

4149.

The
Madras medical college
magazine

Vol: XVIII

no: 3

April, 1939

JL
L, 14 2 02111111, 121
N 3 1. 2. 8 3.

129 363.

Telephone No. 4121.

MODERN CAFE

BOARDING & LODGING

No. 4, Thambu Chetty Street

G. T., MADRAS

BEST HOTELS & RESTAURANTS

Under Same Management

- At Madras :-
1. Modern Cafe, Esplanade.
 2. Madras Aquarium Restaurant, Marina.
 3. Modern Cafe Boarding & Lodging,
No. 4, Thambu Chetty Street.
- At Mysore :- Modern Hindu Hotel, Mysore.
- At Ooty :- Modern Hindu Hotel, Ootacamund.

A trial visit will satisfy one and all.

K. SEETHARAMA RAO,
Proprietor.

When writing to advertisers, please mention this Magazine



SUPER D COD LIVER OIL

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

Each teaspoonful of Super D furnishes not less than 5760 U. S. P. units of vitamin A and 400 units of Vitamin D.

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

Dosage:—Infants and children: 1 teaspoonful to 1 teaspoonful three times daily. Adults: 1 teaspoonful or more three times a day.

Packing: Available in 10, 24 and 128 ounce bottles.

SUPER D CONCENTRATE

An assayed solution of natural vitamins A and D concentrated from Super D Cod Liver oil.

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

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

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

SUPER D CONCENTRATE PERLES

Each perle contains 8206 U. S. P. units of natural vitamin A and 580 U. S. P. units of vitamin D.

Super D Concentrate Perles are tasteless and make possible the administration of adequate amounts of natural vitamins of Cod Liver oil to those who object to the oil itself.

Dosage: One to two perles a day.

Packing: Available in bottles of 30 and 100 perles.

SUPER D WITH MALT

Super D with Malt contains 25 per cent by volume of Super D Cod Liver oil. Each ounce of Super D with Malt presents not less than 772 U. S. P. units of vitamin D and 10,940 U. S. P. units of vitamin A.

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

Dosage:—Children: 1 to 2 teaspoonfuls three times a day.
Adults: 1 to 2 dessert spoonfuls three times a day.

Packing: Available in bottles of 8 and 16 ounces.

Manufactured by

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

Branches:

P.O. Box No. 134
LAHORE

P.O. Box No. 461
RANGOON

Sole Agents:

T. M. THAKORE AND COMPANY,
5, Sunkurama Chetty St., G. T., MADRAS.
Head Office: 43, Church Gate Street.
Fort, BOMBAY.

Branches:

P.O. Box No. 2111
CALCUTTA
P.O. Box No. 114
KARACHI
P.O. Box No. 2
NOVA-GOA

FINEST QUALITY STETHOSCOPES

DEFINITELY LATEST IMPROVED MODELS—We have selected and are freely selling the following types of Stethoscopes after we have determined their lightness, reliability and utility for modern practice. They stand head and shoulders above the usual and are the most favourite portable instruments among the Profession to-day, and give long and satisfactory service. Our illustrated Catalogue mailed upon request.

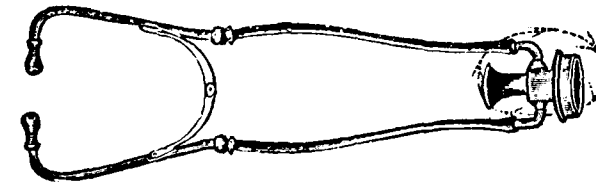


Fig. 6648. "SURGICO" NEW PATENT REVOLVING BINAURAL STETHOSCOPE: with chestpiece with phonendoscopic end for general purposes, and small ebonite mount for intercostal spaces. The chestpiece is specially constructed enabling rotation as indicated by arrows in illustration. This enables the instrument to be used at various angles with the tubes, and gives an extremely sensitive uninterrupted channel, and magnifies heart sounds without distortion. By revolving the chestpiece to different angles with the tubes the volume of sound can be graduated at will—thus the instrument proves an efficient differential stethoscope. No undressing of patient required. Folds compactly.

Complete instrument, Rs. 10-0.

Chestpiece (spare), Rs. 6-8.

DOWN BROS.' Binaural Stethoscope.

Fig. 6652. The well-known original "INDIA" Model; with metal earpieces, Skinner's all metal combined Chestpiece with thumb-rest and adjustable spring, fitted with best quality India rubber tubing.

Complete instrument ... Rs. 15-0.

Fig. 6652A. CHESTPIECE only (spare), Skinner's all metal with thumb-rest for above ... Rs. 6-12.

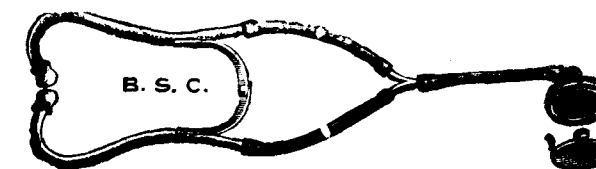


Fig. 6649. "SURGICO" PHONOPHORE BINAURAL STETHOSCOPE: The chestpiece is set at right angles and is easily inserted beneath the clothing next the skin, being about the size of a small watch. Can be adjusted to any position, enabling bases of the lungs to be examined without the patient sitting up. The heart can be examined whilst the patient is in prone position. The foetal heart can be heard more distinctly with the pregnant woman lying face downwards. A child's chest can be examined over its whole extent whilst sitting behind the child. Folds compactly.

Complete, Rs. 8-0, Chestpiece (spare), Rs. 4-8, Y-Union (spare), As. 10.

Fig. 6647. RUBBER TUBING, special sound-conducting quality, yard, Re 1-0

BOMBAY SURGICAL CO.

HOSPITAL SUPPLIES & INSTRUMENTS OF MERIT

New Charni Road

Telegrams: "SURGICO" }

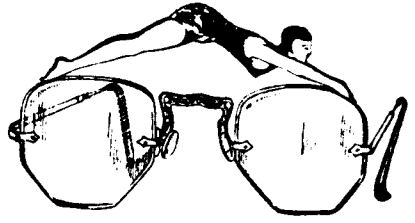
BOMBAY 4.

{ Telephone: 41936.

* In our modern Factory at Mahalaxmi we carry out repairing, polishing, sharpening, plating and manufacturing surgical instruments and appliances. Our work ensures perfect satisfaction. Quotations gladly submitted.

When writing to advertisers, please mention this Magazine,

NEW FUL-VUE OGDEN MOUNTING



Our Styles are remarkably well designed with attractive engraving and affords greater Eye Comfort. They look well, they fit well and will wear well.

RADHA BROS.,
Ophthalmic Opticians,
174, BROADWAY, MADRAS.

Try Once! Service is Our Motto!!

Our Frames and Lenses are of exceptional quality you would have to pay Double the prices elsewhere.

Bear in mind we guarantee this!



Doctor's prescriptions accurately and promptly executed.

Consult
K. RATNA & CO.,
OPTICIANS.
(With 25 years' experience in the line.)
305, Esplanade : : MADRAS.

Modussil Orders must accompany with an advance of Rs. 5

THE COLLEGE BOOK COMPANY,
BOOK-SELLERS & PUBLISHERS,
286, Esplanade, Appah Buildings' Upstairs, MADRAS.
LATEST EDITIONS ONLY WILL BE SUPPLIED.

LIST OF MEDICAL BOOKS

	Rs. A. P.		Rs. A. P.
Gray's—Anatomy Edn. 1938	26 12 0	A. L. Mudaliar—Clinical Obstetrics	17 0 0
Cunningham's—Manual of Practical Anatomy	6 10 0	Berkley—Ten Teacher's Midwifery 1938	11 0 0
3 Vols. I, II & III, each 1937	12 0 0	Hutchisons—Diseases of Children 1936	13 14 0
Macgregor's—Surgical Anatomy 1936	9 12 0	Goodheart and Still—Diseases of Children	18 10 0
Treves—Surgical Applied Anatomy 1934	16 10 0	Cole's—Physiological Chemistry 1933	8 0 0
Taylor's—Practice of Medicine 1936	18 12 0	Clark—Applied Pharmacology 1937	11 0 0
Price—Text-book of Medicine 1937	17 12 0	Bigger—Bacteriology 1935	8 8 0
Saville—Clinical Medicine 1936	14 0 0	Cameron's—Bio Chemistry	10 5 0
Conybere—Medicine 1936	8 0 0	Cushman—Pharmacology 1936	15 12 0
Wheeler & Jack—Hand book of Medicine	9 8 0	Manson and Bars—Tropical Diseases	20 0 0
Rogers and Megaw—Tropical Medicine 1935	15 0 0	Hutchinson and Hunter—Clinical Methods	7 10 0
Starling—Human Physiology 1936	20 6 0	Pearce Gould—Surgical Diagnosis 1937	7 0 0
Howell's—Physiology 1933	17 12 0	Treves—Surgical Operations 1930	7 5 0
Rose and Carless—Surgery 1937	18 0 0	Parson—Diseases of the Eye 1936	11 4 0
Romanis & Mitchner—Surgery 2 Vols. 1937	11 12 0	May and Worth—Diseases of the Eye 1934	10 4 0
Haygroves—Synopsis of Surgery 1933	21 8 0	Rosenae—Hygiene and Preventive Medicine	27 12 0
Muir—Text-book of Pathology 1936	17 3 0	Shattock—Surgical Diagnosis 1930	10 5 0
Green's—Pathology 1934	13 0 0	Tidy—Synopsis of Medicine 1934	13 12 0
Beaumont—Medicine for Practitioners 1937	9 0 0	Holder and Gow—Medical Diagnosis	10 14 0
Do. and Dodds—Medicine 1936	6 14 0	Samson Wright—Applied Physiology 1936	11 0 0
Hale White—Materia Medica 1937	25 4 0	Houstons—Inter Physics	7 3 0
Boyd's Text-book of Pathology 1938	7 8 0	Borradaile—Manual of Zoology	11 0 0
Gosh—Materia Medica	11 0 0	Hamilton Bailly—Physical Signs in Clinical	13 8 0
Berkley Ten Teachers—Diseases of Women	11 0 0	Surgery 1937	18 0 0
1938		Baily and Love—Short Practice of Surgery	
Johnstone—Midwifery		in one Vol. 1937	

When writing to advertisers, please mention this Magazine.



Antiphlogistine . . always indicated in
TONSILLITIS • PHARYNGITIS • LARYNGITIS • BRONCHIOLITIS

Write for sample and literature

THE DENVER CHEMICAL MANUFACTURING COMPANY
163 VARICK STREET, NEW YORK, N. Y.

When writing to advertisers, please mention this Magazine

SELECT MEDICAL PUBLICATIONS

	Rs.	A
Gray—Anatomy—1938	27	0
Rose and Carles—Manual of Surgery—1937	18	0
Cunningham—Text Book of Anatomy—1937	27	0
Frazer—Anatomy of Human Skeleton—1933	19	0
Connybere—Text Book of Medicine—1936	14	0
Hale and White—Materia Medica—1937	6	14
Major—Physical Diagnosis—1937	14	0
A. L. Mudaliar—Clinical Obstetrics—1938	17	0
De Lee—Obstetrics—1938	37	12
Mackay and Mackartney—Introduction to Bacteriology—1936	8	8
Zinsser—Text Book of Bacteriology—1934	20	10
Jellet—Manual of Midwifery—(4th Edition)	16	8
Hogben—Genetic Principles in Medicine and Social Science—1931	10	5
Patch—Manual of Mental Diseases—1934	7	4
Mackenna—Diseases of the Skin	13	12
Watson—Handbook for Nurses—1934	7	4
Pugh—Practical Nursing—1936	8	8
Nurses Dictionary—1938	2	1

P. VARADACHARY & COMPANY,
Medical and Law Book-sellers,
8, LINGHA CHETTY STREET :: :: MADRAS.



An IDEAL RECONSTRUCTIVE TONIC for the CONVALESCENT

Contains Peruvian bark, Sodium and Pottassium Hypophosphites, Nux Vomica, Malt Iron and Ammonium Citrate, Peptone and Portwine.

Improves Appetite and the Quality of the Blood and acts as an Iron Tonic for those Convalescing from Long-standing illness.

Sole Distributors:
APPAN & Co.,
CHEMISTS & DRUGGISTS,
MADRAS.

NYAL COMPANY,
DETROIT, U.S.A.

When writing to advertisers, please mention this Magazine.

Are you a Member of the Co-operative Club?

Do you know that the Co-operative Club is meant for your benefit?

Do you know that if you are a member you can buy all your text-books, instruments, and stationery cheaper than from elsewhere?

Do you know that profits are to be shared by the members?

Join to-day and reap the benefits of this student enterprise.

The Madras Medical College Co-operative Club Ltd.

(Registered 1938)

The Madras Medical College Association

All "Old BOYS" of the College are earnestly invited to become members and keep in touch with their "Alma Mater".

SUBSCRIPTION.—Annual for old student members Rs. 5, including free issue of the Medical College Magazine and other publications of the Association.

The Madras Medical College Magazine

Issued quarterly under the auspices
of the Madras Medical College Association

The activities of the Association and the Madras Medical College and original articles on Medical Subjects, Clinical lectures and case reports on interesting cases are published in the Magazine.

Rates of Subscriptions. Rs.

Students (including postage) per annum	...	...	...	2
For non-members	...	...	...	4
Single Copy	...	...	...	1

A GOOD MEDIUM FOR ADVERTISEMENTS.

Rates of Advertisements.

	Full Page	Half Page	Quarter Page
	Rs.	Rs.	Rs.
Ordinary pages—One insertion	7 8	4 8	2/4
Four insertions	22 8	13 8	7/8
Outside of cover—Four insertions	45 per page.		
Inside of cover—Four insertions	30 per page.		

For further particulars, please apply to:—

THE EDITOR,
Madras Medical College Magazine,
Medical College, Madras.

The Madras Medical College Magazine

GENERAL EDITOR

N. S. Narasimhan, L.R.C.P. (Lond.), F.R.C.S. (Eng. & Ire.)



Vol. XVIII, No. 3

APRIL 1939.



His Excellency Lord Erskine, the Surgeon-General, and the President, on the occasion of the opening of the Mexico College Hospital.

John Hilton, F.R.S., F.R.C.S.,

1807—1878.

John Hilton was a Surgeon of the Guy's Hospital, London. He became the President of the Royal College of Surgeons of England. He delivered during the years 1860, 1861 and 1862 at the College a course of lectures on the "Influence of Mechanical and Physiological Rest in the Treatment of Accidents and Surgical Diseases and the Diagnostic Value of Pain".

These lectures were collected in a book form and edited by his colleague and friend Mr. W. H. A. Jacobson.

Mr. Jacobson observed that "the book would be pre-eminently useful to students by proving to them, in the early drudgery of dissecting, how useful the dry facts of Anatomy will surely be hereafter; and later by encouraging them, when busy in the wards, to keep up their knowledge of Anatomy by applying to their practice the thoughtful lessons with which the pages abound." Mr. Hilton's observations range from a corn to affections of the brain.

The wax models of his dissections are preserved in the Guy's Hospital Museum. The illustrations in his book are clear and will be of immense value.

The therapeutic value of 'rest' has been recognised by surgeons of all periods. It constituted the fundamental principle of Hunter's practice, while Hunter gave it a place at the end of a paragraph. Hilton made it the heading of a new Chapter. He used his knowledge of the structure and function of the body as a means to discover how parts could be rested. Hilton's white Line, Hilton's law of nerve supply to joints and his methods of operative approach are familiar to all.

The Madras Medical College Magazine

VOL. XVIII.

APRIL 1939

No. 3.

Black Wednesday.

BY LT.-COL. G. R. MCROBERT, I.M.S.

I had been asked to represent the Government of India at the International Congress of Tropical Medicine and Malaria at Amsterdam, and despite the fact that war clouds were gathering and that the Premier's first visit to Germany had apparently had little effect in arresting the drift towards international strife, my wife and I left London for Amsterdam on September 23rd, hoping to get through the Conference in peace and to be able to join our ship for India at Marseilles, after a brief tour through Holland, Belgium and France.

On our arrival at the Dutch business capital we learned of the failure of Mr. Chamberlain's second visit to Germany and of the vast military movements which were taking place. A pessimistic view prevailed at the British Consulate and this note persisted and became intensified throughout Holland as day succeeded day. It was difficult to concentrate on the business on hand and in the Conference buildings little groups of "nationals" could be seen in corners at all hours of the day discussing "the situation" and waiting for the latest news.

On the afternoon of Tuesday the 23th, an atmosphere of despair was apparent in the Dutch press and at the evening reception given at the Reichsmuseum by the Netherlands government in honour of the Congress, the chief topic of conversation amongst those who had not already left was how quickly the delegates could get back to their respective countries.

The *piece-de-resistance* of any evening reception at the Amsterdam Reichsmuseum is the exhibition in a dark room of the cleverly floodlit masterpiece of Rembrandt—The City Guard. We duly admired that wonderful and historic picture but felt next morning that it had been of evil omen as we saw from our windows the city streets full of marching troops. Holland had mobilized.

We learned that the taxis and buses had been commandeered in Paris, that the French railways had been taken over by the military and that in the event of hostilities there would be no chance whatever of getting passage by rail through Belgium and France to Marseilles.

Our ship was due to sail from Liverpool next day, so action had to be decided on at once.

The travel agencies were crammed full of visitors trying to arrange passages, to change tickets and to alter route schedules. We were told that our only chance to catch our ship was to fly to Liverpool that evening.

The K. L. M. (Royal Dutch Air Line) maintains a regular daily air service from Liverpool to Amsterdam and *vice versa* for the benefit of business men dealing with the north of England. Unfortunately when we first made application, the seats had all been reserved and we were in a quandary, but in the early afternoon we managed to procure two seats which had been released.

Like all large cities, Amsterdam has its air port some miles away and just before 4 p.m. we set out for Schiphol—one of the finest air termini in Europe—in a luxurious K. L. M. auto-bus.

Having registered our weight and that of our rather heavy kit at the airport office, we remained in the restaurant until loud-speakers informed us that it was time to go on board.

All the liners were crowded and running late. Double services were being operated to and from Berlin and just before we embarked at ten minutes to five, two gigantic four engined planes took off for that city, laden with homegoing Germans.

Our own plane was a twin-engined American Lockheed monoplane, identical with that used by Mr. Chamberlain—a 250 m. p. h. twelve seater machine with a crew of four,

Medical College Magazine

two pilots, a wireless operator and a very charming and efficient hostess.

