a scale hitherto enjoyed only by the manufacturer and the soldier.

LIGHT DEVELOPMENT.

And this was only the beginning of the social revolution. These earlier victories of preventive medicine were won by the physician in the field of tropical disease, on the outposts of European civilisation, over fantastic enemies either unknown to Western Europe or already driven out by improved sanitation, quarantine services, and a rising standard of living. To the ordinary Englishman bubonic plague was only a creepy story of the distant past, yellow fever only a soldier's tale brought back from garrison duty in the West Indies, malaria an extinct ague of which curious survivals might be found in some local pockets of marshland, even cholera only a nightmare of his father's youth. But since then research has been pushing its way from the abnormal to the normal. The microbe-hunters have found a new quarry in the vitamin; the physiologist will measure the ordinary citizen's intelligence, the physiologist will chart his metabolism, with as much assurance as the medieval astrologer used to cast his horoscope; medical science has begun to talk, not merely of preventing disease, but of raising normal human health and normal human activity to an altogether higher power.

The politician has followed this lead—both the democratic politician on the look-out for new election programmes and the dictator following his dream of a new German nation or a new Marxian humanity. The focus of social reform has shifted from the drain-pipe and the sanatorium to the gymnasium and the dinner table. At this very moment it is hardly an exaggeration to say that the chief plank in our Government's domestic programme is a mammoth publicity campaign, launched with the sole object of advertising the doctor as the saviour of society—and incidentally, of course, the Government itself as the doctor's chief patron.

POSSIBLE DANGERS.

Obviously this exaltation of the medical profession has its dangers. It will always be true, even of doctors, that "the expert should be on tap and not on top." It will always be difficult "to talk with crowds and keep your virtue"—especially, perhaps for the man of science. Nothing is more exasperating to such a man than to hear his provisional hypotheses broadcast to the public as if they were a ready-made gospel, his carefully guarded statements quoted without qualifications for political purposes. On the other hand, nothing can be of more intoxicating. Like cheers at a public meeting,

such publicity may sweep the most honest of us off his feet and goad him to exaggerate truth into falsehood.

But it is, after all, useless to dwell on these dangers. The new responsibilities of the medical profession are inevitable. If new they were not unforeseen. Not long before the epoch-making event of my birth Huxley had predicted that medicine would become the most important of the social sciences, the focus and interpreter of all the rest. That is what is happening in our day. And surely we could not wish it to be otherwise—especially we who work and learn here on Tryneside. In such a region, the need for the physician's leadership is evident enough and it is for such leadership that a great university scheme of medicine like this must consciously train its students.

This new call to the medical profession is not a call away from the old traditions of the profession. On the contrary, it is as I see it, a call to realise afresh what those traditions are and to bring them to bear with new force upon the public life of this nation. It is because the doctor is what he has been that the world is asking for his leadership.

MEDICAL PRACTITIONERS.

The call is first and foremost a call to the medical practitioner. The world does not want to be led by research workers, still less by medical journalist. Research is vital in all forms of human endeavour, and above all in medicine; but what is even more vital to-day, because it is more neglected, is the application of research. In industry, the time-lag between laboratory discovery and intelligent application by the works manager is often enormous; in medicine it tends perhaps to be even greater. Research is not specifically the business of the doctor; his specific business is to supply to the laboratory worker the field data of unsolved problems and to apply the results of research. For that purpose he must know, so to speak, the geography of research and he must know how to value its results; the difference between hypothesis and proof, the difference between a successful laboratory experiment and the successful treatment of a human being, the difference between both and successful health legislation for a whole population. Above all, he must be trained to grasp eagerly at new knowledge, whether (may I say it?) the discoverer possesses a medical degree or not. But all this will not make him a good doctor. Unlike all other scientists, his skill consists in the advice he gives to the individual human being who comes to him for help. That is the test of his success or failure; that, and that alone is his qualification for social leadership.

In fact, the whole accumulating results of physiological and of social research are but driving home two truths which the general practitioner has always known: that the treatment of a patient must be treatment of the whole man, and that hardly any patient can be

treated solely as an individual, without consideration of his environment and his associations. The wise doctor has always known that his field of diagnosis cannot be narrower than the family, that his treatment must vary with his patient's wife and children, with his work and wages, with his character and even with his religion. How often must he diagnose diseases like hyper-infantitis (as exemplified by the Old Woman who lived in a Shoe) or conjugal boredom (as described by Canning in the lines):

"Yet must one man with one unceasing wife
Play the long rubber of connubial life."

HUMAN JUDGMENT.

Two thirds of his advice has always been based, not on scientific knowledge, but on pure human judgment: when to let a restless patient get out of bed when a devoted nursing daughter has got on her mother's nerves and so on. It is because the doctor's human judgment has been thus exercised in a way unknown to the pure scientist or the economist or the philosopher that the ordinary citizen like myself has been able to regard his medical adviser as his personal friend; it is far the same reason alone that the doctor is qualified to advise on and to administer social policy.

And in at least one respect his training is superior to that of the politician. Human judgment is the good politician's essential weapon, but he can never be certain whether his judgment on any particular issue has been right or wrong. He is dealing with too many uncertain factors; even when he fails most signally he may have done the best in the circumstances. No doubt that is true also of the doctor, but not in the same degree. Over and over again the best doctor has suffered defeat when he knows afterwards that he might have won a victory. That experience gives a man the one supreme qualifications for governing men; the quality of humility. True, by no means all doctors are humble; like other men they sometimes talk great nonsense; but it ought to take a bigger dose or natural toughness to make a cocksure doctor than to make a cocksure politician.