We hardly had time to get general bearings, to glance back at the vast city of Amsterdam with its intricate mesh-work of canals, to get a quick impression of the Yssel (better known as the Zuider Zee, named before the ingenuity of the engineer cut it off from the sea) and to note the new North Sea canal which enables ships of all sizes to reach Amsterdam, before our plane reached the west coast of Holland and headed W.N.W. for its 200 m. journey over open sea.

For nearly an hour we flew steadily at 6,000 feet over a vast empty sea, but as six o'clock approached, rather a dense cloud formation appeared below us and some minutes later we were surprised to catch a glimpse of typical English fields through a small gap in the mist.

Clouds seemed to gather more densely and the atmosphere began to be distinctly "lumpy". Then we ran into fog. The plane was brought down to a lower elevation but we could see nothing but grim dreary mist. The wireless operator was kept busy transmitting and receiving signals and communicating from time to time with the pilot.

We were now obviously flying on wireless bearings, feeling our way through the fog towards Doncaster—the famous Yorkshire racing town, home of the St. Leger—our first stop.

Some twenty-five minutes after reaching the coast we commenced to circle, and I was relieved to note a flashing red beacon which guided us down to the airport. After a walk

Black Wednesday

on the ground for five minutes we were glad to get into the plane again out of the damp and dismal atmosphere of Doncaster.

Our next stop was at Manchester and we rapidly rose as we left our first stopping place as our route took us over the Pennine Range of hills, the backbone of England, which we crossed at a safe height.

Despite the mist and rain we got a good view of the bleak hill tops as we sailed over them and it seemed but a few minutes later when we spiralled down into the Manchester air port and disembarked for a few minutes before a large crowd of Mancunians who had come out to see the plane.

The final stage of the journey was performed in twilight and we flew

low over factories, canals and houses to alight at Liverpool at 7 o'clock but two hours after leaving Amsterdam 400 miles away.

We were soon deposited at the well-known Adelphi Hotel where a notice was prominently displayed "The S. S. California will not sail for India as she has been requisitioned by government".

Our dismay was soon removed however, by the announcement that Mr. Chamberlain was going to Munich next day, and that the sailing should be regarded as not cancelled but postponed.

Two days later we sailed down the Mersey.

Observations on the Tuberculosis Problem.

BY S. SHONE, M.D., M.R.C.P. (London), CAPT. I.M.S.

General Hospital, Madras.

We know that the human race shows marked variations in the degree of susceptibility to tuberculosis. If tuberculosis is introduced into an isolated community which has previously not experienced its ravages, the disease can assume a most virulent form. On the other hand in towns and cities, the malady manifests a chronic and almost benign course, and, in some countries, such as China, where it has been rampant for many centuries, the most extensive physical signs are compatible with a moderate feeling of well being. The difference between the disease in these two instances is said to be due to the fact that, in those communities which have had long acquaintance with the disease, the more susceptible individuals have long been exterminated. In other words there would appear to be a natural resistance to tuberculosis, which may be inherited. This natural immunity is relative only, and is largely influenced by poverty, overcrowding, malnutrition, and physical and mental strain. A very important factor in the breakdown of whatever degree of natural resistance the individual possesses is the danger period of puberty.

Whether there is any acquired immunity to tuberculosis as distinct from natural, inherited resistance, requires a study of the manner in which tuberculosis attacks the human organism. The life history of tuberculosis is divided into two phases. There is, first of all, the primary infec-

tion, followed after a variable interval of time by the secondary invasion. The primary complex was once considered to occur only in childhood, but it has been amply demonstrated that childhood infections occur in less than 50 per cent of all individuals nowadays, even in big cities, where more than half the people are found to acquire their initial infection during or after puberty. This may have some relation to the large consumption of pasteurized milk.

The primary complex need not necessarily occur in the lung but may be anywhere in the body. After entering the organism, the bacilli are phagocytosed by polymorphonuclear cells and are carried along the lymph stream to a lymph node, where they are surrounded by layers of endothelial cells, outside which are masses of lymphocytes. The organisms are frequently not destroyed but may remain alive for many years. The primary complex may produce no symptoms or, at the most, a mild febrile illness, which is usually passed off as a chill or an attack of influenza. If, however, an individual who has thus been attacked is subjected to a skin inoculation with tuberculo-protein, derived from the bacillus, an intense exudative and inflammatory reaction is found to occur. This indicates a condition of hypersensitiveness to tuberculo-protein, which does not exist in a person who has not suffered from the primary complex. This state of allergy may gradually fade and finally a positive

tuberculin reaction—as the above intense skin response is called—may disappear, but it takes a number of years to do so and is said to be an unusual event, in any case. It will not disappear if there are any tubercle bacilli alive in the nest produced by the primary infection.

It is important to ascertain whether the development of the state of hypersensitiveness to tuberculo-protein denotes that the particular individual has acquired some degree of immunity to the bacillus. The general belief is that allergy is in some way connected with immunity. In any case the reaction is so startling that it would appear to be rather remarkable if it did not subserve some useful function. The facts are that a large dose of tubercle bacilli will kill an animal rendered sensitive by a previous infection. A smaller dose will make it acutely ill, but if it recovers, it will survive longer than an animal infected for the first time by the same dose. It appears that the view to take at the present time is that the condition of allergy is beneficial for small reinfections but dangerous for larger doses.

Can we then, in any way, speak of an acquired immunity in tuberculosis? A parallel may perhaps be drawn with syphilis. In this disease, as is well known, while the patient is "syphilitic" he is immune to a fresh exogenous infection. There is a change in the tissues, which manifests itself by a positive Wassermann reaction. It would require exceptional circumstances to justify a diagnosis of a fresh exogenous infection in a patient with a known positive Wassermann reaction. In tuberculosis we have a primary complex comparable to the primary stage of syphilis, and we have an altered state of the tissues to exogenous infection. The sensitised person continues unaffected until some combi-

nation of circumstances precipitates the so-called secondary infection. Is this secondary infection exogenous or endogenous? If the parallel with syphilis is to be maintained, the infection should be endogenous, that is, arising from the patient's own tubercle bacilli, which have been quiescent during the latent period. Such a latent period occurs in syphilis. Ten or twenty years may elapse before tertiary symptoms manifest themselves and ten or twenty years may pass before pulmonary tuberculosis declares itself.

The only flaw in the argument is that, as we have seen, tuberculo-protein allergy can be broken down by heavy exogenous infection. But does such a heavy infection, except under experimental conditions, commonly exist? It is maintained by several eminent observers, of whom Wallgren is one, that, under the ordinary circumstances of life, such heavy infections from outside sources are very unusual. And if small infections can overcome the purposive sensitiveness of the tissues, what meaning is there in the condition of allergy? The conclusion to which this line of argument drives us is, that under ordinary circumstances, the secondary infection in tuberculosis is an endogenous one. Exogenous re-infection may, and probably does occur in quite a large number of cases, but it may be argued that the individuals in whom it takes place are those who develop an acute, rapidly advancing type of disease.

Much progress has been made in recent years in the investigation of tuberculous lesions with the assistance of the tuberculin reaction. Formerly this was a haphazard procedure, performed in half a dozen different ways and with as many differing reagents. Confusion in the results obtained existed on account of the impurity of the various extracts of the tubercle

bacillus used and figures were far from comparable. More recently, however, a purified protein derivative (abbreviated to P.P.D.) has been elaborated and this is now the standard for tuberculin testing. It is standardised so that its potency is the same under all conditions.

A positive tuberculin test can only mean that the tissues have been sensitised to tuberculo-protein and that there is a primary tuberculous focus somewhere in the body. A complete physical and X-ray examination may fail to reveal the presence of this complex, but it must, of necessity, be there, because nothing else can so sensitise the tissues as to give a positive tuberculin test. About 80 per cent of people who are positive reactors never develop a secondary infection, and this in itself appears cogent evidence of the correctness of the endogenous theory of re-infection, since we are all constantly exposed to small doses of tubercle bacilli, and the failure to be reinfected speaks strongly for the value of the allergic state as an immunity factor. The remaining 20 per cent develop clinical evidence of disease at some future date. Some of these people acquire miliary tuberculosis, tuberculous meningitis or an acute pneumonic or broncho-pneumonic type of phthisis. The majority, however, contract the ordinary fibro-caseous variety of pulmonary tuberculosis, which is a ding-dong battle between the body defences and the bacillus.

There is no way of telling whether an individual is going to fall into the fortunate 80 per cent group or into the unfortunate 20 per cent group. Hence it is obviously a matter of some urgency, first of all to test as large a number of the community as possible and divide them into negative and positive reactors. Secondly it is of vital im-

portance to keep the positive reactors under close observation. We should regard a positive tuberculin test with the same concern as the appearance of a pleural effusion or spontaneous pneumo-thorax, which, we know from past experience, is very often of tuberculous origin. In these latter cases, in spite of the absence of confirmatory X-ray or other findings, we feel our position strong enough, purely on statistical grounds, to institute a regime of prolonged rest. It is not necessary to be as harsh with the positive tuberculin reactor. The latter should be watched carefully and given every facility to maintain all his powers of natural resistance. He should in particular be steered through the difficult and peculiar stress of puberty.

Another valuable feature of the positive tuberculin test is that it focuses our attention upon the possible source, domestic or otherwise, of the primary infection in the individual under consideration. Thus we see that, followed to its logical conclusion, the tuberculin test places in our hands a means of totally eradicating tuberculosis. Veterinarians can wipe out tuberculosis from herds of cattle by tuberculin testing and segregation, and a modified scheme can achieve the same purpose in human beings. Positive reactors are kept under close watch and are periodically examined. Contacts of positive reactors are examined for infectivity and are appropriately dealt with. If in an early stage, amenable to treatment, they are subjected to the appropriate measures. If they are beyond relief, they are isolated in suitable institutions. There is no reasonable doubt that if some such measures were to be put into operation, tuberculosis could be effectively eliminated as a scourge of mankind.

Recent Advances in the Treatment of Children's Diseases.

BY A. V. S. SARMA, M.B., B.S., D.C.H. (London),

Medical Practitioner, Madras.

In the following are given a few important advances made in the therapeutics of infancy during recent years:—

Respiratory Failure.

Warmth, clearing of the respiratory passages, and artificial respiration form the preliminaries. Oxygen (95 per cent) and carbondioxide (5 per cent) through a nasal catheter are valuable. Also pituitrin or cardiozol are injected intramuscularly.

H. Dorr has given cardiozol intravenously to mothers to save children from intrauterine asphyxia.

Cerebral Edema.

Rectal hypertonic saline (10 per cent) has been used by Moncrieff very effectively in this condition and two ounces of the fluid may be repeated once in four hours if necessary. Chloral is also used together with 5 per cent carbondioxide and 95 per cent oxygen for respiratory failure.

Hæmorrhagic Diseases.

The coagulation and the bleeding time are raised during the first five days of life (Rodda). An excess of antithrombin or a dearth of prothrombin has also been incriminated in explaining these diseases.

Injection of mother's whole blood intramuscularly is specific; initial

dose being about 10 to 20 c.c. and subsequent doses being, when necessary, 10 c.c. at 12 hour intervals. Intravenous transfusion is resorted to in urgent cases; but previous typing of blood is necessary here. Human serum too gives good results. The delay in the preparation of human serum, and the difficulty of intravenous technique in these little patients have always kept whole blood therapy at the choice of the practical physician.

For the anæmia appearing later on, iron and liver are resorted to.

Icterus Gravis Neonatorum.

This is one of the trio in erythroblastosis foetalis. Francis Braid and J. H. Ebbs class this disease as a congenital developmental defect. According to Darrow an antigen-antibody reaction seems to explain all aspects of erythroblastosis foetalis.

Hampson has established the supreme efficacy of hæmotherapy in this disease. Five to fifteen c.c. of maternal serum are injected daily until the desired effect is had. Transfusion of whole blood (10 c.c. per lb. of infant's weight) is equally effective.

Biliary antiseptics given to pregnant women have been shown to be useful as preventives.

Anæmias of Infancy.

The nutritional anæmias of infancy respond to iron therapy. The constipat-

ing effect of iron is not so evident in children. The researches of Prof. L. G. Parsons and others are classical in this field. J. H. Hutchison thinks that copper plays a role in hæmoglobin formation, apparently by rendering available for that purpose iron already stored in the body.

Ferrous iron is better than ferric iron, and the former is effective in smaller doses. According to R. Stephenson, supplementary iron appears to be needed up to the age of two years to maintain the hæmoglobin at the normal level.

According to J. H. Hutchison, massive doses of iron are necessary as they can then only make the iron stored in the liver overflow for hæmoglobin formation.

Prevention of nutritional anæmias of infancy lies in giving yeast and iron to pregnant mothers.

Nasal Sinusitis.

About 50 per cent of children with tonsillar and adenoid involvement have antritis.

Treatment of acute antritis is conservative. Ephedrinated oil is advised for nasal instillation. The middle meatus may be shrunk by the application of cocaine and adrenalin. Aspiration of the antrum is the last resort—not lavage.

Treatment of chronic sinusitis means improvement of nutrition and hygiene. Washing out of the antrum is a very useful procedure. Antrostomy and Caldwell-Luc operation are also resorted to.

Disease of the sphenoid and ethmoids is dealt with by the displacement method of Proetz.

Short-wave diathermy and infra-red treatment are also gaining ground.

Prevention of sinusitis lies in a balanced diet, rich particularly in vitamins A and D and ideal environment.

Oxygen Tents.

These are very useful in pneumonia and empyema. The aim is to keep the percentage of oxygen at 45 to 50 and the temperature cool.

Prontosil Group of Drugs

Recent medical literature abounds in information regarding the sulphanilamide group of drugs.

In paediatrics sulphanilamide has been used with success in cervical adenitis, erysipelas, gonorrhoeal vulvovaginitis, mastoiditis, meningococcal meningitis, throat and nose infections, pyelitis and pneumonia. The dosage is from grains $1\frac{1}{2}$ to grains $7\frac{1}{2}$ thrice a day.

The utility of this drug in pneumonia and meningococcal meningitis may be elaborated to some extent.

Evans and Gaisford have used T. 693 in 100 cases of lobar pneumonia with only 8 per cent case-mortality while 27 per cent was the case-mortality in a control series. T. 693 has also been reported as being useful in broncho-pneumonia. In lobar pneumonia a few cases had even as much as 9 grams of T. 693 (M. & B.) during the first 24 hours. Cyanosis appeared in about a quarter of the intensely treated cases, and disappeared promptly with the withdrawal of the drug. Spectroscopic examination of the blood revealed the presence of methæmoglobin in six of these cases. There was no case of sulphæmoglo-

binæmia. No renal damage was observed. Temperature fell within 24 or 48 hours of treatment.

"Sulphanilamide therapy marks an important advance. It has changed the treatment of meningococcal meningitis from a difficult to a relatively simple matter. The former high case-mortality in infants appears to be yielding to this treatment. It is effective in group II as well as in group I infections. High initial dosage is advocated. The sulphanilamide level in the cerebrospinal fluid should preferably reach 5 mg. per 100 c.c. in twenty-four hours and be maintained at this level for three days. Early cyanosis is not an indication for reducing dosage. The treatment is probably effective only in the acute stage. Two cases treated after the tenth day of the disease died." Thus writes H. Stanley Banks after a study of treatment of 113 cases of meningitis. E. N. Allott writes: "It is possible that the administration of large amounts of fluid to the patients may have led to increased loss (of the drug) through the kidneys." The latter point is of practical interest.

Researches of Prof. A. Fleming and others show the dependence of these drugs for their activity on the presence of leucocytes. The toxic effects are:—(1) Acidosis, (2) Cyanosis, (3) Fever and rash, (4) Agranulocytic angina, (5) Anæmia, (6) Optic Neuritis, and (7) Impairment of Spermatogenesis. In this connection it may be remembered that agranulocytic angina is practically unknown in paediatrics. The hyperpnoea of patients receiving prontosil is primary and the fall in the alkali reserve is compensatory. It is possible that hyperpnoea is caused through Herring-Brown reflex, affecting centrally. While the patient is

on these drugs he is not given any sulphur-containing food or drug (onions, egg, magnesium sulphate, etc.)

A hopeful trial of prontosil may be made in osteomyelitis and peritonitis. Trial in acute rheumatic fever has been fruitless. The treatment of sore throats with sulphanilamide means a preventive aspect and is essentially on a different footing.

In pyelitis the acute stage is best treated with alkalies (for 4 or 5 days) and later on sulphanilamide is exhibited. At present mandelic acid seems to have abdicated in favour of prontosil.

Prontosil may be given orally, intramuscularly, intravenously and intrathecally.

Pyloric Stenosis.

Just to-day the physician claims successes equal with the surgeon in the treatment of this disorder. Braithwaite uses 5 c.c. of 1 in 10,000 solution of eumydrine (atrophine methyl nitrate) half-an hour before feeds. It is advisable to use this treatment more in private practice and that only after overcoming dehydration.

Infantalism.

Antuitrin-S is used here. One c.c. two or three times a week for two or three months is given.

Acid Milks.

Attempt is made to satisfy the buffers of cow's milk by acidification and therefore the normal gastric acidity is left unfettered. The advantages are the stimulation of bile secretion, soothing of pylorus, and finer protein curd formation. Next

to breast milk, acid milk is preferred. Lactic acid is preferred to hydrochloric acid, and a dram of acid lactic dilute (B. P.) is added to a pint of milk. Lacidac is quite good and serves as a prophylactic against diarrhoea.

Treatment of Measles.

Treatment of contacts with convalescent serum as a prophylactic has been very effective. Recently placental extract has also been favourably reported upon (T. N. Parish). Three c. c. of convalescent serum, up to three years, and an additional c. c. for every further year in age, given intramuscularly before the first six days after exposure completely aborts an attack. Very recently some workers have advised larger dosage. When the injection is given between the 6th and 9th day the attack will be rendered milder but a permanent immunity will be achieved by the subject. The latter plan is adopted for healthier contacts.

Whooping Cough.

According to a recent review by R. Cruickshank, larger doses of vaccines are useful when given early both in the prevention and treatment of pertussis.

Diabetes.

Less restriction in diet has been introduced as also insulin with retarded action like protamine insulin and zinc protamine insulin.

In the use of retard-insulins the risk of hypoglycaemia coming on very

suddenly has to be remembered. The aim of this drug is to avoid nocturnal rise of blood sugar. Hypoglycaemia as a result of zinc protamine insulin has risks of early relapse.

The Iron-Lung.

The use of the Bragg-Paul pulsator (Drinker's apparatus) in cases with paralysis of diaphragm or intercostals due to diphtheria or poliomyelitis has saved many lives. One patient observed by the writer at the Great Ormond Street expressed his preference to be in the apparatus as he was recovering from post-polio respiratory palsy.

Rheumatoid Arthritis.

Gold therapy and serial plasters have been favourably reported upon by various workers, while T. Colver has defined the prognosis as a self-limiting disease and claiming 25 per cent complete recovery. Again, jaundice has been observed to produce a remission in the symptoms of arthritis. Bilirubin and bile salt are both necessary in artificial induction of jaundice for the efficacious therapy in rheumatoid arthritis.

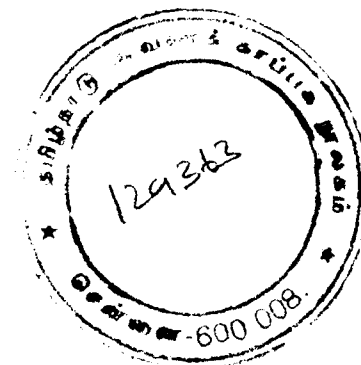
The introduction of choline derivatives into the therapeutic armamentarium, play therapy of behaviour problems, hearing aids in the treatment of deaf children, and efficient attention to stammer either by the relaxation school or by elocutionary method are some of the newer advances not described.

REFERENCES.

1. Wilfrid Sheldon—*Diseases of Infancy and Childhood* (1938).
2. W. J. Pearson and W. G. Wynie—*Recent Advances in Diseases of Children* (1935).
3. Francis Braid and J. H. Ebbs—*Archives of Disease in Childhood* (December 1937).
4. R. R. Darrow—"Icterus Gravis Neonatorum"—*Archives of Pathology*, 25th March 1938.
5. L. G. Parsons, E. H. Hickmans and E. Finch—"Studies in Anaemia of Infancy and Childhood"—*Archives of Disease in Childhood*, December 1937.

1. Recent Advances in the Treatment of Children's Diseases 159

6. J. H. Hutchison—"The Role of Copper in Iron-deficiency Anaemia in Infancy"—*Quarterly Journal of Medicine* (July 1938).
7. R. Stephenson—"Anaemia in Infants"—*American Journal of Diseases of Children* (June 1938).
8. J. H. Hutchison—"Retention of Iron in Childhood"—*Archives of Disease in Childhood* (October 1937).
9. James Crooks—"Nasal sinusitis in Childhood"—*British Medical Journal* (30th April 1938).
10. Donald Paterson—*Sick Children* (1938).
11. Evans and Gaisford—"Treatment of Pneumonia with 693 M & B"—*The Lancet* (1st July 1938).
12. H. Stanley Banks—"Serum and Sulphanilamide in Acute Meningococcal Meningitis"—*The Lancet* (1st July 1938).
13. E. N. Allott—"Sulphanilamide Content of Cerebrospinal Fluid"—*The Lancet* (1st July 1938).
14. Prof. A. Fleming—"Anti-bacterial Action *in vitro* of T 693 on Pneumococci and Streptococci"—*The Lancet* (9th June 1938).
15. Prof. A. Fleming—"The Anti-bacterial Power of the Blood of Patients receiving T. 693"—*The Lancet* (3rd September 1938).
16. B. G. Macgraith and R. L. Vollum—"The Bacteriostatic Effects of Sulphanilamide, P. Soia, septasine and M & B"—*British Medical Journal* (12th November 1938).
17. "Chemotherapy of Bacterial Infections"—*The Lancet* (20th May 1938).
18. "Sulphanilamide and the Alkali-reserve"—*The Lancet* (13th August 1938).
19. T. V. C. Braithwaite—"Treatment of Congenital Hypertrophic Pyloric Stenosis by Eumydrine"—*Archives of Diseases in Childhood* (August 1937), p. 332.
20. F. G. Hobson—"Conduct of a School Epidemic of Measles"—*British Medical Journal* (23rd July 1938).
21. R. Cruickshank—"Whooping Cough or Pertussis"—*The Lancet* (1st July 1938).
22. Khud Bollen—"Diabetic Children on a Free Diet"—*Acta Paediatrica* (Vol. XX, Fasc. 8).
23. Grace Calver—"Behaviour Problem of Children and Their Treatment"—*The Practitioner* (July 1938).
24. E. N. Snowden—"Stammer"—*The Lancet* (9th July 1938).
25. "Children with Defective Hearing"—*The Lancet* (10th September 1938).
26. Phillip Elman and J. S. Lawrence—"Gold Therapy in Rheumatoid Arthritis"—*Post-Graduate Medical Journal* (September 1938).
27. (a) N. Capener—"Orthopaedics in Rheumatoid Arthritis"
(b) W. Edgcombe—"Rheumatoid Arthritis"
(c) P. S. Hench—"Effect of Spontaneous Jaundice on Rheumatoid Arthritis"—*British Medical Journal* (20th August 1938).
28. T. Colver—"The Prognosis in Rheumatoid Arthritis in Childhood"—*Archives of Disease in Childhood* (August 1937).
29. Personal Notes made while working at the Hospital for Sick Children, Great Ormond Street, London, during March to September 1938.



Actinotherapy, its Nature, Production and Properties.

BY S. R. RAJARAM, M.B.B.S. (Madras).

Civil Hospital, Hyderabad (Dn.).

Actinotherapy is a Greek derivative meaning *actina*, ray, *therapia*, healing, i.e., a cure sought for by Radiant Energy of the nature of light, being a form of electro-magnetic radiation. We know that sun light which the school boy is said to remark as "Simple" is not simple because it is lacking in the richness of its colours, but because it has all the seven colours uniformly blended, i.e., the visible spectrum, beyond the left and right of which we get the shorter Ultra-Violet and the longer Infra-Red radiations respectively. Actinotherapy is harnessing these two forms of energy for the alleviation of the suffering humanity. For fear it seem "dry" Physics to enumerate the different wave lengths, suffice it to say that they are expressed in millimicrons and microns, 10⁶ being an Angstrom Unit (A.U.). This energy radiation expressed in A. U. is to be assayed for practical purposes in terms of Physical and Biological reactions that they stimulate the cellular protoplasm.

Sources.—Now to a brief survey of the sources of such emanations. The Sun itself being a perennial natural source there are artificial sources like *The Alpine Sun*, *The Kromayer Lamp*, these being composed of a mercury arc in a Quartz tube, the Carbon arc and the Tungsten arc, all producing U. V. L. radiation of varying percentage; and the *Sollux Lamp* for Infra-

Red rays. The infrared radiations are emanations from a "black body", of the nature of Graphite or a metallic wire rivetted between two plates of mica.

Physical Effects.—The two forms of energy act differently on the human skin: the U.V.L. with a penetrating power of the order of 0.1 m.m. to 1 m.m. produces an erythema—which does not extend beyond the capillary bed in the dermis, with a latent period which is variable with the A.U. It is accompanied by a photo-chemical reaction. It has besides a photo-electrical reaction. The longer infrared radiations cause a Hyperaemia, without any photo-chemical reaction as in the U.V.L. radiations.

Fluorescence.—Fluorescence is another of the physical phenomena of the actinic rays. Various tissues give a characteristic shade in colour—thus just a drop of semen could be detected; human hair from any other hair; blood from other dye stuffs could all be recognised by subjecting them to the U.V. rays. The medico-legal importance of such findings could be appreciated to its fullest measure by only those confronted with such problems. Then again the fluoroscopic effect on some of the skin diseases is also an invaluable asset in their diagnosis. Thus U.V.L. gives a beautiful green fluorescence for

Actinotherapy, its Nature, Production and Properties

161

tenia infections, keratosis a white fluorescence and so on. For further details on this fascinating subject of fluoroscopy Radly Grant may be consulted.

The delayed actinic reaction of the skin is a call for the regenerative powers of the cells of a photo-chemical nature. The human body is said to be as sensitive as the green tender leaf to this phenomenon of radiations. Workers have shown that it is so very sensitive that an area of 1 m.m. square of U.V.L. radiation on the skin is evidenced by photo-chemical changes which it evokes. It may not be too much on my part, to ask for the indulgence of my readers to a few technical facts, i.e., that the U.V.L. ranges approximately from 2,500 A.U. to 4,000 A.U. with a "peaking effect" at 2,970 A.U. (100 per cent). The I.R. radiations are emanations above 7,000 A.U. working up to 200,000 A.U. with a "peaking effect" at 1,1000 A.U. (100 per cent).

The action of U.V.L. radiation—to put an Iliad in a nut shell—are threefold, i.e., Bactericidal, Growth promoting, and a Biological action of the nature of a photo-chemical reaction. It must here be brought home to us the only too well known saying that the doctor is not treating diseases but individual patients and as such should bear in mind the gamut of variation, which according to Saidman is stated to be of the ratio of 1:400, gathered from a study of over 2,000 cases. To the busy practitioner, who is not a special technician it would be fitting to classify the action of the actinic rays on the various systems of the body, incidentally indicating their therapeutic bearing on the various diseases the human flesh is heir to.

Skin.—Before proceeding further, it may be of interest to note that the skin is the most sensitive, and even here the sensitiveness may be expressed as a per cent in various parts of the body. Taking the abdomen as 100 per cent, medial aspect of fore arm and dorsal aspect of hand is 75 per cent; neck, face, thigh including calf is 50 per cent while soles of the feet are of the order of 25 per cent and less.

The erythema produced, histologically is an inflammatory process, not being confined to the skin extends down into the tissues. The *modus operandi* on this epiblastic derivative is said to be a congestion of the capillary bed in the dermis, with an engorgement of the blood vessels with leucocytes and R.B.C. Taking the skin as a gland, its walls become permeable to the derivatives of amino-acids, which pass outwards *via* the lymph channels and lactals into the blood stream to act on the endocrines—the Thyroid, Adrenals, Pancreas, etc. The internal secretion as a result of the stimulation by U.V.L. takes part in the defensive mechanism of the body-Esophylaxis (Memmesheimer).

The substances liberated from the skin are of the nature of histamine. Powerful local erythema releases the products of inflammation, which have the same effect as parenteral administration of proteins. Pronounced erythema cause blisters which are found to heal without leaving a scar. The pigmentation noticed after higher doses of U.V.L. is due to an oxydase enzyme, and the red light is antagonistic to it. As a result of skin irradiation there is a better regulation of skin inspiration and transpiration, thus regulating the heat mechanism of the body. The cholesterol is irradiated to ergosterol rich in vitamin D,

that goes to energise the system. Thus it may be seen that electromagnetic energy getting changed variously bringing home to our minds the truth of the immortal truism "nothing is lost when the candle burns". By its bactericidal powers it acts on ulcers dermato-mycosis, etc. Its fluoroscopic effects have already been discussed.

Cardio-Vascular System.—The congestion and dilatation of the capillary bed *ipso facto* reduces the much dreaded blood pressure, thus relieving the strain on the heart. By stimulating the hæmopoietic system it helps in minting out R.B.C. in greater numbers—a mode of combating anæmia. The leucocytes are also increased thus increasing phagocytosis. The bactericidal and the immunological powers of the blood are increased thus helping the system to combat bacterial infections like Staphylococcus, B. Diphtheria, Micrococcus Catarrhalis, etc. The mineral content of blood is enriched by an increase in calcium, iron, phosphorus and iodine. There is also an increase in the alkaline-reserve of blood, an important factor for the diabetic and for the prevention of thrombosis and embolism, (Paschoud). The diabetic scores yet another point in that the blood sugar also tends to be diminished. The hæmophilic noted with gratification that his coagulation time has come down. While considering such manifold effects it must be remembered that we should not miss to see the forest in closely watching the trees, and realize that to the therapist these are new avenues by which he could meet the demands of his patients—especially in these days of keen competition, healthy and otherwise.

Alimentary System.—The bleeding gums and commencing pyorrhœa are

relieved to some extent by U. V. L. therapy. There is an increase in the digestive secretions thereby giving a keener appetite, an efficient digestion, better absorption and consequently a robust build.

Respiratory System. The tonsils which are stationed at the high way to respiratory diseases, are more vascularised and this improved circulation helps to combat infections and heal ulceration. The bronchial mucus membrane and the alveolar epithelium are rejuvenated, making them less liable to the wafts of infection.

C. N. System.—Acting on the neurones it has an analgesic effect on the peripheral nervous system; which tones up the skeletal muscles and stimulates them to growth. Acting on the sympathetic it stimulates the endocrine system, increases respiration, regulates the cardio-vascular mechanism, which all go to form the body efficient. Acting on the centre it stimulates the mind and energizes it.

Genito-Urinary System.—The U. V. L. rays have no partiality to any of the systems. Cases of chronic nephritis improve as evidenced by an improved blood condition and a fall in B. P. The *modus operandi* is only a conjecture, an improved metabolism and better elimination of toxins (Russel and Russel). Though an intrusion it should be stated at this stage that U. V. L. therapy is contra-indicated in acute nephritis and in all acute conditions in general, while infra-red rays, which do not influence the cell chemistry may be given. These facts belong more to the realm of therapeutics where they would be considered in detail. In prostatitis many workers claim beneficial effects, like relief from pain and frequency of

micturition, perhaps due to the decongestion effect which U. V. L. exerts on the internal viscera. The maintenance of increased calcium level serves to stimulate an easy menstrual flow.

Metabolism.—Carbo-hydrate Metabolism—there is an increase in the carbo-hydrate metabolism, in the way of an increased mobilization of blood sugar in hyper-glycæmia, with an associated diminished quantity of acetone in the diabetic urine.

An enhanced Protein Metabolism is evidenced by the fact that after actinotherapy there is an increased excretion of nitrogen, sulphur, phosphorus, and salts in the urine.

The Fat Metabolism is activated by the elaboration of vitamin D from the ergosterol of the skin, which helps to lay the bricks of lipoidal cells

Many workers have shown that after actinic irradiation there is an increased fixation of iron in the tissues, as also of calcium, phosphates, iodine, etc.

From the foregoing it could be gauged how very varied are the effects of U. V. L. rays. The synthesis of vitamin D; the enrichment of blood regarding its formed elements; its mineral and iodine contents; a tendency to reduction of blood sugar in hyper-glycæmia; an improved circulation due to vascular changes and a better tone of the skeletal muscles; an increased ingress of digestive ferments; an analgesic effect on the peripheral nervous mechanism; a stimulation of the sympathetic with its concomitant effects all tend to increase the process of anabolism and katabolism, i.e., an increased metabolism.

This increased destruction and regeneration of cells and rejuvenation of existing cells, with a metabolism which is geared to a higher pitch permits of the statement, though paradoxical it may seem that by actinotherapy the thin and sparing axe made more plumpy, while the obese have the consolation of slimming. This is not all. The correction of dyscrasias, the relief it affords in allergic and anaphylactic conditions, the decrease in the coagulation time of the hæmophilic, an increase in the alkaline reserve of blood, an increase in the immunological powers of the system are all conclusive evidences of the fact that every reaction of cell chemistry has been energised.

While it is true that actinotherapy cannot be a "cure all" yet these are no exaggerated claims to this innovation in modern therapeutics, nor is it an idle hero worship of the Goddess of Light, since every claim has passed through the crucible and stood the biological tests on the anvil of truth, to say the least—from the time of Prof. Finsen of Copenhagen, down to Dr. Rollier of Leysin, Sir Henry Gauvain of Alton and the galaxy of many more aspirants of Light.

Part II.

While actinotherapy in the main consists of the medical application of the U. V. Radiation, the other rays of light therapy like the Infra-Red emanations, which are a complement to the U. V. L. are also included. Its source, wave length, and physical properties have already been dealt with, now to its physiological effects.

Physiological Effects.—They effect a vascular engorgement and locally raise the temperature of blood to a degree which does not occur even in the

highest pyrexial conditions known. This heat increases the combustion and immunizing powers of the blood, *i.e.*, one of active and rapid phagocytosis. The local dilatation of the vessels helps a rapid circulation, thus effectively overcoming stasis. This would explain what an important role I. R. rays play in all acute conditions, in helping the resolution of inflammations and commencing abscess. This vascular dilatation permits of an efficient play of U. V. L. on the skin and hence it is best to give an I. R. therapy either previous to or along with U. V. L. radiation.

Regarding the heating qualities of these rays they have to be considered in two sets, *i.e.*, the visible yellow and red rays with the short invisible I. R. emanations; and the longer pure I. R. rays. The former has a maximum penetration with a tendency for the temperature gradient to work inwards. As measured by Sonne, with a local surface temperature of 110.8 F. the subjacent skin at 0.5 cm. depth was found to be 117.8 F. the latter type is opposite of this, *i.e.*, for a surface temperature of 113.9 the underlying area of skin directly below at a depth of 0.5 cm. records 107.5 F.

Colour Therapy.—No resume of actinotherapy is complete without a consideration—though brief it be—of the nature of colour therapy.

REFERENCES.

1. "Actinotherapy Technique." Solbur. 1935. Foreword by Sir. Henry Gauvain.
2. "Fluorescence Analysis in U. V. L." Radley and Grant.
3. "High Blood Pressure," 1934. Dally J. F. Halls.
4. *Lancet*, November 5th, 1937. Edinow.
5. *British Journal of Phys. Med.*, April 1933.
6. *Lancet*, November 2nd, 1939. Shattock.
7. "U. V. L. Radiation and Actinotherapy." Russel and Russel.
8. "The Quartz Mercury Vapour Lamp." J. Bell Ferguson.
9. "Heliotherapy." Rollier.

Red Light.—This is antagonistic in action to the U. V. L. and hence is resorted to after an over dosage of U. V. L. to prevent the subsequent blistering, pigmentation, etc. It is an allied principle conceived by Finsen in using red light to annul the irritative effects of U. V. L. in the treatment of smallpox, to prevent the bad disfigurement by pitting. Similarly in seborrhoea and acne where the quartz lamp is used to produce severe reactions the red ray therapy is sought for as a follow up to prevent pigmentation and help in the restoration of normal skin. These rays also help in the drying up of weeping eczemas.

Blue Light.—A prolonged exposure to blue rays causes anæmia, which is taken advantage of in preoperative cases. They have an anodyne action in traumatic articular extravasations. The therapy is also in vogue for acute coryza.

The subject being fairly vast, commensurate with space and time it has been possible only to touch on the bare outlines without discussing the controversial points found in literature, or entering deeper into the scientific details.

(Dosage, Technique, and Therapeutics)

(To be continued.)

IN MEMORIAM.



Mr. George Thomas.