HOW TO PRESERVE?

But, if these have been the traditions of the medical profession, how are they to be preserved to-day? That is the great question of medical education. In many ways, modern organisation must make it more difficult to brain the medical student's judgment. Increasingly he studies the sick man in the hospital, knowing little, if anything, of his character, his family, or his means of livelihood. Increasingly, when he enters on practice, he finds himself applying to a stream of panel patients the methods of the hospital out-patients' department. How is medical education to counteract these tendencies? As such education rightly becomes more scientific more a training in technical skill and in the command of immense

reserves of technical equipment, how is it to teach the student to be a human counsellor?

I am not qualified to answer that question; I can only suggest the thought.

To-day when we talk so much of human rights and social equality, it is well to remember that a man's first and fundamental right is to be treated as an individual, that the greatest social inequality is the poor man's lack of privacy. If I were a manual wage-earner, I think the disability which would irk me most would be the difficulty of getting the busy poor man's doctor to tell me explicitly what is the matter with me and what are my chances of recovery. Let us remember that, in the words of Sir Philip Sidney, one of the best definitions of learning is the "enabling of judgment."

RECENT STUDIES ON THE ETIOLOGY OF EPIDEMIC INFLUENZA

By F. F. TANG

*Division of Pathological Sciences, Henry Lester Institute
of Medical Research, Shanghai.*

Although influenza is at times regarded by the general population as a mild disease ranking with the common cold in causing disability, it constitutes one of the great scourges of mankind. On many occasions the disease has spread through the world in pandemic form, causing incalculable damage and claiming numerous lives. It has been estimated, for instance, that in the pandemic of 1918 influenza killed more persons within a period of a couple of weeks than the great war in a space of four years.

ETIOLOGY

The etiology of influenza has been always a particularly difficult problem. Firstly, no ordinary laboratory animals are susceptible to the disease, so that all experimental studies have to be carried out on human volunteers. Even human beings are extremely unsatisfactory on account of the frequent presence of influenza in one form or another among the population. Thus a positive inoculation in a volunteer does not exclude the possibility of extrinsic infection while a negative test may mean that the person experimented upon is immune owing to a previous exposure to the disease. Secondly the epidemiological character of influenza is ill suited for experimental investigation, as either its entire absence or the simultaneous presence of an unmanageable number of cases render systematic etiological studies difficult. Thirdly the symptomatology of

influenza is all defined so clinical recognition is often fraught with many uncertainties.

Pfeiffer's bacillus. In spite of the difficulties mentioned above Pfeiffer after the 1889 pandemic discovered a small hemophilic bacillus in 1892 and this has been held to be either an etiological factor or as an organism intimately associated with the disease until quite recently. A number of workers, on account of their experiences during the 1918 pandemic ventured to question the paramount importance of Pfeiffer's bacillus in the etiology of influenza. Numerous isolation experiments were carried out in different parts of the world during this pandemic. While American figures showed positive results in a majority of the cases studied, German statistics pointed in the opposite direction. The fact that Pfeiffer's bacillus or *Hemophilus influenzae* has frequently been found in normal throats and also in patients suffering from diseases other than influenza together with the serological heterogeneity of strains of the bacillus isolated even from members of the same family during the same epidemic seems to provide sufficient evidence to argue against the presumed etiological significance of the micro-organism. Meanwhile other possibilities have attracted attention.

Bacillus Pneumosintes. During the pandemic of 1918 Olitsky and Gates intranasally inoculated nasopharyngeal washings from early cases of influenza into rabbits and obtained in this animal symptoms such as fever, leucopenia, pulmonary hemorrhage and edema. From the lung tissues of the infected rabbits as well as from the patients' secretions these authors isolated a strictly anaerobic organism which they called the *Bacterium pneumosintes* and which, they thought, might play some role in the etiology of the disease. As similar organisms have also been recovered from normal persons and certain normal animals, it is generally believed that what Olitsky and Gates have discovered is merely a member of a group of interesting filter-passing anaerobes bearing no etiological relationship to influenza at all.

Virus theory. Considered epidemiologically, the explosive character of the onset of influenza and the extreme infectiousness of the disease suggested that the causal agent might be a filtrable virus. Early work by Nicolle and Lebailly and Selter was already in favour of such a view though concrete evidence has only come very recently.

Simultaneously with the occurrence of the 1918 pandemic there appeared among the pigs in the middle west of the United States a disease clinically indistinguishable from human 'flu'. The animals were taken ill suddenly with high fever, marked anorexia profound prostration, and apparent muscular weakness. Cough was frequent and respiration laborious. After 2 to 6 days the animals recovered almost as dramatically as they were taken ill. The disease was

also highly infectious spreading from one herd to another with the greatest speed. Fatal cases showed an extremely edematous type of broncho-pneumonia.

After a series of most brilliant experiments on this new pig disease Shope reported the isolation of a virus. Etiologically this virus is most peculiar in that it must act in direct association with *Hemophilus influenzae suis*, a micro organism belonging to the same group as Pfeiffer's bacillus, in order to give rise to an attack of the disease. Neither the virus nor the micro organism alone is effective.

The next important step towards the solution of the etiological problem of human epidemic influenza was made by Smith, Andrewes, and Laidlaw. Having in mind the possible causal role of a filtrable virus, these investigators attempted to infect many species of animals with filtrates of nose and throat washings taken from early cases of influenza in a London epidemic, but met with negative results until the ferret was introduced near the end of their investigation.