It is with very great regret that we have to record the premature demise of Mr. George Thomas at the early age of 22. Born in Travancore as the eldest son of his parent, he finished his pre-medical course in Singapore and joined the First M.B.B.S. class of this College in July last year. During his short stay he more than impressed his friends and teachers by his amiable disposition and sweet temperament. He was kind in his words and his childish innocence always endeared him to all who had occasion to come across him. He was a good sportsman and was a Hockey Captain at Singapore Medical College.

His sudden demise has been a great shock to his relatives and friends. It is quite unfortunate that though born with many an inherent ability the chance was denied to him of developing them. We have lost in him a lovable soul.

"Whom God Loves die young"—May his soul rest in peace.

Warden and Members of
The Madras Medical College Hostel.

IN MEMORIAM

Dr. P. V. Venkatasami.

It is with deep regret that we record the premature demise of Dr. P. V. Venkatasami, M.D., M.C.O.G., at an early age of 37 while studying in England. As a member of the staff of the Women and Children Hospital and this College he endeared himself to one and all. We have lost an earnest, able and learned teacher and obstetrician.

We offer our heartfelt sympathy to the members of the bereaved family.

The Madras Medical College Magazine.

THE MADRAS MEDICAL COLLEGE HOSTEL.



THE Madras Medical College Hostel was declared open by His Excellency Lord Erskine on Friday the Thirteenth January 1939. The opening of this Hostel has remedied a long felt want. The word "College" is used for the residential places attached to the London Hospitals where the students live.

The students, a brotherhood within a brotherhood of our sacred profession, live under rules mostly of their making. Every student

ought to bring to the service of his College the gifts of a good disposition, a good home, and a good public school. He ought to have reverence, a fair liking for work, a certain simplicity and directness of thought; he should be resolute in company, and even against company, to say the right thing and take the right side. The true ways of religion, friendship, logic, athletics, courtesy and self-judgment are learnt here.

We wish to draw the attention of the inmates of the Hostel to the exhortation of our Principal.

Personal.

Mr. U. Venkataraya N a y a k, Assistant Professor of Anatomy, Medical College, Madras, to act as Additional Professor, Central Institute of Anatomy, Physiology, etc., in the same College, with effect from the date of taking charge.

Mr. Md. Basir to be Additional Professor of Physiology in the Central Institute.

Miss B. Upshon, Woman Tutor in Anatomy, Stanley Medical College, Madras, on relief, is posted as Assistant Professor of Anatomy in the Central Institute of Anatomy, Physiology, etc., Medical College, Madras, to fill a vacancy.

Dr. K. Narayanamurthi to be Honorary Physician in the Government General Hospital, Madras, for a period of five years with effect from the date of taking charge *vice* Dr. T. Satakopan who has completed over five years of service.

Mr. S. V. Thiruvenkatachari to be Honorary Assistant Medical Officer for a period of five years with effect from the date of taking charge *vice* Mr. T. K. Sundaram, who has completed over five years of service.

Dr. B. M. Sundaravadanam to continue as Honorary Surgeon till 15th December 1940.

Dr. A. Mannady Nair, M.B. Ph.D., on return from leave, rejoined his appointment as Professor of Bio-Chemistry.

Dr. F. DeNetto, M.B.B.S., was awarded this month the Honorary Diploma of D. A. by the Royal College of Surgeons and Physicians, London.

Lieut.-Col. V. Mahadevan, F.R.C.P. (Edin.), F.R.C.S. (Edin.), I.M.S., Professor of Operative Surgery, Medical College, and Surgeon, Government General Hospital, Madras, to act as Professor of Surgery, Medical College, Surgeon and Superintendent, Government General Hospital, Madras, with effect from the date of taking charge, *vice* Lt.-Col. M. M. Cruickshank, I.M.S., proceeding on leave.

Major J. F. Shepherd, M.B., Ch.B. (Aberd.), M.Ch. (Liv.), F.R.C.S. (Eng.), I.M.S., District Medical Officer, North Arcot, and Superintendent, Government District Headquarters Hospital, Vellore, to act as Senior Specialist in Surgery, Surgeon, Government General Hospital and Professor of Operative Surgery, Medical College, Madras, with effect from the date of taking charge, *vice* Lt.-Col. M. M. Cruickshank, I.M.S., and Lt.-Col. M. Mahadevan, I.M.S.

Medical College Hostel.

Lord Erskine Opens New Buildings.

MADRAS, Feb. 4.

The new Madras Medical College Men's Hostel in Millers Road, Kilpauk, was declared open, last evening, by His Excellency the Governor.

The function was held in a special pandal erected on the grounds in front of the Hostel. The premises were specially decorated for the occasion.

A large gathering was present.

His Excellency, who was accompanied by Mr. W. T. Bryant, Private Secretary, and Capt. E. T. R. Jenyns, Aide-de-Camp, was, on arrival received by Major-General N. M. Wilson, Surgeon-General, and Rao Bahadur Dr. A. Lakshmanaswami Mudaliar, Principal of the College.

His Excellency inspected the Guard of Honour presented by the Medical College Contingent of the Fifth (Madras) U. T. C. The members of the College Council were then introduced to His Excellency.

His Excellency was garlanded as he took his seat on the dais.

Dr. A. Lakshmanaswami Mudaliar presented a report about the Hostel, after which His Excellency declared it open.

At the conclusion of the meeting the guests adjourned to the terrace of the building for tea.

Rao Bahadur Dr. A. Lakshmanaswami Mudaliar, Principal, Medical

College, in requesting His Excellency to declare open the hostel, said that it was indeed a red letter day in the annals of their College, for after 104 years of its existence, they were the proud possessors of a hostel which they might justifiably call their own.

"The need for a hostel for medical students," Dr. Mudaliar said, "was first mooted over twenty-five years ago, but consequent on the Great War, the proposal had to be dropped. It was not till 1929 that the Government sanctioned the construction of a hostel for this College on a site in Naval Hospital Road near the Veterinary College. Before any progress was made, however, the financial crisis of 1931 overtook us and Government deferred consideration of the scheme for two years. In subsequent years repeated representations were made on the subject by the Principal.

"The celebration of the Centenary of the College in 1935 gave a fresh impetus to the students and an added zest to their demand. the slogan 'A hundred years and yet no hostel' becoming the rallying cry at all College functions. Deputations of student representatives waited on the Minister-in-charge on two occasions and finally hopes were held out that the Government would sanction the construction for which an estimate of Rs. 3,60,000 was finally approved.

"To our great surprise, however, a communication was received in July 1937 from the Government that funds for the hostel could not be provided

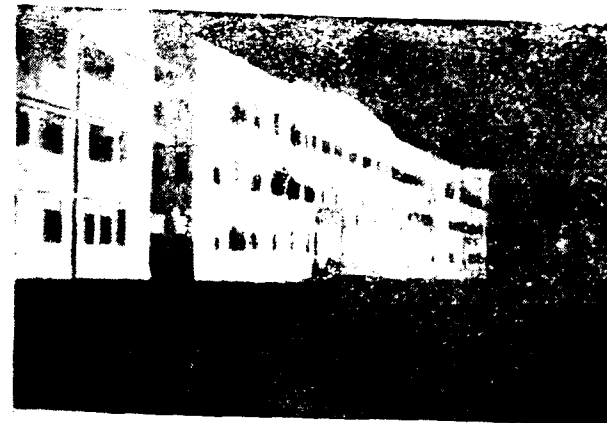
for in the Budget of that year. It was at this stage that I happened to take charge of the Principalship and it was not long before I realised that the possibility of building a hostel had receded considerably to the background and that it may never materialise. The demand, however, became more insistent. A way had to be found to satisfy the legitimate needs of the growing number of students and the mortality and morbidity among medical students in recent years made it even more urgent.

"In the meantime, the Park Hostel in the adjacent compound was proposed to be taken over for women students of our College and in that connection I happened to visit this fine site and to interview the landlord, Mr. Thambuswami, who readily agreed to the suggestion that he should build a hostel on this site for the use of the medical students and lease it to Government for a number of years. The details were carefully gone into, so that a case may be made out to Government satisfying them as to the financial commitments, if any, the Government would be called on to bear. Finally, I addressed the Surgeon-General on 5th November proposing that the Government should take on lease for a period of ten years, the hostel to be built according to approved plans on this site, that the rent was to be fixed at Rs. 1,200 per mensem and that the Government be requested to contribute, if necessary, two month's rent of the vacation period and an initial outlay of Rs. 1,500 for equipment. These proposals met with the ready and sympathetic approval of the Surgeon-General, Major-General Wilson, who commended them to the Government. Soon after these proposals were submitted, I handed over charge of my office to the permanent

Principal, Lt.-Col. C. M. Plumptre, who was most enthusiastic in supporting and pushing forward these proposals and to whom we owe a debt of gratitude for the completion of the scheme. The sanction of the Government was received in March 1938 and after some more formalities, the foundations were laid in July 1938. It is a matter for sincere congratulations that this magnificent pile of buildings was completed in six months and ready for occupation on 1st January 1939.

"The buildings that Your Excellency will declare open to-day, consist of two blocks of three storeys each, besides the necessary out-houses in the shape of kitchens, bath-rooms, servants' quarters, sick rooms, cycle shed, etc. There are 115 rooms to accommodate 220 students, most of them being double rooms while a few are single. In the spacious lawn attached to these buildings, two tennis courts have been laid while a football and hockey field and a cricket pitch are in the course of completion. Up-to-date sanitary and electric fittings have been provided, and it is a matter for great relief just at present, that we can confidently look to our requirements instead of depending on a somewhat precarious city water-supply.

"Your Excellency, there are few more wants which have to be provided for in the hostel. I must confess that in my anxiety to get the sanction of the Government for the proposal, the minimum was demanded for the initial outlay. A hostel, however, requires certain community comforts such as indoor and outdoor games, furnishing of the common room, library, etc., and I will avail myself of this opportunity to endorse the students' appeal for funds in this behalf to all students and teachers.



HOSTEL FLOOD LIT



THE GOVERNOR DECLARES
THE HOSTEL OPEN



H. E. THE GOVERNOR ADDRESSING
THE HOSTEL

past and present, I feel sure that that appeal will meet with a generous response.

"Your Excellency, this is the latest and therefore the youngest of all hostels in the City, but it belongs to the oldest of Colleges in this Presidency. It is our hope that it may prove to be as efficient as any of its sister institutions and with the traditions of the College so worthily maintained in the past, it will serve as a model of its kind in the City.

A Great Opportunity

"To the students of the College, I would only say this. A great opportunity is now before you such as was denied to us of a past generation. Make the most of these splendid opportunities and build up that larger community life, which will cement life-long friendships, create a more harmonious feeling of brotherly love and affection and lead to a wider, nobler, more sporting outlook on life. This is the happiest and the most well-protected part of your life. Once you cross the threshold, you have inevitably to enter the din and dust of controversy, of struggle, of parties and partnership perhaps. **May we not hope that in that greater struggle the experiences you have gained here, the friendships that you formed and the spirit of give and take that you have imbibed in this hostel life, will stand you in good stead? So armed, you will be better able to withstand the buffets of life's battles and to acquit yourselves better in the noble profession which you will enter ere long and in the wider field of service and sacrifice which it will be yours to share.** I need hardly assure you that your Professors are most anxious to do all they can to make your stay in hostel profitable and pleasant, and I

believe I can state with confidence that you have already had foretaste of their attitude in this direction.

"Your Excellency, it only remains for me to express our great indebtedness to those who have helped us to realise our ambition. We are most grateful to Your Excellency's Government for having sanctioned this scheme. To Major-General Wilson, our Surgeon-General, we are deeply indebted for all the support and encouragement he gave us in pushing forward this scheme. We are thankful to Mr. Thambuswami, the landlord, for the enlightened business enterprise he has shown and more particularly for the expeditious construction of these buildings. And last but not least, to our permanent Principal, Lt.-Col. C. M. Plumptre our gratitude is inexpressible for all that he has done in the cause of the students."

Dr. Lakshmanaswami Mudaliar also thanked the managements of the different hostels and in particular their Wardens for the generous and kind hospitality they offered to the medical students scattered in the four corners of this City. He expressed his appreciation of the extreme kindness shown by His Excellency in sparing them a few minutes of his precious time and so generously consenting to participate in that evening's function.

Lord Erskine's Speech

H. E. the Governor, declaring the buildings open, said:

"To-day brings about the fruition of a project which after considerable vicissitudes, is at last completed. The hostel which the medical students of the College have been for so many years anxious to obtain, is theirs, and their satisfaction must be all the

keener now that their hopes for this eagerly sought amenity have matured. I am happy to be present at a function to mark the attainment of this long expected desire. I can thoroughly appreciate the disappointment which must have been felt in the College from time to time, when plans for the construction of such a Hostel at Government cost had to be put on one side, on grounds of financial stringency; a plea at which the impatience of youth is apt to fret; but I think you may be assured that it was never from lack of sympathy that the satisfaction of the very legitimate wishes of your predecessors in the College in this matter had to be postponed. Consider for a moment the question of provision of better and more up-to-date hospitals in our various district centres. I am sure you will agree that this is a more vital need than any, in the field of Public Health, and yet it still has not been possible, for financial reasons, to make anything like the provision that is really wanted. Though you may have chafed at your inability to secure a Hostel, I would prefer you to consider how fortunate you have been, in face of the difficulties that are still being met with in finding funds for various beneficial purposes, to have obtained the fulfilment of your wishes now.

"From the report made by the Principal, I have been able to gather the essential details of the scheme, and I sincerely hope it will prove as successful as it deserves to be. The Officers concerned are to be congratulated on having devised the plan which has now given you this hostel. Their persistence has had its reward, and I am delighted that it has been possible for Government to give its complete support to the final proposals. I do hope that the students will

not forget their duty of gratitude to those officers of the Department whose untiring perseverance has resulted in this opening ceremony to-day.

"I cannot omit a word of congratulation to the owner of the premises for his enterprise in having lent himself to the proposals made to him. I should like to associate myself with the sentiments expressed by the Principal in this, and I am sure the future inhabitants of the Hostel must have watched the rapid progress of its construction with the greatest satisfaction. I am glad to hear that it has been fitted up in a modern manner and there is accommodation for games. Some of the Medical Colleges in Great Britain have won a great name in the world of sport, and I am sure you are capable of emulating them. I know well that the course of medical studies is one demanding the most continuous and closest concentration but no medical student needs to be told how essential it is to the success of his efforts to keep himself physically fit as well.

"I sympathise most sincerely with the appeal the Principal has made for help in providing some community comforts in the Hostel, to make the everyday life of its inhabitants most pleasant, and I earnestly hope that the appeal will encounter an adequate and timely response.

"At the conclusion of his report, the Principal has, out of his wisdom and experience, offered a few words of counsel to the students of the College in general, and I would not wish to fatigue you by repeating any of his valuable advice. Nor could I improve on what he has had to say. He has laid down in a simple and

inspiring manner principles of conduct which you may most profitably adopt. It is a noble profession you are preparing to enter and one which exacts the highest sense of duty in those who follow it, I sincerely trust that you will never fall below the standards of dignity and assiduity which it demands.

"Finally, I should like to express the hope that the communal life of those of you who are taking up residence in this new Hostel will be a pleasant and harmonious one, of value to all who share it, and that it will be lasting benefit not only to you, but to all those who will pass through it to take up the practice of the noble science of medicine."

A Case of Osteoma of the Lower End of the Femur

(From Niblock Ward under Dr. B. M. Sundaravadanam, Honorary Surgeon,
General Hospital, Madras).

By T. V. VENKATESAN,

(Fourth Year)

A patient by name Arunachalam, aged 23 was admitted into this ward on the 11th of February 1939.

Complaint and Duration.—Swelling just above the left knee since ten years. Patient complained of pain over that area since a year.

In his family history and the history of previous illness, there was nothing particular.

History of the Present Illness.—The swelling started as a small growth ten years back. It was gradually increasing in size and at the time of admission, it was of the size of a cocoanut. No history of exposure to venereal infection. No history of trauma.

Condition on Admission.—The patient is a fairly well-nourished young man of 23. His teeth are clean. There is nothing abnormal about his respiratory, circulatory, alimentary and nervous systems.

Local Condition.—The growth extended from the lower one-third of the front of the left thigh to a thumb's breadth above the upper border of the patella and was directed medially and upwards. The skin over the growth was stretched and shiny.

On palpation, the growth was found to be a well-defined, single, stony-hard tumour with an uneven surface. It was fixed to and immovable from the lower end of the left femur. There was no redness or warmth over the growth and no induration around the swelling.

Movements of the Left Knee Joint.
—Both active and passive are normal

His groin glands were palpable on both sides but were very small.

Investigations:—

1. *Skiagram* of the left knee shows an exostosis from the lower end of the left femur.
2. *Urine Examination.*—Sp. gr. 1015. Acid. No albumin. No sugar.
3. *Blood Pressure:* $\frac{110}{70}$
4. *Pathological Report of the Tumour* is that it is osteochondroma.

Diagnosis.—The physical signs reveal that it was a tumour from the lower end of the left femur.

Tumours of bones are classified into three groups:—



Case of Osteoma of the Lower End of the Femur.

GROUP I.

Benign or Innocent Tumour. The chondroma and the osteoma belong to this group.

(1) *Chondromata* usually arise from the small bones of the hands and feet. They are cartilaginous tumours arising from the epiphyseal cartilage. They are therefore smooth and globular in outline. They are frequently multiple. The X-ray picture will reveal a nearly transparent growth from the bone.

(2) *Osteomata* are outgrowths from the surface of the bone. They are also called exostoses.

The outgrowths may be from the compact tissue or the cancellar tissue of the bone. Hence osteomata are classified as (i) cancellar osteomata arising from the ends of long bones, and (ii) compact osteomata arising from the skull.

Osteomata arise, due to the displacement of some of the osteoblasts from the epiphyseal end of the bone, and an outgrowth occurs from that end. The outgrowth therefore continues till the adjacent growth of bone stops, that is till the ossification is complete. A cap of cartilage is present on the surface of the outgrowth. Such tumours occur from the lower end of the femur, upper end of the tibia and upper end of the humerus.

All the benign tumours mentioned above are characterised by the presence of a definite capsule.

GROUP II.

Locally Malignant.—The giant-cell tumour or osteoclastoma belongs to this group. The tumour invades the

surrounding tissue but it does not give rise to metastases. This tumour develops in young adults before the age of thirty and occurs at the ends of long bones and the jaw the common location being the knee. The tumour is soft yielding under the pressure of the fingers with a crackling sensation. Pulsation may be felt. The X-ray picture shows an expansion of bone with trabeculated appearance.

GROUP III.

Malignant.—This group is subdivided into two (a) tumours of osseous origin; (b) tumours of non-osseous origin.