Isolation of the virus. This team of British workers has discovered a virus which is pathogenic for ferrets producing in that animal a disease symptomatologically quite similar to human influenza. The virus may be isolated as follows: The patient is asked to gargle with 30 cc of a mixture of equal parts of broth and saline, the washing is centrifuged and the supernatant fluid filtered through a gradocol membrane. If sputum and nasal discharge are pooled together with the washing, mucous shreds should be broken up in a mortar with a little quartz powder before centrifugation. A normal ferret which has been quarantined for 2 weeks against canine distemper and neck abscess is inoculated by instilling 1 cc of the filtrate into the nostrils. After an incubation period of 48 hours the inoculated ferret is taken ill actually with all symptoms of influenza such as high fever, anorexia, general lethargy and muscular weakness. The fever is diphasic in character. After an initial rise the peak of which may reach 107° F. (normal ferret's temperature 103.5° F.) there is a remission followed by a second febrile period lasting 3 or 4 days during which catarrhal symptoms may supervene. The eyes are watery and the nostrils filled with sticky discharge. The animal sneezes and coughs frequently and yawns repeatedly; often it breathes laboriously suggesting pulmonary embarrassment. Shope has shown that if ether anesthesia is used during inoculation actual pneumonia may develop but a fatal outcome is rare. If the infected animal is sacrificed on the third or fourth day of the disease the virus can be re-isolated from the nasal turbinates or lung tissues and it may be propagated from ferret to ferret indefinitely.

Probably it is on account of the distribution of the virus in the upper respiratory tract that the ferret disease is so highly

contagious. Strict isolation is essential otherwise the infection may spread among the stock with the greatest ease.

After certain passages through the ferrets the virus may be transmitted to young mice by intranasal instillation under slight ether anesthesia. The disease in mice is essentially a pneumonia. The infected animals usually die within a week after the instillation and the disease may be transmitted from mouse to mouse in an endless series. In contrast to the ferrets the upper parts of the respiratory tract of mice do not seem to be susceptible and the virus cannot be recovered from this source even in fatal cases. This is, however, an advantage in so far as many inoculated mice may be caged together without any fear of contact infection.

Unfortunately mice are not as susceptible as the ferrets so direct transference of the virus from human sources to this animal is impossible; otherwise future work would greatly be simplified. Attempts to decrease the resistance of mice by benzol injection or X-ray irradiation on the one hand and to increase the virulence of the virus with testicular extract on the other were unsuccessful in the hands of the writer, White and Stuart-Harris.

Properties of the virus. The most important property which differentiates this virus from other infective agents is that it will infect ferret's and mice only through the respiratory tract while subcutaneous, intravenous, intraperitoneal, and intracerebral inoculation are of no avail. Further, the virus can only be recovered from the tissues of the respiratory passages. Internal organs such as liver, spleen, and brain or blood and cerebro-spinal fluid of infected animals do not appear to contain any virus even at the height of the disease. The virus is destroyed by heating at 56° C. for an hour but will withstand drying in the vacuum or storage in glycerol for many months when kept in the cold. Besides ferrets and mice this virus may be pathogenic for hedgehogs, according to the latest experiments of Stuart-Harris.

The virus forms no inclusion bodies in the affected tissues and it fails to grow on ordinary culture media. Smith and Francis and Magill attempted to cultivate it in developing eggs and tissue cultures and have obtained good results by the latter method.

Confirmation. Since the initial isolation of five strains of the virus in 1933 the British workers have added nine more strains to their list, one recovered in 1934 and the remaining eight isolated in 1935. All these strains are identical serologically and their action on animals is quite the same.

The work of the English authors has been fully confirmed by Francis in America, Burnet in Australia, and Smorodintseff in Russia. Francis has obtained several strains of the virus from specimens of sputum or naso-pharyngeal washings collected during epidemics of the disease in Puerto Rico, New York,

and Philadelphia, Burnet in Melbourne. Biologically the American and Australian strains behave exactly like the English virus with the probable exception that the Puerto Rico virus is more virulent than the English ones, producing more extensive lesions in the lungs of the ferrets and killing mice more readily.

IMMUNITY STUDY

On the basis of clinical observations it is generally believed that immunity to influenza is only of a short duration. This has been considered due to the following possibilities: Firstly that an attack of influenza is unaccompanied by the formation of specific antibodies in the serum of the patient or, if any, they persist just for a brief period. Secondly that many strains of the infective agent are commonly in circulation and that people may be attacked repeatedly by strains of different serological specificity.

Regarding the first point, Andrewes, Laidlaw, and Smith as well as Francis and Magill have shown that neutralizing antibodies against the influenza virus are found in the majority of the serum specimens analysed. Perhaps one of the most interesting experiments in this respect is recorded by Smith and Stuart-Harris. One of these authors himself contracted influenza while studying the disease and his infection could be traced to an experimental ferret. A sample of the patient's serum obtained a few months before the onset of the disease as well as those collected on the third, eighth, sixteenth, thirty-first, forty-fourth and eighty-first days of the illness were used for mouse-protection tests. The results showed that there were no neutralizing antibodies present in the serum before the onset of the disease but soon after they appeared quite rapidly reaching a maximum between the 16th and 31st days; thereafter they disappeared gradually.