(a) *Osseous* (1) Chondrosarcoma. (2) Osteogenic sarcoma. Two types are recognised in this:—(i) Osteoblastic type. (ii) Osteolytic type.

(b) *Non-Osseous type*—

- (1) Ewing's tumour.
- (2) Multiple myeloma.
- (3) Parosteal sarcoma.
- (4) Secondary Carcinoma.

Chondro Sarcoma.—The chondromata already described may show malignancy when they are called chondrosarcomata. Invasion of the veins and metastases into the lungs confirms the malignant character.

Osteogenic Sarcoma.—This occurs at the ends of long bones between the ages of ten and thirty. In the Osteoblastic type, the growth is from the osteoblasts of the periosteum and shows evidence of thickening due to the excessive bone formation. In the Osteolytic type there is no real bone formation. There is actual destruction of bone. The first symptom is pain due to the involvement of the sensitive periosteum. When the tumour develops there is a fusiform mass at

the end of the bone. The disease is at first confined to the bone, but in the later stages the soft parts are also involved. Inspection reveals distended veins near the tumour which indicate its vascularity. On palpation, the swelling of the bone can be detected, elastic in consistency and pulsatile. There is induration round about showing the invasion into the surrounding tissues. There may be evidence of metastatic involvement of the lungs.

The X-ray picture will reveal its osteoblastic or osteolytic nature.

Ewing's Tumour.—This is a soft disintegrating tumour arising from the vascular endothelium of bones chiefly the humerus, femur, fibula, clavicle and the os calcis. The patient is usually below the age of thirty. There is often a history of trauma followed by pain, fever and the appearance of a swelling. The X-ray picture shows a widening of bone with striated appearance.

Multiple Myeloma or Kahler's Disease.—This occurs usually after the age of forty. The flat bones containing the red bone marrow are involved. The X-ray picture reveals a number of punched out, clear areas. Urine examination reveals the presence of Bence-Jones' protein.

Parosteal Sarcoma.—Arises from the soft tissues close to the bone. Generally it destroys the bones.

Secondary Carcinoma.—Occur in carcinoma of the breast, prostate, kidney, bronchus and thyroid. The secondary deposits occur commonly in the ribs, vertebra, skull, sternum and the upper end of the humerus. They are painful swellings.

Medical College Magazine

Having discussed the various tumours arising in connection with bones, it is now easy to come to the conclusion *vis à vis* the diagnosis of the case. The bony tumour which the patient had, showed no evidence of malignancy. Hence we can exclude the third group, *viz.*, the malignant tumours. Can this tumour be an osteoclastoma? We can at once exclude that possibility also, because a giant cell tumour is soft and yielding under the pressure of the fingers with a sensation which has been aptly compared to the crackling of an egg shell. The X-ray picture of the patient's knee shows neither an expansion of bone nor a multicystic appearance. Among the benign tumours it is easy to exclude the compact as they arise in connection with membrane bones. So the diagnosis of this case is cancellous osteoma. Having now diagnosed the case, the question is how to treat it.

Treatment.—As a rule, the growth of the osteomata stops with the termination of the ossification of the adjacent bone. The lower end of the femur, from which this tumour has arisen in this case, unites with the shaft at the twentieth year when the ossification is complete. The patient is aged 23. So the tumour cannot further increase in size.

The indications for operation are:—

- (i) Pressure on the nerves causing pain.
- (ii) Pressure on the tendons with impairment of movement.
- (iii) Mechanical impediment to movements due to the large size.

Case of Osteoma of the Lower End of the Femur

In this case the patient complained of pain and there was mechanical impediment to walking. Hence the operative method was resorted to. On 14th February 1939 under spinal anaesthesia, by Dr. B. M. Sundaravadanam, Tourniquet applied over the upper half of the left thigh. A longitudinal incision was made over the most prominent part of the tumour. The muscle layers which were stretched over the tumour, were separated. The capsule was opened into and a narrow pedicle by which the tumour

was attached to the lower end of the femur was defined and excised from the bone by a chisel and hammer. The muscle layers were stitched with catgut and the skin sutured with a drainage tube.

The gross appearance of the tumour was that of a hard tumour with a nodulated cartilaginous cap.

My respectful thanks are due to Dr. B. M. Sundaravadanam and Dr. J. Dharmaraj for their valuable help and suggestions and also for permitting me to report this case.

Rene Theophile Laennec.

M. S. V. (Third Year.)

Rene Theophile Laennec along with Claude Bernard and Louis Pasteur hold an eminent place in the evolution of contemporary medicine. Born at Quimper Corentin in Brittany on February, 17th 1781, was the first to apply auscultation to Medical diagnosis. When 14 years of age he entered the Hotel Dieu of Nantes as a student of Medicine and studied Anatomy and Surgery under the great surgeon Darbeseville. He was for some time attached to the Military Hospital and later became a second class health officer.

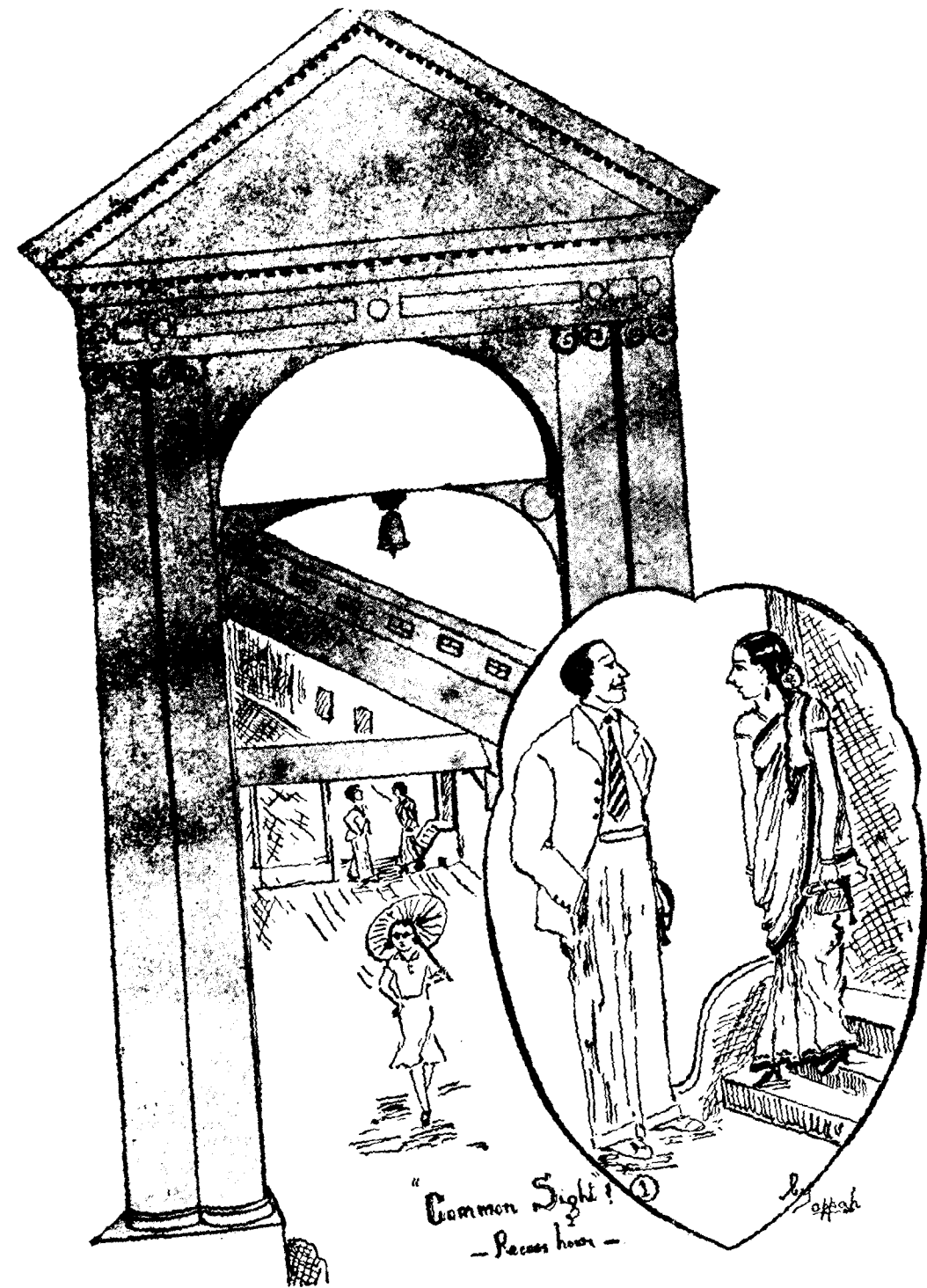
In May 1801 he came to Paris to take a higher course in health. He had the fortune to study under Halle, Peyerilhe and also Corvisart who "applied and perfected the discovery of percussion made by Avenbrugger in 1761". From the time of his arrival at Paris, young Laennec formed a society in which students gathered and discussed clinical observations. He was admitted to the school of practice in 1802 and he took special lessons in Pathologic Anatomy. His marked taste for this line of study and the offence he took in the careless method of procedure of his chief brought about a permanent break between them. In 1802 while at Paris, young Laennec published a very striking article on peritonitis. He also published his observations on various other subjects of interest. He won the two prizes instituted for Medicine and Surgery in the School of Medicine in 1803. He was made a member of the Anatomical Society in the same year. In 1804 he published

his medical thesis entitled "Propositions concerning the doctrine of Hippocrates Relative to Practical Medicine". In the same year he along with Dupuytren his chief and Fizeau started "The Journal of Medicine". Shortly afterwards he quarrelled with his chief and left him.

At this time he was harassed by financial difficulties his income being only 150 francs in the first year. He decided to open a course in Pathological Anatomy. His father was very poor and hence the help he got from his father was very little. But he was not discouraged. He was depending on the publication of his work "The Treatise on Pathological Anatomy" which was in the process of composition. He had at that time distinguished patients such as Cardinal Fesch and Alexander Dubois the great artist who at a later date painted a full length portrait of this celebrated physician.

A few uneventful years rolled on like this. It was in the year 1816 that he made his memorable discovery which will be remembered as long as medicine is practised. It was at the hospital at Necker that most of his researches were done. While one day passing through a courtyard he observed some children at play who were listening with their ears applied to the extremity of a plank to the sound of the slightest tap made at the other end of the plank.

"This transmission with amplification of sounds by solid bodies struck



Laennec like flash of light." His ever investigating and inquisitive brain conjectured that with the assistance of a solid rod applied to the chest the sounds made in the thoracic cavity could be heard.

"His first attempt at Sthethoscope was a tightly rolled piece of paper." Laennec was very careful in comparing the findings of clinical examination with his instrument christened by him as the cylinder with those of Pathological Anatomy. He had discovered a source of altogether new clinical facts and he searched for their interpretation in Pathological Anatomy. It took some time for him to arrive at a definite relation between the clinical and anatomical characters of the various diseases associated with the respiratory system. His work on auscultation though begun in 1816 was not submitted to the Academy of Science until 1818. In August 1819 he published his first work on auscultation. This new method of examination spread rapidly like wild fire in other countries. In Great Britain the use of sthethoscope was made compulsory to all army physicians.

While Laennec was earning a name for himself his health began to deteriorate. He became a victim to the very disease which had cut short the life of many a rising man. He contracted pulmonary tuberculosis while doing an autopsy on a case of vertebral tuberculosis. In 1819 he returned to his native home to recuperate his health. After 2 years he returned to Paris and once again fell into active work. His clinic began to be frequented by eminent physicians of

foreign countries "who were eager to be initiated in the science of auscultation." At the same time his financial position also improved. He was made Professor at College of France in 1822 and in 1823 the Academy of Medicine appointed him incumbent member of the medical section. He was co-opted as a member in the commission formed to reorganise the Faculty of Medicine. He later became the Professor of Clinical Medicine. His lectures at the College of France were heard by large audience both native and foreign.

At this time when he was enjoying such a reputation he was attacked violently by Broussais, the author of physiologist medicine. He contended "that almost all pathology could be reduced to an excessive irritation, that is, an inflammation of the which, the usual site is the digestive tract." "In the name of physiology without knowing anything of physiology he attacked Laennec's anatomico-clinical method of teaching." Laennec replied to this in a dignified manner. In 1826 Laennec published his second edition of the "Treatise of Auscultation". In this besides the auscultation signs a second part was introduced which contained a study of the diseases of the chest. Meanwhile his health was failing and he left Paris for Brittany never to return again. There on August 13th, 1826, the celebrated scientist died at the early age of 45 of galloping consumption. "With Claude Bernard and Louis Pasteur Laennec ranks as one of the three great Frenchmen who hold an eminent place in the evolution of contemporary medicine."

To Taj.

On the banks of Jumna
Stand thou
Yea! Immortal monument
Of man's homage to woman.
There thou art
To shine forth thy country's glory
For all times
In climes far an' near.

For years the busy Pharus
Has seen countless mortals toil.
To see thee immortal
In thine native soil.
Rightly do the sons an' daughters of Ind
Feel proud in the glory
Thou but justly sharest
Among the beauties of the world.
Yea! Beauty's shrine by Power!
When he sees thee
The calm traveller
Fails not to see
Man's love to woman.

(By J.)

Extracts

PUBLIC HEALTH IN PRESIDENCY. Administration Report for 1937.

DIRECTOR'S REPORT.

The Director of Public Health, in the course of his report, says:—

Filariasis

is known to be widely prevalent in this province more particularly in towns with defective drainage systems. It is a disease which, though not very fatal, by itself, is responsible for a good deal of morbidity and suffering in the affected population. There is yet much to be known about the causation, distribution, mode of transmission, prevention and treatment of Filariasis. The need and scope of extensive field studies in elucidating the unknowns in this disease have been well recognised by medical and public health workers of all filarial areas. It was therefore decided to study the field materials available at Saidapet and other environs of Madras where filariasis is reputedly hyper-endemic and the Research Health Officer commenced this work from June in co-operation with Dr. R. G. Cochrane who is carrying on certain field studies on childhood leprosy. The programme is to make a detailed survey of the various clinical manifestations of filariasis in the municipal area, to examine the night blood of a representative sample of the population with a view to determine the incidence of filarial infection and the characteristics of the infecting filaria, to determine the rate of infection in the species of mosquitoes concerned in

transmission and to correlate the species of filaria observed in them with those encountered in man. Such problems as the longevity of the infective stages of filarial larvæ outside the body of the mosquito whether infected mosquitoes generally deposit infective larvæ in water and whether such infective larvæ can penetrate unbroken skin and infect man, are all under investigation.

Leprosy Campaign

The Government in their order No. 1928, P.H., dated 28th April 1937, sanctioned a scheme for intensive and concentrated leprosy work in certain selected districts and the continuance of the special temporary staff consisting of one Chief Leprosy Officer, five Sub-Assistant Surgeons, five nursing orderlies, one compounder and one peon under the Chief Leprosy Officer. In addition to the above staff, one Special Leprosy Officer for Salem, district, two District Board Leprosy Officers and one Special Medical Officer in Salem district were also employed on leprosy work. Their main activities were to develop anti-leprosy work in the areas included in the scheme, to carry on propaganda, detailed survey and follow up work, to examine children in the area, to organise and conduct clinics on model lines, to train other medical officers in leprosy work and to make a detailed study of the disease in relation to local, social and economic factors. It was also decided that while the curative side of leprosy work is under

the Medical Department, the preventive side should be taken up by the Public Health Department and for this purpose, Government sanctioned the deputation of Health Officers for a short course of training on the modern methods of Leprosy prevention at the Lady Willingdon Leper Settlement, Tirumani, Chingleput District. The first batch of Health Officers was trained in August 1937. The Health staff have already been circularised to do intensive propaganda and to compile a preliminary village-wise list of lepers.

The total number of leprosy clinics during the year was 442 as against 445 in 1936. These clinics had an attendance of 777,188 patients, the new admissions being 33,038.

Rural Sanitation Campaign.

The activities of the Rural Sanitation Campaign were directed mainly towards the control of hookworm infection and prevention of soil pollution. There are Six Rural Sanitation Units for the purpose. The Rural Sanitation Unit in West Godavari district was transferred to Nellore district and the one in East Godavari to Kurnool district. At the end of 1937 the units were working in the districts of Ramanad, Tinnevely, Tanjore, the Nilgiris, Nellore and Kurnool. They were engaged on (1) Hookworm survey, (2) educational propaganda on hookworm disease and dangers of soil pollution, (3) mass treatment for hookworm and (4) construction of borehole and trench latrines in rural area.

168,902 treatments for hookworm were given during the year, of which 52,594 treatments were carried out by the Rural Sanitation Staff and the rest by Medical Officers in charge of hospitals and dispensaries.

898 latrine seats were constructed during the year and 221 seats were either re-constructed or repaired. Most of the constructed work was done in Ramanad, East Godavari, and West Godavari districts.

In accordance with G.O. No. 765, P.H., dated 1st June 1932, hookworm reports were received from all local bodies, except Kistna. These reports show that on the whole 203,141 treatments, 19,977 lectures, 3,062 magic lantern demonstrations, 176 cinema shows and 240 exhibitions were conducted, 1,591 public latrine seats and 10,930 private latrines were constructed and 2,751 seats were either re-constructed or repaired during the year.

Health Propaganda

Health propaganda formed one of the routine duties of the Health staff and the work was organised throughout the whole year. There can be no doubt that considerable progress has been made in educating the public on matters relating to health. These educative efforts were carried on by means of cinema shows, lectures with or without magic lantern demonstrations, short talks to groups of villagers, health exhibitions and distribution of leaflets and pamphlets. Necessary propaganda materials were always stocked in the propaganda section and were supplied on indent to local bodies, health staff and others. The leaflets and pamphlets are sold, while the magic lantern slides and films are issued on hire. On the whole 431,209 leaflets and pamphlets and 18,571 posters were sold during the year. Four copies of cinema films were also sold realising a royalty of Rs. 541. Eleven cinema films were purchased during the year to replace some of the old copies.

Extracts

The statement below gives a summary of the activities under health propaganda during the year:—

Lectures with magic lantern demonstrations 24,979; lectures and short talks 183,035; cinema shows 990; health drama 952; health exhibitions 1,903; demonstrations by ballad singers 90.

It is estimated that a total audience of about 93 lakhs of people attended these events.

The propaganda work in Municipal towns showed a general improvement when compared with the previous year. Several municipal councils have provided their sanitary staff with magic lanterns and slides. No magic lantern demonstrations were arranged by the Sanitary staff in the municipalities of Chicacole, Vaniyambadi and Walajapet. The District Boards of South Kanara and Kurnool have sanctioned the appointment of cinema operators for their cinema equipments.