Ferrets recovered from experimental infection are refractory to subsequent inoculations. The immunity lasts for 3 or 4 months but 6 months later the animals are fully susceptible once again though neutralizing antibodies against the virus are still demonstrable in their sera. This demonstration of antibodies in the ferrets after immunity has waned and the presence of similar substances in the sera of many people most of whom would probably be found susceptible should they be exposed to an epidemic of influenza, suggest that either the antibodies present are not strong enough to protect or else that humoral immunity plays no significant part in the process of immunity. Possibly it is entirely controlled by the state of local immunity established in the upper respiratory passages of animals and man.

In regard to the possible presence of biologically distinct types of the virus we have already mentioned above that the various strains isolated in different countries all seem to be identical serologically and with respect to their action on ferrets and mice. Very

recently Magill and Francis have shown however, that by using rabbit immune serum instead of that of man and ferrets antigenic difference among the various strains of the virus can be demonstrated. Thus it has been found that Puerto Rico and Philadelphia strains are distinct viruses in the sense that they are not neutralized by the heterologous sera and mice are only protected from infection by the respective homologous sera.

It may be mentioned here that the serum of hyper-immunized horses or ferrets possesses the property of conferring passive immunity to animals. Further it has been shown that ferrets and mice can actively be immunized by subcutaneous or intraperitoneal inoculations of the living virus. After successful animal experiments the British and American workers have extended their experimentation to human beings. Many volunteers have been vaccinated subcutaneously with the virus cultured in minced chicken embryo tissues and Tyrode solution. Although actual immunity of the individuals vaccinated against epidemic influenza remains to be determined, circulating antibodies against the virus have been demonstrated.

INTER-RELATIONSHIP OF HUMAN AND SWINE VIRUSES.

It has been pointed out above that symptomatologically human and swine influenza are closely related. In swine influenza, however, the etiologic virus must act in association with *Hemophilus influenzae suis* in order to bring about the disease while in human influenza the virus is the sole causal agent. No association with any bacterium is necessary.

Both the human and porcine viruses produce similar lesions in ferrets, and mice and as Elford, Andrews and Tang have recently shown they are identical in size. Serologically the porcine virus is closely allied to, but yet distinct from, the human virus. Ferrets after recovery from disease caused by the swine virus proved solidly immune to the human virus as well, but ferrets convalescent from human virus infection were not completely immune to the swine strain. The recent work of Francis and Shope shows that human and porcine viruses are regularly neutralized by their homologous sera. The sera of animals convalescent from infection with either human or porcine virus possess little, if any neutralizing capacity for the heterologous virus. Hyper-immunization of ferrets with swine virus tends to increase the neutralizing power of their sera for human virus, but in an inconsistent fashion, whereas repeated inoculation with human virus often results in sera with strong neutralizing activities against the swine virus. All these observations serve to emphasize the immunological distinctness as well as the inter-relation of the human and swine viruses.

Shope and Elkeles have shown that swine inoculated intranasally with the virus of human influenza develop a mild and

afebrile illness of short duration. Repeated passages in swine have failed to enhance the pathogenicity of the virus for pigs. If swine are inoculated with the virus together with a small amount of *Hemophilus suis* culture, a febrile, prostrating illness similar to swine influenza results. In this respect the human influenza virus behaves exactly like the swine virus. Swine recovered from infection with human influenza virus are resistant to swine influenza but the serum of such animals does not neutralize the virus of swine influenza.

DISCUSSION

In their early deliberations on the specificity of the influenza virus the British workers have stated "in referring to it as influenza virus we are fully conscious that its claims to be regarded as the etiologic agent await further proof". The fact that the virus has only been isolated from typical cases of influenza and has never been recovered from other upper respiratory disorders, the close similarity between the clinical features of the ferret disease caused by the virus and human influenza together with the evidence of laboratory infection from experimental ferrets, in several instances, leave very little room to doubt that this virus is the actual causal agent of epidemic influenza. It must not be supposed, however, that the bacteria which have been cultivated from cases of influenza are of no significance at all. In fact there is much evidence to show that the visible bacteria are very important in particular cases, changing the clinical character and altering the course of the disease. But since the virus bids fair to offer the most promising approach to a solution of the etiologic problem, it seems clear that the visible bacteria including Pfeiffer's bacillus must be regarded as secondary invaders of tissues damaged by the action of the virus.

There is probably no other disease the clinical picture of which is so obscure as influenza. During epidemics the diagnosis is obvious as there are certain characteristics of onset, sequence of symptoms and similarity of course, but in the inter-epidemic period the question is not so simple. Ordinary diagnosis of influenza at such times is rather a matter of probability than of actual recognition. Through clinical investigation both during epidemic and inter-epidemic times might reveal several forms of the disease: some directly connected with the ferret-pathogenic virus while the cause of others remains to be found. This may explain at least in part why many investigators failed to isolate the virus during several typical epidemics.

Although the virus of swine influenza has never been isolated from human sources, antibodies neutralizing it are found to be present in sera from a very high proportion of human adults and new-born infants while children below the age of 10 years or so seldom show any neutralizing effect. The occurrence of such antibodies in

human sera can hardly be explained on the ground of direct exposure to the virus infection for as far as we know swine influenza has only been observed in the middle west of the United States of America and in certain parts of France and Germany. From the known history of the swine disease, and the similarity of its etiologic virus to that obtained from man it seems likely that the virus of swine influenza is the surviving proto-type of the agent responsible for the pandemic of 1918 as suggested by Laidlaw. The presence of neutralizing antibodies against swine influenza virus in the human sera is this believed to indicate a previous immunizing exposure to, or infection with an influenza virus of the 1918 type.

SUMMARY

This paper reviews the recent experimental work which has been performed in regard to the filter-passing virus now believed to be the cause of epidemic influenza. Methods of isolation are discussed and the properties of the virus outlined.

The only laboratory animal so far known to be susceptible to immediate transference of the virus from man is the ferret. Subsequent to passage through this animal mice and to a certain extent hedgehogs may be infected.

The importance of secondary invaders in varying the clinical manifestations of influenza is stressed.

(*Chinese Medical Journal*, July 1937.)

Extracts.

PAGET'S DISEASE OF THE EYELID ASSOCIATED WITH CARCINOMA.

DR. A. HAGEDOORN: *University Eye Hospital, Amsterdam.*

The British Journal of Ophthalmology, May, 1937.

The case reported is that of a woman, age fifty-six, with a chief complaint of severe pain in the left eye. She gave a history of trachoma and treatments since childhood. The left tarsus and the right lacrimal sac has been previously extirpated. She had had previous attacks of iritis in the left eye.

At this time the left eye had a blepharitis, dacryocystitis and a thick viscous secretion. The conjunctiva was thick and red, and appeared "greasy." The cornea was irregular and had a dense old pannus. She had light perception; tension normal. An extirpation of the sac was done and followed with conservative treatment.

Two years later the eye was excised with the posterior part of the lids and the conjunctival sac in order to make the socket suitable for an artificial eye. Histological examinations were made of

sections obtained from the material. These showed a xerosis of the conjunctiva due to the chronic trachoma. Changes in the normal anatomy are described which included obliteration of glands and the presence of an occasional cyst. Inflammatory changes showed infiltration with lymphocytes and plasma cells especially under the xerotic epithelium.

Interesting anomalies of a blastomatous nature are described at length and in detail. Six different sections are reproduced, microphotograph. After a discussion of these it is noted that at this time carcinoma seemed probable.

A year later a small tumour occurred under the upper eyelid. Carcinoma was confirmed by this recurrence. Exenteration of the orbit was done. No other primary malignant tumour or metastasis was discovered. Histological examination of sections was done.

The author says: "This carcinoma is interesting on account of its being associated with lesions often called pre-carcinomatous, not described hitherto in ophthalmology. The fact that the pathological condition of the epithelium is generally restricted to the deeper layers, the absence of dyskeratosis, akantosis and hyaline degeneration, the Meibomian and sebaceous glands are in favour of the diagnosis 'Paget's disease.'"

There was present here some features resembling Bowen's disease.

TWENTY YEARS' EXPERIENCE WITH IODINE POWDER (SULZBERGER) IN THE CONSERVATIVE TREATMENT OF AURAL AND NASAL SUPPURATION.

DR. M. D. LEDERMAN, NEW YORK: *The Laryngoscope*,
February, 1937.

The author's point in regard to aural infections is that "unless active indicative symptoms of a fulminating character exist, it is our duty to employ this simple, effective, conservative treatment and avoid surgical intervention."

The time or duration of the aural infection is not one of the deciding factors in consideration of radical surgery. He cites the case of a physician with discharging ears for nearly fifty years to illustrate his contention "that with careful attention to proper preparation of the middle ear, attic, eustachian orifice and hypotympanic space, before the powder is applied, numerous instances of prolonged chronicity of middle ear involvement have remained dry, with useful hearing, notwithstanding the fact that radical surgery had been suggested by others."

Beck is quoted: "Surely we agree that even if a radical mastoid operation is performed, in many instances much remains to be desired in obtaining a cessation of the discharge and a conservation of hearing." Beck remarks further that "he has yet to see a case of chronic suppuration of the middle ear, that he has treated and continued to observe, develop any serious intracranial complications. There are always present signs and symptoms in plenty of time to warn and place indications for an operation."

Personal experiences of the writer as well as otologic literature tend to confirm Beck's opinion. In these chronic ears there is usually present a mixed infection. Vaccine therapy is not particularly indicated. The author sometimes used a non-foreign protein to stimulate resistance.

To obtain satisfactory results with this treatment there are several factors which must be considered. Preparation of the field for the powder must be thorough. This takes time as it not only includes a dry middle ear but also the surrounding areas such as the attic, eustachian tube, orifice and hypotympanic space. Any debris, accumulated secretion, cholesteatoma and granuloma must be thoroughly exenterated. Nasal and postnasal pathology must be corrected. X-rays are advisable although the local picture is of more importance, according to the author.

Ear irrigations are not used because of the moisture producing a lowered tissue resistance. Suitable cotton applicators are used to cleanse and dry the field, going through the drum perforation when possible. If the perforation is large, the result of the treatment is more rapid, because more powder can be introduced at each sitting. Using a suitable cannula or glass with the aid of gentle suction, may help in cleansing the middle ear. Care must be taken as this sometimes produces a disturbance of the vestibular labyrinth. Following the cleansing ninety-five per cent alcohol is then used. When dry the powder is insufflated into the middle ear. The amount of secretion determines the frequency of the treatments. The author says the majority of his patients receive two treatments a week.

One per cent powder is used initially and depending on the results obtained increased up to as high as ten per cent. The action of this form of medication is discussed. The importance of a dry, clean field before introduction of the powder is stressed. The author reports the use of this treatment of mastoid fistulae successfully. A few cases are reported.

Nasal infections are also treated with this powder. The author details his nasal treatment.

DRAINAGE OF THE ABDOMINAL CAVITY IN OPERATIONS FOR PERFORATED PEPTIC ULCER

BY ELDRIDGE L. ELIASON, M.D., AND JOHN P. NORTH, M.D.,

Philadelphia Pennsylvania. Annals of Surgery, April, 1937.