Poonamallee Health Unit.

The Health Unit which was originally sanctioned as an experimental measure for a period of eighteen months from October 1935, has been further extended up to the end of September 1940 as it was found that the original period was too short to produce any tangible results and the progress achieved so far has been very encouraging. The cost of the scheme is met from the Government of India grant for Rural Development supplemented by a contribution from the Rockefeller Foundation of America. The latter is on a sliding scale of 50, 40, 30 and 20 per cent of the total expenditure of each year commencing from April 1937.

The sanctioned staff for the Health Unit was further strengthened by the addition of one more midwife to meet the increasing demand for maternity service. There was considerable progress in maternity and child welfare work. 269 clinics were held during the year with an attendance of 2,027 ante-natal cases, 2,245 infants and 1,986 pre-school children. The Woman Medical Officer and the Health Visitors made 47,337 home visits as compared with 27,666 in the previous year. 1,247 labour cases were conducted by the Unit midwives which came to 67.4 per cent of the total number of births as against 55.1 per cent in 1936. On the whole, 72.6 per cent of the births received skilled attention if the deliveries conducted by other trained midwives in the area are also taken into consideration. The midwives also made 17,110 ante-natal and 9,671 post-natal visits.

One thousand two hundred and twenty-eight school children in the area were medically examined either by the Health Officer or the Women Medical Officer, 488 of them had one or more physical defects. Attempts were made to rectify such defects as far as possible and 334 children were attended to for the purpose.

The Hookworm survey was completed and it was found that the infestation is widely prevalent though not to such a high degree of intensity as to produce severe clinical symptoms. 2,334 persons were given hookworm treatments during the year.

The Health Inspectors made a routine inspection of 6,112 houses and as a result of their persuasion and advice, 2,456 backyards of houses were cleaned, 1,109 fly-breeding places were cleared, 160 borehole latrines were put up, 102 soakage pits and 208 earth

drains were constructed and 55 windows were provided. Five hundred and ninety-five oilings were also done as an anti-mosquito measure.

The provision of safe drinking water supplies to villages engaged the special attention of the staff. Three borewells were constructed during the year from the contribution of Rs. 5,000 provided for the purpose by the Chingleput District Board. Free labour was supplied by the villagers. Other water-supply sources were systematically chlorinated whenever possible.

The corrected birth and death rates in the area were 39.89 per mille and 26.29 per mille respectively as compared to the Provincial rates of 38.72 per mille and 23.99 per mille respectively in 1937. No event has escaped registration. Fifty-six deaths from cholera were responsible for the high death rate during the year. The infantile mortality rate was 184.37 and the maternal mortality rate was 7.02 per 1,000 births. 7,826 anti-cholera inoculations, 521 anti-typhoid inoculations, 1,255 primary vaccinations and 6,447 re-vaccinations were performed during the year.

With proper organisation, staff and funds, it is quite possible to improve greatly the health and welfare of the rural population and the Health Unit has to a certain extent demonstrated what could be achieved in this respect. This novel experiment has attracted the attention of Public Health Workers in other provinces and several distinguished persons have visited the area during the year. The Health Unit has also served as a good training ground in rural health work for Health Officers, Women Medical Officers, Health Visitors, Sanitary Inspectors and others.

Medical College Magazine

Rural Water-supply

The Government have launched a scheme for the provision of practical water-supply to all villages. For this purpose priority list of villages were prepared for the years 1937-38 and 1938-39, keeping in view, perennial or partial scarcity of water, distances from sources of water-supply, prevalence of water-borne epidemic and endemic infections, fairs and festivals, shandy, etc. A ten-year scheme commencing from 1939-40 to provide protected water-supply for all the villages in the presidency is under preparation. Orders were passed in G. O. No. 3216, dated 24th November 1937, sanctioning a grant of Rs. 1,08,000 for 1937-38 which was distributed at Rs. 6,000 per district amongst 18 districts excluding the six districts of Malabar, West Godavari, East Godavari, Tanjore, the Nilgiris and Kistna where water scarcity is not an acute problem.

Maternity and Child Welfare.

During the year under review maternity and child welfare work progressed steadily under District Boards and Municipalities, following the advice of the Director of Public Health. The conviction is gaining ground that a scheme of public health work is incomplete unless it includes maternity and child welfare: uninterrupted and successful work carried on under some local bodies has proved a valuable incentive to others to assume similar responsibilities. Voluntary associations have handed over their work, existing funds, and in some cases buildings also, to the local body concerned in 17 Municipalities and 4 District Boards areas during the last few years. The last Red Cross centre in Madras City was handed over to the Corporation during the early part of 1938.

Extracts

Thirty-two Women Medical Officers, 17 health visitors and 351 midwives worked in approved schemes under District Boards and Municipalities exclusive of Madras City as against 26 Women Medical Officers, 16 health visitors and 307 midwives in 1936. Seven Women Medical Officers attended the postgraduate course held early this year—two of these were from the Corporation of Madras. It is gratifying to note that the Corporation of Madras appointed an *Ad Hoc* Committee to reorganise its work according to the policy of Government. The Assistant Director of Public Health, Maternity and Child Welfare, Special Councillor, is a member of this committee.

The District Boards of Ramnad, East Tanjore, West Tanjore and Salem and the Municipalities of Erode and Ellore allowed the posts of Women Medical Officers, Maternity and Child Welfare to remain unfilled unnecessarily long. Such delay is bound to cause deterioration of work and is to be regretted.

There has again been a satisfactory increase in the amounts spent on maternity and child welfare work by local bodies.

Monthly and annual returns are received regularly in the specified forms and even the midwives in backward areas are fast learning to maintain records and registers correctly.

102,290 mothers, 59,987 ante natal cases, 35,288 labour cases, 31,922 infants and 31,183 pre-school children came under the care of the staff. The attendance at 14,425 clinics was 16,096 ante-natal cases, 20,348 mothers, 50,876 infants and 121,548 pre-school children. The number of home visits paid by the Women

Medical Officers, health visitors and midwives was 25,290, 58,878 and 507,986, respectively. The attendance at 2,286 mothers' classes was 53,162. Health talks were given regularly in 418 girls' schools where the total audience was 19,214. In areas where Women Medical Officers are employed a closer study of maternal and infantile mortality and morbidity has been begun.

Bellary, Salem, Madura, Karaikudi and Masulipatam Municipalities and Ramnad and Nellore District Boards have decided to build child welfare centres according to approved designs.

There is no doubt that unlimited progress is yet possible, where further finances available. Government grants to approved schemes would be a tangible proof of their application of a form of preventive and educative health work, the value of which although not to be measured in terms of figures for years to come, is yet beyond comparison as regards ultimate results in the form of cleaner homes, healthier villages and towns, enlightened mothers and a healthier people. It is evident to anyone who visits a health class for mothers or for girls, or a clinic conducted by the staff in a rural or urban centre, that a community fully alive to its responsibilities and duties and determined to do its best for its generation is fast being formed. Every encouragement should be given to this movement which has become so rapidly popular among all classes of the people.

School Hygiene

The District Health Staff continued to inspect elementary schools during their tours to record their remarks both in regard to the sanitation, water-supply and sanitary conveniences of the school premises and to the vaccinal

condition and general health of the pupils. The officers of the Public Health department are also required to issue sanitary certificates as a preliminary to the recognition of schools and such certificates are issued only to schools which satisfy the necessary sanitary conditions. School medical inspection is a fundamental necessity for ensuring the proper mental and physical development of the school children and for the detection and correction of incipient defects. Madras City has alone any organised scheme of medical inspection. Since it has been found a comprehensive scheme for the whole province with full-time school Medical Inspectors would be rather costly, a cheaper scheme utilizing the services of rural and other medical practitioners for school medical inspection by paying them a small honorarium was submitted to Government during the year. It is hoped that this modest scheme will receive favourable consideration.

Housing.

There is a good deal of congestion and overcrowding in most of the municipalities and several of the rural towns. Even some of the smaller villages are in need of amelioration from overcrowding. The Revenue Department usually deals with the latter by means suitable to the existing requirements. The several Town Planning schemes in municipalities inaugurated either by the Municipal Councils or by private agencies have only touched the fringe of the problem. Most of the town extension in the past were for the richer and middle classes while the congestion in the poorer localities remained unrelieved. It is high time for a bolder policy to be adopted by the local authorities to relieve congestion and overcrowding amongst all classes of the population in their areas. Improvement Trusts should be formed

Medical College Magazine

wherever possible and comprehensive schemes should be drawn up keeping in view the future growth of the population in the area.

The rules issued by Government under the Madras District Municipalities Act for the regulation and restriction of the use of sites for buildings and of buildings themselves in municipalities are comprehensive enough for the control of building sites and for the construction and reconstruction of buildings and the drains, cesspools, septic tanks, latrines, wells, etc., in connection with them. It is important that these rules should be properly enforced by the Executive Authorities of Municipalities.

The formation of co-operative building societies is being encouraged by Government by advancing loans to them and there are several such societies functioning in the province chiefly in urban areas. These societies advance loans for the construction of houses and recover them in easy instalments. The Railway administrations and certain large industrial concerns and plantations have provided housing accommodation to their employees including the labourers. Some of the municipal councils have also constructed quarters for the housing of their conservancy staff.

The report reveals the many-sided activities of the Public Health Department which is assuming every year a more important place in the general administration of the Province. This growth can only be maintained by enlisting the sympathies and co-operation of the public and especially of the public in the rural areas since these are the more backward and therefore the more in need of Public Health measures. That such sympathy and understanding is beginning gradually

Extracts

to infiltrate the public conscience will be evident to any one who reads successive annual reports of Public Health administration in this Province since each records progress in some new direction which could not be kept in healthy activity by official encouragement alone.

Further extension of the area where the Registration of Births and Deaths Act (1899) is in force is recorded and this is noted with satisfaction in view of the remarks made on this subject in last year's report. That there is room for much improvement is shown by the fact that the Health Staff detected during the year 41,019 unregistered births and 12,555 unregistered deaths and had them duly registered. As the present Registrars are largely untrained the extension of training facilities has to be considered. The compilation of vital statistics which was centralized in the office of the Director of Public Health as an experimental measure has proved a success and the measure has been made permanent.

Epidemic Diseases.

The report records a marked decrease in deaths from small-pox—47 per cent. While the figures for any one year are no criterion, it is significant that a continuous drop in the mortality appears to indicate the cumulative effect of compulsory vaccination over the greater part of the Province and of revaccination which is also being energetically carried on. The mortality during the year is the lowest recorded for seventy years.

In the case of cholera, the mortality is lower than that of the previous year by about 30 per cent but such fluctuations are a feature of this, one of the greatest scourges of the Pro-

vince. Madras is almost unique in that cholera in the province is caused by two serologically distinct types of organism, one mostly in the north and the other in the south and both types of organisms are included in the prophylactic vaccine prepared for use in the province at the King Institute, Guindy.

The unwelcome recrudescence of plague in Nilgiris in 1937 was a feature accorded more publicity than its seriousness demanded and the outbreak was handed with energy and determination by measures of inoculation and rat destruction. It was a reminder of the need for constant vigilance in regard to this disease in a Province which has never been seriously invaded by it.

One of the important events of the year has been the launching of a far-reaching plan for the provision of protected water-supplies to all villages in the Province. This is still in its initial stages, but it is hoped to complete it within a ten-year period. No project which can be conceived is deserving of more support and the success which will go with public support than this scheme initiated by Government.

The work of the department on Maternity and Child-welfare continues to progress, as a perusal of the relevant sections of this report will show and it is needless to call attention to its importance since it deals with the future citizens of the Province.

Throughout the year the staff of the Public Health Department have carried out their different duties energetically and with an understanding of their importance to the community at large.

PSYCHIATRY IN THE PUNJAB.

Lt.-Col. Lodge-Patch's Survey.

The inaugural meeting of the Indian Division of the Royal Medico-Psychological Association was held with Lt.-Col. C. J. Lodge-Patch in the chair.

The Medico-Psychological Association is the oldest association in the world dealing with the study of science in relation to mental diseases and allied subjects, having been formed in England some 98 years ago and received its royal charter from H. M. King George V on March 13, 1923. Members from all Provinces of India and Ceylon attended.

Lt.-Col. Lodge-Patch, in his address entitled, "A Century of Psychiatry in the Punjab," described the vicissitudes in the treatment of the insane since the days of Maharaja Ranjit Singh. The first three lunatic asylums under British rule were some stables and two of Her Majesty's prisons. But notwithstanding their dismal environment, the earlier alienists of the Punjab had very humane ideas and singularly up-to-date views. The present institution was described as

an hermaphrodite which could hardly function as a mental hospital because it had been designed as a jail. But within the last year the Punjab Government had built an extension for three hundred patients which was the last word in mental hospital construction and was probably the finest of its kind in India.

He concluded with an exhortation to the delegates from every part of India to live up to the motto of their association, "Let wisdom guide."

Messages wishing success to the Association were received from the Council in London and Major-General Sir John Megaw, Medical Advisor to the Secretary of State for India.

The following were elected office-bearers for the next triennium: Lt.-Col. J. C. Lodge-Patch (Chairman) and Dr. Banarsidas (Secretary). Among others the following will constitute the Standing Committee: Lt. Col. J. E. Dhunjibhoy, Major Moore Taylor and Captain H. D. Zscherpel.

RECENT RESEARCHES IN BLOOD CIRCULATION.

The same afternoon, before a crowded house of medical men, medical students, and members of the Science Congress interested in the subject, Prof. R. J. S. McDowall, Professor of Physiology, King's College, London, gave an interesting lecture on the 'Control of Capacity of Circulation' in the King Edward Medical College. The professor introduced his audience to some of the latest discoveries in the field about which little has appeared

in any text-book, not even his own. Until 1918 it was customary to consider that a fixed quantity of blood circulated in the body, but it was later found that the capillaries did not all open at the same time, and if all were to open up there was not sufficient blood to go round. If muscles in a part of the body were exercised, about twenty times more blood might go to that part than what circulated under conditions of rest. There was a large

Extracts

reservoir of blood in the spleen, intestine and skin. He described the various mechanisms which controlled and regulated the working of the heart and the circulation of the blood in the vessels. It was now known that with each beat of the heart, impulses went up from the heart to the vagus centre in the medulla oblongata. The lecturer fully explained some of the latest advances in our knowledge of the regulatory mechanism.

Prof. MacDowall touched upon the subject of high blood-pressure. He

characterised it as a disease of civilisation and said that a great many distinguished men died of this condition, and by way of example, referred to Lenin, Stresemann, and Earl Haig as having died of it. During psychical excitement there was a rise of blood-pressure, but it was found that the systolic pressure went up, but not the diastolic, to anything like the same extent. He advised the persons suffering from this disease to lead a slothful life, as safety lay in that. (*The Science Press of India.*)

MEDICINE THROUGH THE AGES

Rise of Preventive Medicine.

DR. TIRUMURTI'S ADDRESS AT LAHORE.

Dr. T. S. Tirumurti, in the course of his presidential address to the Medical and Veterinary Research Section of the Indian Science Congress said:

The branches of Medicine have become more and more divided and sub-divided and each, in turn so much highly specialised that the student of medicine requires a watch tower, from which he could survey Medicine as a whole from its dim, indeterminate origins in the past to its bright glorious scientific achievements of the present-day. "The History of Medicine" is a fascinating story of the most laborious and painstaking of all human enterprises.

India's Contribution.

That the medical and surgical arts had reached a higher standard earlier in India than in other countries will be evident from a perusal of the ancient works of Susruta and Charaka. Despite Brahminical prohibitions, Susruta advocated the dissection of dead bodies

as indispensable for the training of a surgeon. Vaccination, unknown to Europe before the 18th century was known in India as early as 550 A.D. The Science of Hypnotism and Hypnotic Therapy appears to have originated among the Hindus. This knowledge spread to Egypt and Greece later.

It has been stated on high authority that modern Europe owes its system of medicine directly to the Arabs and through them indirectly to India. It is probable that medical science developed for some time by contemporary contact and mutual influence in India, Egypt and Babylon. A general survey of Indian medicine from the Vedic and Buddhist periods, followed by centuries of slow progress, and later of stagnation, will give the medical student the true historic perspective, which is essential for the culture of a successful physician.

In those golden days of the high water-mark of Ayurveda, Religion

and Medicine always went together. They were inseparable companions. When Medicine failed to comfort and solace the sick, the physician resorted to prayer and what specifics failed to do, incantations often achieved.

Pathological Research.

Turning to Pathology, Dr. Tirumurti said: Though originally 'Pathology' meant a study of disease in all its aspects the meaning had become restricted to the study of the cause of disease and the attendant structural alterations and functional changes. It is a pity that, in most of the teaching institutions and hospitals, the pathologist should be denied the opportunity of being also a clinician. In most cases, the pathologist is a whole-time officer, whose duties are confined only to the laboratory. In many instances, the departments of pathology, bacteriology and bio-chemistry are made to function as isolated departments under independent heads. The pathological, bacteriological and bio-chemical laboratories should, in my opinion, be under one unified control and that the persons, who are working in these laboratories, should have a living interest in their subject by constant association with patients in the hospital wards.

Integrated pathology is a distinct advance in the progress of medical science in the 20th century. The nature and manifestations of disease should be studied by every possible method of approach—structural (anatomical and microscopic); the functional (including chemical, bacteriological, clinical and whenever possible, experimental). Such a combined attack on the problems of disease, yet awaiting elucidation, has now become the accepted method of approach. A group co-operation of specialists in all the above branches of medicine has,

therefore, become very necessary in these days.

Pasteur and Preventive Medicine

Compared to the "History of Pathology," the "History of Bacteriology" and "Preventive Medicine" is merely one of yesterday. In the olden times, surgery, was attended by great risks and plagues and pestilences swept over every part of the world in periodic succession. Flocks and herds were similarly destroyed. The nature of such epidemic diseases was obscure and mysterious. It was supposed to be due to a 'spontaneous generation depending on cosmic influences'.

The first person to lift this veil of mystery was Louis Pasteur. Though he was a chemist, learning 'Crystallography' as his special subject, he later applied himself to the study of the 'processes of fermentation'. After discovering the bacillus, which is the cause of Anthrax, Pasteur observed that his cultures of the Anthrax germ, if kept exposed to the air, lost their virulence. He seized on this knowledge, prepared a vaccine and injected healthy sheep and oxen and found that these vaccinated animals became immune to the disease. This was the beginning of the 'History of Preventive Medicine'. Pasteur should, therefore, be considered as not only the "Father of Bacteriology" but also of "Preventive Medicine". In the meantime, Jenner had discovered the effect of vaccination as protection against the attack of smallpox. These wonderful discoveries of Pasteur and Jenner formed the basis of all subsequent development in preventive medicine.