This is a very practical article in which the authors advocate drainage after operations for perforated peptic ulcer, and very good and sensible reasons are given for the advocacy.

Several important questions are answered in a brief, but very effective way. For example, reference is made to the oft-repeated statement that a drain in the abdominal cavity is ineffective after a few hours because of adhesions about it. The authors say, "in spite of this it is certain that a wide area of the abdomen is drained. This is especially true in the first few days after operation, when the inflammation is still marked and the voluminous exudate prevents peritoneal adhesions. Adhesions between structures surrounding the drain develop only as the inflammation is reduced in severity. At this time also comes the reduction in the area which is affected by the drain."

The authors say that statistics seem to argue against the practice of drainage, but immediately follow up this statement by the following: "It is a mistake to compare statistics. As has been stated, statistics are of value only to the man making them. Until all writers use the same language, so to speak, comparisons are inconclusive. One writer's mortality figures are based on the premise that a surgical death must happen in seven days, and be directly due to the surgical condition. If the patient dies of pneumonia three weeks later, it is not a surgical death. This diversity of time limit is known to range from forty-eight hours, entire hospital stay, days, weeks or even months. Two of our cases, for example, died on the thirty-ninth day and the forty-eighth day, respectively."

Answering the argument that the contents of the upper gastrointestinal tract which escape through a perforation are sterile, the authors present proof that "careful bacteriological examinations do not bear this out." In connection with that question, the common cause of disaster, namely, peritonitis, is indicated, and the authors say that "it is a condition which conceivably may be helped or prevented by drainage."

It is the practice of the authors to place a soft cigarette drain at the site of the perforation, the drain emerging through a stab puncture at a dependent point, and a similar drain is placed between the liver and the diaphragm. In addition, it is the practice of the senior author (Eliason) to place a suprapubic drain into the pelvis when there is extensive contamination.

COMMENTS

As old as the subject is, there is no more important question than that of drainage in connection with infectious processes, and processes which should be regarded as potentially infectious, within the abdominal cavity. If the careful surgeon who is honest intellectually and who has an analytical mind will go through the records of the hospital in which he works he will find, without the least difficulty, the evidences of disasters traceable to the lack of facilities for drainage. Any surgeon with his eyes open knows that it is utterly foolish to say that drainage of the abdominal cavity is not useful even for days after operative procedures where they are indicated. One very important requirement is to remember that when a drain is placed in position it should be let alone for at least a week.

Medical Notes and News

THE TINNEVELLY DISTRICT MEDICAL ASSOCIATION, PALAMCOTTAH.

(Tinnevelly Branch of the Indian Medical Association).

The Tinnevelly District Medical Association held its monthly meeting at Srivaikuntam, on Saturday the 18th of December 1937 at 4-30 p.m. Members numbering 29 gathered from all parts of the District.

After Tea and sweet music on Flute the meeting began under the Presidentship of Lieut. Col., T. S. Shastri, I. M. S. The Secretary & Treasurer Dr. K. Rama Ayyar, M.B.B.S., (Andhra), read the minutes of the monthly meeting held at Headquarters on 27-11-1937 which were passed.

The President announced that 17 members of our Association have intimated their intention to attend the All India Medical Conference at Madras, and exhorted that as many members as can possibly do so, should attend the Conference as it is the chance of a lifetime for most members and as the social and educative value of such a gathering is enormous. Several Members demonstrated cases of clinical interest.

Thereafter Colonel Shastri, summed up the salient and important features of all the cases and their Differential Diagnosis, and offered his thanks to Dr. D. Maduranayagam, Sub-Assistant Surgeon of the Local Fund Hospital, Srivaikuntam, for the splendid arrangements and to the school authorities.

Thereafter an excellent Dinner brought the happy gathering to a close late at night.

HEALTH EXHIBITION

Under the auspices of the Tinnevelly District Medical Association, in connection with its monthly meeting at Srivaikuntam, a Health Exhibition was arranged at the Coronation High School, Srivaikuntam, on Saturday the 18th of December 1938 at 10 a.m. under the auspices of M.R.Ry. T. N. Kumarakuruparan Pillai Avl., B.A., B.L., of Srivaikuntam.

Dr. D. Maduranayagam welcomed the gathering and requested M.R.Ry. Kumarakuruparan Pillai Avl., to open the Exhibition.

M.R.Ry. Kumarakuruparan Pillai Avl., in declaring the Exhibition open said that such Exhibitions are very useful, instructive and beneficial to the public and school children and promised to devote his best attention to encourage Health Propaganda.

Dr. D. Maduranayagam, explained in Tamil the exhibited posters on the prevention and causation of Tuberculosis, Malaria, Cholera and Flies, for the benefit of about 150 school children, teachers and public.

ALL INDIA MEDICAL LICENTIATES' ASSOCIATION, BOMBAY.

"Dr. T. C. Basu Chaudhury, Licentiate Medical Practitioner, Eye Surgeon from Agra, has been invited by Dr. P. Bailliart, Chairman of the International Association for prevention of Blindness to attend the General Assembly of the Association to be held in Cairo in December in connection with the XVth International Ophthalmological Congress. This is the first time in the History of the Congress that a member of the All India Medical Licentiates' Association has been invited to the congress.

Dr. T. C. Basu Chaudhury, has done some original research work in 'Trachoma' and had submitted the same for their consideration together with a report regarding "Blindness in India" a general survey of the same.

Dr. U. B. Narayanarao, the General Secretary, All India Medical Licentiates' Association, 101, Girgaon Road, Bombay, has sent the following Telegram to Her Excellency Lady Linlithgow, Delhi.

"The all India Medical Licentiates' Association with its 167 Branches places its services in the noble cause initiated by your Excellency to eliminate the scourge of tuberculosis in our country."

And in reply to the above he had received the following wire from Her Excellency.

"Much touched by kind wire many thanks for offer of Services."

*The Medical Practitioners' Association, Nuzvid.
The 5th Anniversary celebration.*

The 5th Anniversary of the above Association was celebrated on Sunday the 12th December 1937, at Nuzvid in the local Government Hospital premises when Capt. R. Venkata Roa, M.B. B.S. Asst. D. M. O. West Godavari presided. After taking a group Photo the Members were entertained to light refreshments and tea. Several practitioners from distant places attended the function including Dr. H. G. Hebard of the local Mission Hospital and Mrs. N. M. C. Seshagiri Rao, a local private practitioner. The meeting commenced exactly at 5 p.m. with prayer and the Secretary Mr. N. Rama Rao read the Annual Report which was duly adopted. Dr P. Anjaiah Naidu was elected as the president of the Association for the year in place of Dr. D. Satyanarayana and Dr. N. Rama Rao, was reelected as the Secretary.

A paper on 'Infant and its food' was read by Mr. P. Anjaiah and Mr. N. Rama Rao, read his paper on Female sex-endocrinology and also his clinical notes on a case of Urticaria Gegaus." Mr. V. Ananthachari read a paper on 'Allergy'. The above subjects gave scope for a wide discussion and the president after thanking the Secretary and the members for the honour done him and congratulated the Association for its activities though small. Proceeded with his lecture on 'common diseases at the out-patient department wherein he dealt with fevers, Diarrhoeas and Dysenteries, colds and diseases of Respiratory tract, paralysis. Diabetes, venereals and common surgical conditions. He pointed out several mistakes generally committed both in Diagnosis and treatment of the above diseases and their common complications.

After a vote of thanks proposed by the Secretary to the Chair and the members, the meeting ended by 8 p.m.

NOBEL PRIZE WINNER

Dr. G. R. MINOT

(Quoted from "Times of India", Dated 12-12-34)

"Professor Minot has made discoveries which suggest that Chlorophyll the green colouring matter of plants, may greatly accelerate the absorption of Iron—the stock treatment for ordinary or secondary Anaemia."

"It is considered probable that the use of Chlorophyll may be of value in cases where the taking of large quantities of iron causes digestive disturbances."

Further researches on Chlorophyll have proved that :—

1. It is rich in Vitamins A, B. & C.,
2. It stimulates the function of Red Bone Marrow assisting rapid production of R. B. C's in the body.
3. It helps assimilation of Iron.
4. It reduces enlarged spleen and

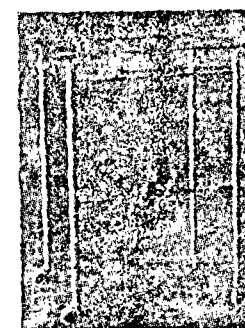
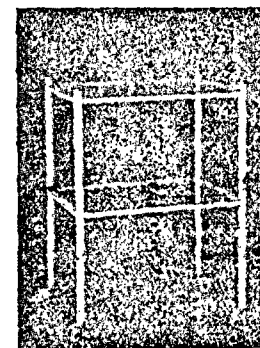
' BLOOD BEANS '

is the only combination of Iron, Arsenic, Strychnine and copper nucleinate, with **CHLOROPHYLL**.

For samples and literature apply to :—

YASMIN & Co.,

10, Churchgate St., Bombay.



Instrument and Dressing Tables, made of steel tubing, all joints oxy-acetylene welded, all corners rounded and finished in white enamel. Fitted with two plate glass shelves with either cone or ball bearing, steel cupped India rubber tyred castors. The price varies with different sizes.

HEBBAR BROTHERS, LTD.,

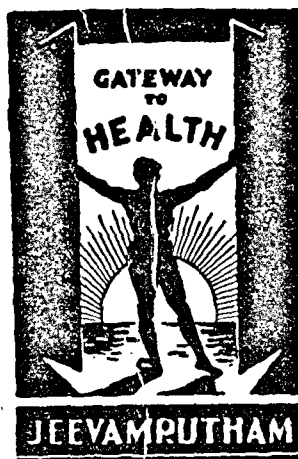
MANUFACTURERS OF

Surgical Instruments, Aseptic Hospital Furniture,
246, Thambu Chetty Street, G. T., MADRAS.

When ordering please mention *Medico-Surgical Suggestions*.

Jeevamrutham.

(The Perfect Health-giver.)



Weakness, nervous debility, Anæmia, Loss of Vitality, Palpitation of heart, Loss of Vigour, Bloodlessness, are all dispelled by this ideal tonic restorative. JEEVAMRUTHAM opens the gateway to Health. Eminent physicians of both systems prescribe this for successful results.

Available with your Chemist
in two sizes.

Bala Bhaskara.

(For Children's Liver & Spleen Disorders.)

Enlargement of Liver and Spleen in Children with every other allied abnormal symptoms find a radical cure with this unparalleled specific. Indicated in cases of deranged and congested Liver, Inflammation of the abdomen, Oedema, Jaundice etc. The only successful treatment found by many medical men. A product of Pandit D. Gopalacharlu.



Available at all chemists in two grades.

Manufacturers:

AYURVEDASRAMAM,

Post Box 287.

MADRAS.