Dr. Tirumurti went on to refer to the discoveries of Lister, Koch, Behring, Kitasato, Metchnikoff and

Extracts

Wright, and to several other recent discoveries relating to Malaria and Plague.

Turning to medical research in India, he said:

Among the earlier classical studies may be mentioned those of Lewis on Typanosomiasis; Vandyke Carter on Spirilla, Leprosy and Mycetoma; Macnamara on Cholera and Fayrer on snakes and snake venoms. Organized medical research dates from 1894, when the Indian Medical Congress moved the Government of India to establish and endow a Research Institute.

Researches in India.

In India research work is mainly conducted in the following Government institutions. The Plague Research Laboratory (later called the Haffkine Institute) was established in 1899. The Bacteriological Department was formed in 1905. In 1906, the Central Research Institute was established at Kasauli, and the Pasteur Institute at Coonoor in 1907, Rangoon in 1915 and Shillong in 1917. In 1920 the School of Tropical Medicine and in 1932 the All-India Institute of Hygiene and Public Health were opened. An important milestone in Medical Research in India is the creation of the Indian Research Fund Association.

Malaria, being the major health and social problem in India, received naturally a large amount of attention from medical research workers. It was in India that the mosquito was incriminated as the carrier of malaria by Sir Ronald Ross at the close of the last century. Much work has been accomplished in Epidemiology, control of rural malaria and on the Bionomics of various Anopheline vectors. Among other workers on Malaria

may be mentioned Bentley, Gill, Acton, Knowles, Krishnan, Das, Gupta, Rao, Iyengar, etc., and also Sweet and Russell of the International Health Division of the Rockefeller Foundation. Krishnan's researches on Monkey Malaria and Black water fever will throw a new light on malaria immunity. Shortt's studies on protozoal immunity are worth recording. Tirumurti has shown that malaria is not one of the causes of cirrhosis of the liver, as it was believed to be for a long time.

Conquest of Cholera.

India is the main endemic home of cholera. It has been, therefore, a subject of considerable attention and study. Koch confirmed in India his discovery of the comma bacillus in 1884. Since then, much work has been done on the epidemiological, preventive, clinical and treatment aspects of the disease. Greig studied the pathology and bacteriology of cholera. He found that there were many vibrios resembling vibrio cholera, but non-pathogenic. Tomb and Maitra studied the bacteriology of cholera and the carrier problem. At present work is in progress on the chemical constitution of vibrios, the metabolism, bio-chemical reaction, variations in vibrios, etc. Different serological types of vibrios have been isolated. Vibrios have been isolated from healthy persons and external sources. Agglutinable and non-agglutinable vibrios have been differentiated. It has been shown that, by the use of suitable methods, vibrios can be isolated from practically all open water sources in India. These studies will show the possible origin of vibrios, which can be isolated from man, in health and disease. Pasricha, de Monte, Lahiri, Chatterjee and many others are engaged in the Cholera Enquiry.

Plague was introduced from China into India in 1629, though India had been free from Plague for two centuries previously. The Plague Research Commission was formed in Bombay in 1905 and worked until 1913. It is to this commission that we owe our exact knowledge of the epidemiology of plague. Hankin had suggested the possibilities of insect transmission of plague from rat to man but to Liston belongs the credit of proving the flea transmission of plague. Subsequent work showed a flea species factor influencing the epidemiology. Haffkine produced the prophylactic vaccine. This is one of the first prophylactic vaccines to be used on a large scale in man. Attempts are now made to improve the vaccine and produce a potent anti-plague serum. In this connection the names of Naidu and Sokhey may be mentioned.

Dr. Tirumurti then referred to the work done on Kala-Azar, leprosy, rabies and nutrition.

Dr. Tirumurti concluded:

The brightest chapter in the History of Pathology is the period, which began with Pasteur. It is glorious and fortunate to live in these days, when exact knowledge in the Science of Pathology (including Bacteriology, Protozoology, etc.), has placed weapons of great power in our

hands for the prevention and cure of a large number of preventible diseases. No progress is possible without exact knowledge.

Research—The Watchword.

The most important part of the medical sciences, which have given the world to-day the healthiest period it has ever known in its history, is Pathology (including Bacteriology, Protozoology, etc.). The study of Pathology has become the basic discipline of Scientific Medicine and shall continue to be so for ever more. What has been accomplished is small in comparison with future possibilities of preventing suffering and prolonging life. Prophylaxis is taking the place of Therapy. It is literally true that man controls his own destiny. Medical science can progress only so long as the scientific spirit survives. The test of civilisation may well be the standard of its scientific spirit. **'Research' is the watchword of modern medicine. 'Empiricism' is the refuge of 'ignorance'. "Medicine and civilisation" advance and progress together.** The conditions essential for advance are intellectual courage and a true love for humanity. It is as true to-day, as it has been in the past, that further advance or even the holding of what has been won depends upon the extent, to which intellectual courage and humanity prevail against bigotry and obscurantism."

PUBLIC HEALTH BOARD.

Formation of Advisory Committees Urged.

Madras, Jan. 11.

The first subject discussed yesterday was the question of public health organisations and their development in the provinces and States. The memorandum on the subject contained

a series of resolutions which were passed at the Rural Hygienic Conference, held at Java, and it drew attention to the necessity for wider employment of public health officers and sanitary staff and the enactment of a Public Health Act in each province.

Extracts

The work of health units such as the one conducted in Poonamallee was recommended for consideration by the other provinces and States. Stress was laid on the desirability of having advisory health committees and boards in provincial headquarters and smaller health committees in the district headquarters.

The next item considered was the memorandum on the necessity for co-operation in public health measures between local bodies, railway and Army authorities, especially in regard to malaria control, drainage, water-supply and sanitation. The memorandum suggested that Directors of Public Health, in co-operation with Chief Medical Officers of Railways, should set out essential problems to be tackled and steps be taken to form joint local bodies to chalk out a practical programme of work. **The progress of health work, which was now obstructed to some extent, due to lack of co-operation and understanding, between the different bodies concerned, would be accelerated, it was**

stated, if the above suggestion was adopted.

The note on the formation of a National Physical Education Committee was also considered. It was also suggested that physical education committees should be formed in each province and State. An account of the work done in Madras and Bombay was given by the respective representatives. The Board generally recognised that India should pay more attention to physical culture, as in its wider aspect, it was intimately associated with health education, medical inspection of schools, physique of pupils and nutrition. A suggestion was made that individual government should prepare schemes suited to the population in their territories and for this purpose Physical Education Committees should be constituted, whose function would be to advise their respective governments.

The Board decided that its meetings should be held in different centres in India.

MATERNITY SERVICE

Suggestions for Improvement

BRADFIELD COMMITTEE'S REPORT

Madras, Jan. 10.

The following is the summary of the Recommendations, contained in the report on Maternity and Child Welfare Work in India of the *ad hoc* committee appointed by the Central Advisory Board of Health. The members of the Committee were Major-General E. W. C. Bradfield, Director-General of the Indian Medical Services, Col. A. J. H. Russell, Public Health Commissioner with the Government of India, and Messrs. Mangaldas V. Mehta, Jean M. Orkney and D. Mitra:—

If maternity and child welfare work is to be properly organised in a province, the first requirement is to have a woman medical officer of the status of Assistant Director of Public Health, possessing either a public health qualification or preferably a diploma in maternity and child welfare work and also considerable experience in this branch of public health work.

The experimental stage in the management of health schools for the training of health visitors in India having now been passed, Governments should

take over the administration of health schools.

For the larger and better organised municipal and local bodies' schemes a woman doctor's services are essential.

The work of a health school requires the whole-time services of a Superintendent and in no case should the Superintendent of a provincial school be expected in addition to undertake tours of inspection of child welfare centres.

In order to play a useful part, voluntary workers must have knowledge of welfare work and classes for voluntary workers might be conducted in connection with health schools or planned by other organisations, engaged in voluntary work.

In order that the various provincial Nursing Councils should keep in close touch with each other, *e.g.*, in the interest of uniformity in the standards of training, the constitution of a central body seems desirable.

Government grants-in-aid should be provided in order to stimulate development.

Statistics.

Directors of Public Health should consider the possibility of improving registration of still births.

The attention of Directors of Public Health is recalled to the instructions issued in 1937 in respect of the classification of all deaths of "mothers occurring within one month of child-birth" as "maternal mortality" deaths. In addition, Directors of Public Health are reminded that maternal mortality rates should be calculated on the combined figure for live and still-births.

The facts show that the principal causes of maternal mortality and morbidity vary markedly in different areas in India and that there is room for further researches into these questions as also into the causes of infantile mortality.

Maternity Services.

Co-ordination between the medical and public health departments is perhaps more vital in the field of maternity and child welfare than in any other sphere of medical and public health work.

For adequate pre-natal care the first essential is the sound training of medical students and midwives. This training should include instruction in the methods of educating the expectant mother. For this purpose all teaching hospitals should have pre-natal clinics.

Two types of pre-natal clinic are required: (a) consultative, and (b) subsidiary; some form of duplicate records is also required to co-ordinate the work of the two and to facilitate transference of the patient from one clinic to the other.

The practice of accommodating maternity cases in general wards is to be deprecated and a large number of maternity beds in separate maternity wards should be provided.

In order to ensure a reasonable standard of equipment, staff and safety for the mothers, maternity homes organised by voluntary or private effort should be supervised and inspected. It is suggested that suitable control could be exercised by a system of licensing and by inspection conducted by government medical and public health departments.

Extracts

Admissions to maternity homes should be confined to 'booked' cases which are expected to be normal.

Although it is desirable to have one midwife for every three beds, one to five may be regarded as a reasonable provision.

Considerable increase in the numbers of domiciliary midwives is required.

Additional female medical aid should be made more readily available in all domiciliary midwifery schemes.

For the supervision of domiciliary midwifery the solution seems to be in the appointment of medical women or health visitors with sound obstetrical experience.

Attention is drawn to the advantage of attaching midwives to a maternity hospital, a maternity home or a welfare centre.

In all domiciliary midwifery schemes, families who are able to pay should be charged fees for the services of a midwife.

The value of post-natal examinations should be stressed in courses of instruction in teaching hospitals and in health schools.

Infant and Child Welfare Services

As child welfare work in the real sense of the term cannot be properly carried out by midwives and nurses, the employment of a trained health visitor in each child welfare centre is a primary necessity.

Since early departures from health are not always capable of detection even by a trained health visitor, every welfare centre requires to have a visiting doctor.

Great care must be taken lest the welfare work, which is primarily preventive in nature, develops mainly a curative character. The centre should not usurp the function of a hospital or dispensary, but, if sound development of welfare work is to take place, facilities for the relief of suffering must be made available. This means for India a wide extension of rural dispensaries and rural medical officers.

In order to improve the health of elder children more attention should be paid to those between the ages of one and five.

The employment of female labour being a well-established practice in many industrial concerns in India and since no legal obligation exists except in Bombay Presidency for the compulsory provision of creches for the children of these women workers, the time seems ripe for such provision being made compulsory by legislative enactments.

While the routine work may be entrusted to an untrained "ayah," the direction and supervision of the subordinate staff should be in the hands of an experienced and qualified woman.

Official responsibility for institutions for orphans and illegitimate children, etc., should be shared by provincial medical and public health departments.

Training of Staff.

If maternity and child welfare services are to be properly organised and integrated into official departments, special training for medical officers-in-charge is necessary.

In order to attract medical women to the field of preventive medicine, and especially to that part dealing with

maternity and child welfare work, the conditions of service should be improved.

For the post of Superintendent of a health school, an experienced and qualified health visitor is most suitable.

It is desirable that the regulation of examinations and the issue of certificates to nurses, midwives and health visitors should be conducted by the provincial Nursing Councils. In the same connection, attention is invited to the English Ministry of Health methods and to the desirability of forming some central body whose duty it will be to maintain uniform standards and to facilitate the reciprocal recognition of certificates by different provinces.

Some experience of general nursing is a great asset to the health visitor and the authorities of health schools should consider the question of modifying the curriculum for health visitors' training in such a way as to include experience of general nursing.

In order to provide suitable practical training, every health school should have attached to it a welfare centre.

Arrangements should be made for a period of residence and practical training in a rural area as a definite part of the curriculum in every health school.

Every health school should organise annual refresher courses and health visitors, whether employed by Government or by voluntary organisations, who attend these courses, should be regarded as on duty and travelling allowance to and from the course should be paid to them.

No hospital with less than 100 midwifery cases per annum should be

accepted as suitable for training purposes.

In order to obtain a larger number of candidates for training as midwives and health visitors and, since it is difficult to obtain Indian girls prepared to bear the cost involved, a system of awarding stipends should be more generally adopted both by official and voluntary organisations.

In the training course for midwives, domiciliary experience should be included, especially for those women who are to work in rural areas.

As in the case of health schools training institutions for midwives should conduct annual refresher courses, especially for those midwives who are working in rural areas.

Owing to the confusion which is caused by the variations in nomenclature used for the different grades of midwife in different provinces, it is suggested that only two terms, viz., "midwife" and "assistant midwife" should be employed in future.

Under present circumstances many hospitals train both midwives and assistant midwives concurrently. This is a system which is to be deprecated.

Whilst it is agreed that the training and employment of dais is essential to meet existing conditions, this should be regarded only as a temporary expedient. Various suggestions have been made for the improvement of the courses of training required for these women and for their supervision and employment.

In the larger towns where adequate numbers of trained midwives are available, the licensing and recognition of dais should be discontinued.

Legislation.

Not only is improved registration of births necessary in those areas which have their own Births and Deaths Registration Acts, but every province should adopt a compulsory system of births and deaths registration. In addition, more stringent enforcement of existing regulations should be practised, if necessary, by prosecution in selected cases.

The urgent need for more accurate figures and for more skilled classification and calculation of rates has been pointed out. These questions should be given every consideration by provincial public health departments.

The final classification and consolidation of tehsil, district and municipal statistics should, if possible, be always carried out in the office of the Director of Public Health; this arrangement has already been followed by great improvement in one province.

Both in regard to the registration and the notification of births, great improvement can be effected if medical officers of health would give more attention to these important subjects.

All Municipal Acts should contain clauses dealing with (a) registration of

births and deaths, and (b) notification of births. These clauses should provide for the framing of bye-laws to ensure that the health authorities are given early information regarding births which is so necessary in relation to maternity and child welfare work.

Where the local conditions make the employment of dais inevitable, the Municipal and Local Boards Acts in those areas should enable local authorities to frame rules for the registration and licensing of dais. The time has now come when it should be possible in a large number of municipal areas to prohibit unregistered practice and provincial Governments should stimulate action in this direction.

In respect of the supervision of private maternity homes and hospitals, where necessary Municipal and Local Boards Acts should be amended in order to provide for the licensing of such institutions and for their supervision and control by means of suitable bye-laws.

Maternity Benefit Acts are now in force in several provinces. Other provinces where industries have developed should provide themselves with similar legislative measures.

CENTRAL HEALTH BOARD.

Malaria Control.

In regard to the resolutions of the last meeting on the subject of quinine, Mr. Wilson, lately Chinchona Expert with the Government of Madras, was appointed, the Secretary stated, to carry out an enquiry into the subject, and his report was now with the Imperial Council of Agricultural Research.

The Secretary then mentioned the various directions in which the Central Advisory Board was now functioning as a Central Information Bureau, and said that two health bulletins had been issued, one of which contained instructions to engineers for the avoidance of conditions liable to increase malaria in connection with engineering works. This bulletin played a most valuable

part in developing the co-operation of engineers with malarialogists in carrying out all future construction work. Four other bulletins had been revised, some of which had been completely re-written.

Vital Statistics.

The next subject discussed was vital statistics. A memorandum on this subject contained a series of recommendations. The most important of these referred to the necessity for additional municipal and local board public health officers and trained staff and the compulsory registration of births and deaths. Mention was also made of the suggestion in the memorandum that at each headquarters the Public Health Department should have a bureau of vital statistics with a staff of trained statisticians.

The desirability of obtaining increased co-operation from all provinces and States in collecting accurate vital statistics was also discussed. On the question of improvement of vital statistics it was generally agreed that it was of first importance as accurate figures were the basis of all constructive public health work.

Prevention of Cholera.

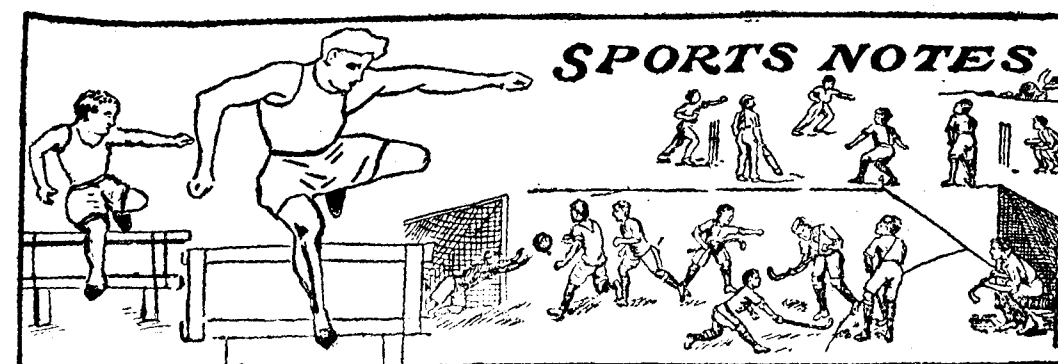
After the luncheon interval, the meeting considered the problem of preventing the spread of cholera. **The Secretary, in presenting a memo-**

randum on the subject, gave a number of figures, not generally available concerning the cholera epidemic in India in 1938. He said that the number of recorded attacks in British India up to December 24, was 320,000 and the deaths 154,000, the worst affected provinces being the United Provinces and Bengal. The Punjab which had been free from the epidemic during the first quarter, reported during the year 9,000 cases of which 5,000 were deaths. The epidemic seemed to have started about the end of March and spread rapidly from U.P. during the Kumbha Mela to different parts of the country. In the Central Provinces, particularly, during the third part of the year the epidemic was intense, and, by the end of the year, in most areas the epidemic had either disappeared or had very considerably decreased.

Discussion on this subject centred to a large extent round the inoculation of pilgrims. It was pointed out that for years past all pilgrims proceeding on Haj were required to possess certificates of vaccination against smallpox and of inoculation against cholera and that for several years in the past no cases of cholera had occurred among Haj pilgrims. The argument was advanced that if the same system were introduced in regard to inoculation in India, similar results might be obtained. But it was pointed out by more than one member that the subject was not so simple as that.