When ordering please mention *Medico-Surgical Suggestions*

The CALCUTTA MEDICAL JOURNAL

Annual Subscription Rs. 5 only
*inclusive of postage.

The Journal year commences
from July.

Circulated to and read by almost
all medical men of India, Burma,
Ceylon and abroad.

Best Medium of Advertisement
for Medical and Scientific
Articles.

For rates apply to the Manager,
The

Calcutta Medical Journal
62, Bowbazaar Street, Calcutta.

THE PATNA JOURNAL OF MEDICINE

Published under the auspices of the
PATNA MEDICAL ASSOCIATION

Editor: Mr. M. Husnain,
M.B. (Cal.), D.L.O. (Lond.), D.O.M.S.
(Lond.), F.R.C.S. (Edin.)

Associate Editor: B. Narayana,
M.Sc., M.B. (Cal.), Ph. D. (Edin.),
F.R.S.E.

With an Editorial Board Consisting
of Eminent Members of the
Profession

Circulated in all parts of the World.
Subscription rates inclusive of postage

INLAND. FOREIGN.

Per Copy Re. 1-0-0. sh. 1/6.

Annual Rs. 3-0-0. sh. 4/6.

Best Medium of Advertisement for
Medical, Surgical & Scientific Pro-
ducts, Instruments and appliances,
etc., etc.,

For further particulars apply to:

THE MANAGER,

Patna Journal of Medicine
P. O. Bankipur, Patna.

THE INDIAN & EASTERN DRUGGIST

The only Journal cate-
ring exclusively for the
Drug and Allied Trades
in Eastern Markets.

Subscription 7/6 (Rs. 5) per annum
post free. Specimen copy free on
application.

Advertisement rates sent on request.

Indian & Eastern Druggist

Published by

LEONARD HILL LIMITED

17, Stratford Place, London W. 1.

ENGLAND

When ordering please mention *Medico-Surgical Suggestions*.

REPLATING

Instruments

and

Sterilisers

with

Nickel or Silver.

Guaranteed work

Low Price.

Hebbar Brothers, Ltd.,

246, Thambu Chetty St.,

MADRAS.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

EDITED BY

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

WITH THE HELP OF

A STRONG ALL-INDIA EDITORIAL BOARD

The Official Monthly Publication of the Indian Medical Association.

FEATURES

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

Published on the First Day of the Month

Annual Subscription: Rs. 6/- post free

Free to members of the Indian Medical Association

AN EXCELLENT MEDIUM FOR ADVERTISEMENT

For particulars, write to Secretary,

67, Dharamtala Street, Calcutta.

Dr. RAYAS'

House-Hold Remedies:

Pain Balm. This is a genuine remedy for Head-ache, Rheumatism, Neuralgia, Chest-pain, Cough, Sprain etc.

Itch Cure. A reliable remedy for all sorts of Itch, Eczema and other skin affections.

Wanted Agents in every Town.

Sample on request.

Manufacturers:

The Rayas Pharmacy,
179, Mint Street, Sowcarpet,
MADRAS.

Reach the
Medical
Profession

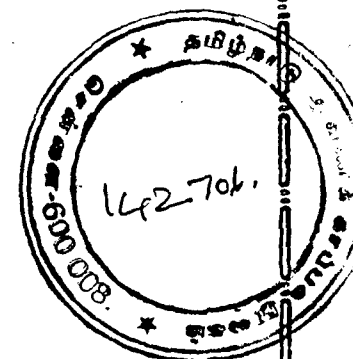
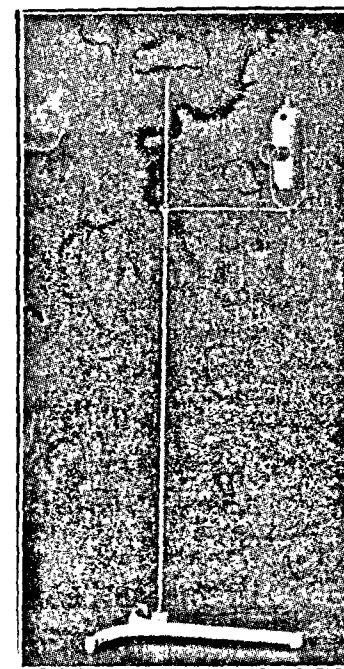
EVERY MONTH

By Advertising

IN

**Medico-Surgical
Suggestions.**

When ordering please mention *Medico-Surgical Suggestions.*



"Coral" Examination Lamp:—This is an approved and especially efficient lamp in eye, ear, nose and throat work. The cast iron base of special design will give the lamp necessary stability and appearance. The "bull's eye" condenser will avoid the image of the filament. The lamp can be raised and lowered and turned to any desired angle. The bull's eye can very easily be removed and fixed.

The lamp may be fixed up with specially made wall bracket, made either of polished brass or heavily nickel plated. We have special table stands made to fit the lamp. Acetylene lamps are provided for places where electricity is not available.

HEBBAR BROTHERS, LTD.,

MANUFACTURERS OF

SURGICAL INSTRUMENTS AND ASEPTIC HOSPITAL APPLIANCES,

IMPORTERS OF ELECTRO-MEDICAL APPARATUS.

246, THAMBU CHETTY STREET, MADRAS.

When ordering please mention *Medico-Surgical Suggestions.*

**HEBBAR BROS.,
LIMITED.**
246, Thambu Chetty St.
Madras.

Published by Dr. K. P. Rama Hebbar & Printed at the C.C.P. Works, Ltd., Madras.