J. A. Muthiah (Winner, Shot Put - Inter-Collegiate Meet).



The Sports Causarie.

BY SENEX.

Cricket.

1. Vs. St. Aloysius College at Coimbatore.

St. Aloysius I innings, 112 (Padmanabhan 4 for 32, Herbert 4 for 26).

II innings, 113 (Pattu 3 for 42, Herbert 4 for 35).

M. M. C. I innings, 127 (Muthu 28, A. V. Rajagopal 20, Rangaraj 27).

II innings 101 for 3 declared. (Muthu 54 not out, Haridoss 35).

We met the University Champions in alien surroundings and we were without the services of Hogg and Alma Rao. But that spirit of dogged determination and team spirit stood us in good stead and we won the match very comfortably. The score is no true indication of the game. Against very accurate bowling and keen fielding runs were fought out. Our fielding evoked considerable praise and the catch by Pattu is worth mentioning. Pattu and Herbert

bowled very well, especially the latter. Muthukumaraswamy played well in both innings but his second innings effort was simply classic.

The next match was played in idyllic surroundings of Malabar at Palghat. Tired after a strenuous two-day match—the first played by our College—and without the services of Padmanabhan—the bowler with a 'big heart'—we met the Palghat Cricket Club in a holiday match. They ran up a total of 133 and A. V. was the only bowler to command respect. Bhaskar Mahadevan played courageous cricket and with Mathias striking brilliant form we won the match.

2. Vs. P. C. Club 133 (A. V. 6 for 53)

M. M. C. 149 for 7.

(Hari 26. Bhaskar 34 (5 fours), Mathias 54* one 6 and 5 fours)

3. Vs. Mylapore Recreation Club.

M. R. C. 166 (Muthu 5 for 34 A. V. 2 for 26.)

M. M. C. 100 (Ranga Raj 23
Bhaskar 18.)

4. Vs. St. Joseph's College.

We were the hot favourites in this match and it was ours, at the end of the first day. The second day saw us lose the game. Such is cricket. Bhaskar Mahadevan bet Godfrey in the turn of the coin and we got the first tenancy of the wicket. We lost a wicket without any score but Hogg and Hari batted so well, that we expected a pretty big score. The flame grew brighter but to go out. Wickets fell at regular intervals but the rot was stemmed by Bhaskar Mahadevan and Ranga Raj who put fifty runs between them. Bhaskar was run out unluckily and the end followed. We got the opponents out for a 90 and scored 77 for 3 at the end of the day. Next day was sensational cricket. 92 for 4 and 105 all

out! With 160 for a win on a fourth innings pitch, they hit their way to victory.

Weak batting against moderate bowling was the sole cause of the failure, coupled with bad fielding. Analysing our 2nd innings, out of 106, 21 were extras, A. V. scored 43 and 42 runs scored by the rest of the team! Catches were never seriously attempted and boundaries were allowed through the legs. The absence of a slow bowler was keenly evidenced, confidence surely pays but over-confidence slays?

M. M. C. I innings 143 (Bhaskar 28, Hogg 21.) II innings 106 (A.V. 43.)

St. Joseph's College I innings 90;
II innings 167 for 7 declared.
(A. V. 4 for 52.)

(A. V. 5 for 21, Pattu 3 for 23,
Herbert 2 for 23.)

Batting Averages.

Name.		No. of innings.	Most in an inning.	Times Not out.	Total	Average.
Haridoss	...	17	101*	2	522	34'80
A. V. Rajgopal	...	13	70	1	301	25'08
Hogg	...	13	54	1	265	22'08
Muthukumaraswamy	...	15	54*	1	266	18'86
Mathias	...	12	27*	5	110	15'71
Rangarajan	...	13	27	2	162	14'73
Marshall	...	9	23*	2	76	10'86
Atma Rao	...	11	51	1	101	10'10
Bhaskar Mahadevan	...	14	28	1	129	9'92
Rama Rao	...	10	21	...	89	8'90

Bowling Averages.

Name.	O	M	R	W	Average.	
Padmanabhan	...	180'3	45	384	46	8'34
Muthukumaraswamy	...	29'5	1	141	14	10'07
Atma Rao	...	84'0	17	175	17	10'28
Herbert	...	158'0	41	370	32	11'54
A. V. Rajagopal	...	112'5	23	326	28	11'60
Rama Rao	...	36'0	8	115	7	16'43
Ranga Raj	...	25'2	1	93	5	18'60

* INDICATES NOT OUT.

Our College at the Inter-collegiate Meet.



G. W. BIRD.



A. J. RALSTON.



B. J. PERIERA.

Having seen the College eleven in action throughout the season two things struck me with great force, the absence of a slow bowler and of a well built second eleven. With a slow bowler in the team we would have won many of the matches more comfortably and the 'Varsity Championship' easily. With the coming back of 'Guindy Money' in the team, Hogg at the wicket and Madhava Rao as an opening bat, nothing but ill-luck can prevent us winning the 'Varsity Championship' the coming season.

The new captain must build a good second eleven, so that at a pinch we can get any number of good substitutes who are in touch with the game. By arranging weekly fixtures for them and having regular practice, the paucity of players will never arise as happened this year.

Wish the new captain all luck.

Hockey.

We defeated St. Xavier's Palamcottah in a close match in extra time but got a run away victory over St. Joseph's and annexed the 'Varsity Championship' for the third time in succession.

Inter-Collegiate:

Medical College vs.	...	6—1
Veterinary College	...	3—0
Pachaiyappas	...	3—1
Presidency	...	7—1
Teachers'	...	5—0
Engineers	...	Draw
School of Technology	...	3—1
Loyola College	...	7—0
Y.M.C.A.	...	6—0
Muhammadan College	...	0—2
Christian College	...	W.O.
Law College	...	3—1
Stanley Medical College	...	3—1

Inter-divisional.

St. Xavier's College, Palamcottah	...	2—1
St. Joseph's, Bangalore	...	5—1

Football.

We defeated American College, Madura, in the semi-finals and St. Joseph's Bangalore in the finals and won the 'Varsity Championship'. We are well on the way to victory in the Wilson Cup having only to beat Y.M.C.A. with whom we drew once.

Madras Medical College vs.

Meston College	...	3—1
Pachaiyappas College	...	4—1
(Hat-trick by Haridoss)		
Presidency College	...	2—1
Teachers' College	...	2—0
Engineering College	...	1—2
Technology	...	3—3
Loyola College	...	0—1
L.I.M. School	...	5—2
Muhammadan College	...	3—0
(Hat-trick by Haridoss)		
Christian College	...	1—0
Stanley Medical College	...	5—1
Law College	...	2—1

Inter-divisional Matches:

Madras Medical College vs.		
American College	...	4—0
St. Joseph's College	...	1—0

Wilson Cup:

Madras Medical College vs.		
Christian College	...	4—2
Law College	...	1—0
Y.M.C.A. College	...	1—1
Total goals scored by our College	42	
Goals scored against us	...	16

Out of the 42 goals scored by our College, twenty-four were scored by A. K. Haridoss.

Track and Field Events.

In the Olympics we came third but we kept up our reputation by win-

Medical College Magazine

B. Inter-Collegiate Meet.

1. 110 Metres Hurdles, B. J. Periera, second.
2. Cricket Ball throw, W. Hart, second.
3. 100 Metres Race, A. J. Ralston, first.
4. Discus throw, L. W. McCullagh, third.
5. 400 Metres Hurdles, H. Gnanaoliva, third.
6. 16 lbs. Shot Put, J. Muthiah first.
7. 200 Metres Race, A. J. Ralston, first.
8. Long Jump, D. S. B. Stephens, third.
9. 200 Metres Hurdles, B. J. Periera, first.
10. Hop, Step and Jump, D. S. B. Stephens, third.
11. 400 Metres Race, A. J. Ralston, first.
12. 4 x 100 Metres Relay, second.
13. 4 x 400 Metres Relay, third.

R. ANANTANARAYANA.

ning the Championship in the Inter-collegiate meet, scoring 51 points. It is worthwhile remembering that we are getting the Championship, the second year in succession.

Events Won by our College.

A. Olympic Meet.

1. 400 Metres Race, A. J. Ralston, first.
2. 200 Metres Race, A. J. Ralston, first.
3. 100 Metres Race, A. J. Ralston, first.
4. Hammer throw, G. W. Bird, first.
5. Discus throw, G. W. Bird, second.
6. 4 x 50 yds. Relay, second.
7. 4 x 400 Relay, third.
8. 400 Metres Hurdles, B. J. Periera, first.
9. 200 Metres Hurdles, B. J. Periera, third.

University of Madras.

MEDICAL EXAMINATIONS, NOVEMBER-DECEMBER 1938.

The following is the list of successful candidates at the recent Medical Examinations held in November and December 1938:—

[Note.—Names in italics denote women candidates.]

PRE-REGISTRATION EXAMINATION, DECEMBER 1938.

Rank.	Register number and name of candidate.	Where educated.	Rank.	Register number and name of candidate.	Where educated.
FIRST CLASS.			SECOND CLASS—Contd.		
1	131 Kalyanam, T. S. * ...	Stanley Medical College.	25	4 Aameena Bibi, M. ...	Madras Medical College.
2	48 Kausalya, T. B. † ...	Madras Medical College.		82 Purushottaman, K. ...	Do.
3	45 Kalavathi, N. ...	Do.		106 Sunanna, N. K. ...	Do.
4	89 Ramamurti, B. † ...	Do.	28	18 Chengappa, M. M. ...	Do.
SECOND CLASS.				134 Krishnamurti, G. S. ...	Stanley Medical College.
1	40 Indira, L. ...	Madras Medical College.	30	1 Abraham, A. P. ...	Madras Medical College.
2	160 Ratnakara Baliga, K. ...	Stanley Medical College.	31	41 Jalajam, K. M. ...	Do.
3	133 Krishnamurti, A. R. ...	Do.		150 Rajesvari, S. ...	Stanley Medical College.
4	145 Panduranga Pai, M. ...	Do.	33	117 Venkatasubba Rao, Y. ...	Madras Medical College.
5	148 Peramanadan, M. ...	Do.	34	123 Anandaraman, V. ...	Stanley Medical College.
6	164 Santanam, R. ...	Do.	35	167 Shakuntala Karamchand	Do.
7	172 Srinivasaraghavan, K. ...	Do.	36	95 Sankararaman, K. T. ...	Madras Medical College.
8	23 Crosse, G. ...	Madras Medical College.	37	182 Swaminathan, T. R. ...	Stanley Medical College.
9	54 Krishna Nayak, M. ...	Do.	38	80 Perry, G. F. ...	Madras Medical College.
10	98 Seshadri, M. S. ...	Do.	39	93 Rangaswami, K. ...	Do.
11	55 Krishnakutti, P. K. ...	Do.		119 Visakam, C. ...	Do.
12	115 Venkataraman, S. ...	Do.	40	144 Narayana Rao, V. ...	Stanley Medical College.
	123 Gopinathan, C. R. ...	Stanley Medical College.		171 Srinivasan, V. R. ...	Do.
14	20 Chitra Bai, A. ...	Madras Medical College.	43	96 Satyanathan, Padma Raju	Madras Medical College.
15	78 Carl Anbunathan, G. ...	Do.	44	94 Roby, M. E. ...	Do.
16	51 Krishna Bai, U. ...	Do.	45	112 Varadarajan, M. G. ...	Do.
17	76 Paramesvaran, K. ...	Do.		86 Ramachandran, M. ...	Do.
18	158 Ramasubrahmanyam, M. K. ...	Stanley Medical College.	46	111 Vaidyanathan, M. ...	Do.
19	50 Keshava Pai, M. ...	Madras Medical College.		162 Sankaranarayanan, U. ...	Stanley Medical College.
20	139 Manjunath Shenoy, D. ...	Stanley Medical College.	49	71 Narayanan, M. ...	Madras Medical College.
21	24 Davidson David ...	Madras Medical College.	50	29 Devasikhamai, J. ...	Do.
	177 Subba Rao, A. R. ...	Stanley Medical College.		10 Balaguruswami, S. ...	Do.
23	5 Anantanarayanan, P. V. ...	Madras Medical College.		12 Beema, Mary ...	Do.
	127 Gopalakrishnan, C. ...	Stanley Medical College.		17 Chelvakumaran, T. S. ...	Do.
				21 Colaco, G. P. ...	Do.

* Gained distinction in Physics.

† Gained distinction in Chemistry.

A

PRE-REGISTRATION EXAMINATION, DECEMBER, 1938—(Contd.)

SECOND CLASS—Contd.

Rank.	Register number and name of candidate.	Where educated.	Rank.	Register number and name of candidate.	Where educated.
26	Damodaran, P. ...	Madras Medical College.	120	Visvanathan, V. K.	Madras Medical College.
43	John, Rosamma ...	Do.	132	Krishna Achar, B.	Stanley Medical College.
47	Karunakaran, K. ...	Do.	136	Krishna Rao, P. ...	Do.
56	Krishna Varman, K.	Do.	138	Mahadeva Ananta Gokhale.	Do.
59	Lakshmana Shenoi, B.	Do.	142	Narayanan, R. ...	Do.
62	Lobo, L. J. ...	Do.	149	Rajagopalan, V. ...	Do.
69	Murugappan, A. ...	Do.	154	Ramakrishnan, K. S.	Do.
72	Narayanawami, P. S.	Do.	156	Ramanatha Ayyar, K.	Do.
74	Natarajan, L. S. ...	Do.	159	Ramaswami, M. A.	Do.
83	Raghunathan, R. ...	Do.	173	Srinivasa Rao M.	Do.
85	Rajasekhara Reddi, M.	Do.	176	Subbaraman, V. ...	Do.
92	Ranganatham, C. ...	Do.	179	Sundararajan, V. ...	Do.
107	Sundaram, K. ...	Do.	186	Tyagarajan, R. ...	Do.
110	Sundararajan, R. ...	Do.			
114	Venkatappan, G. ...	Do.			

MEDICAL COLLEGE, MADRAS.

FIRST M.B. & B.S. EXAMINATION, NOVEMBER 1938.

PART I.

Register number and name of candidates.

188	Abdul Ghaffur, T. A.	232	Narayana Pai, K.
189	Abida Latheef	233	Narayanawami, N.
190	Annapurna, S.	235	Natesan, C.
191	Annaswami, V. S.	236	Newton, E. J.
192	Arantha, Bernadine M.	237	Padmavati, N.
193	Arumugam, C.	238	Padmavati, P.
194	Arunachalam, A.	241	Raghavachari, V. S.
195	Balaraman, K. N.	243	Ramachandra Acharya, A.
196	Balasubrahmanyam, K.	244	Rama Rao, B. V.
198	Brafield, A. J.	245	Ramdas, A.
199	Colaco, Lydia	246	Ramesh Pai, K.
200	Devakikutti, K.	247	Rangarajan, A.
201	D'Sena, G. W. L.	248	Russell, D. A.
202	Durgayya, N.	249	Sadananda Rao, P.
203	Gangadharan, N. *	250	Salem, Esther V.
204	George, K. S.	252	Sarada, S.
206	Gomez, D. M.	253	Satya Doss, T.
207	Gonsalves, E. P.	254	Satyendran, O. M.
209	Gopichand, A.	256	Seshagiri Rao Nayudu, P.
211	Innis, M. D.	257	Shankar Nayak, H.
212	Janardhanan, M.	259	Sivarajan, K.
214	Jayaraman, R.	260	Srinivasan, M.
215	Jonas, W. M. S.	261	Subhadra Devi, N. V.
216	Jotinayagam, Barnes J.	262	Sundaresvaran, T. V.
217	Kanakadurgambal, K.	263	Suryanarayana, C. R.
218	Kantha Rao, N. L.	264	Thangamma, K. O.
219	Karima Begum, U.	265	Thankam, M.
220	Krishnamurti, C. S.	266	Thomas, A. J.
221	Krishnamurti, S.	268	Thorpe, R. D.
223	Krishnavenamma, Z.	269	Varadarajulu, B. S.
223	Lakshminarayanan, S. V.	270	Venkatachalapati, K. R.
225	Lobo, J. J. D.	272	Venkataraaya Gadiyar, H.
226	Madhavan, M. K.	273	William, S. A.
230	Narasimhan, N.	274	Yates, J.
231	Narayana, G. L.		

* Already qualified for L.M. & S. Degree.

The following candidates completed the First M.B. & B.S. Examination by passing Part II:—

Rank.	Regr. No.	Name of candidate.	Distinction gained in.	Rank.	Register number.	Name of candidate.
		FIRST CLASS.				SECOND CLASS—Contd.
1	287	Balakrishnan, C.	Organic Chemistry, Anatomy and Physiology	27	337	MacFarlane, E. R.
2	349	Natarajan, A. R.	Organic Chemistry.	28	385	Vaidyanathan, A. S.
		SECOND CLASS.		29	383	Umapathi, K.
1	300	Dhavi, P. K.		30	390	Venugopal Shetti, M.
2	328	Krishnamurti, T. Ambujamma		31	364	Ramaswami, M. D.
3	380	Suryanarayana Rao, M.		32	365	Ranganathan, S.
4	366	Ranganathan, V. K.			354	Ponnammal, N.
5	313	Guruswami, M. N.		33	359	Ramachandran, P. V.
6	347	Narayana Shenoi, M.			389	Venkataramanayya, H.
7	292	Balasubrahmanyam, A.			293	Beemer, Catherine
8	382	Syed Zahiruddin Ahmed		36	393	Varghese, Ruby
9	379	Suneetha, D.		37	279	Abraham, Annamma
	323	Joseph, C. M.			281	Adikesava Rao, K.
10	376	Sitalakshmi, T. V.			289	Balakrishnan, P. P.
12	344	Narasimhan, D.			295	Chowbey, R. D.
	285	Anjaneyulu, D.			304	Francis Xavier, S.
13	296	Damayanti, S.			308	Girija Bai, M.
15	286	Augustus Appadorai, A.			309	Gnanadickam, V. J. D.
16	371	Sarvottaman, S. R.			312	Govindarajulu, M.
17	316	Hemachandra, C. T.			315	Harshadray Ishverlal Jhala
18	280	Abraham, John Edwin.			318	Jagadish Chandra Dutta
19	375	Seturamalingam Pillai, C.			320	Janaki, L.
20	336	Linton, E. S.			321	Janakiram, O.
21	345	Narayanan, S.			329	Krishna Rao, P. S. R.
22	335	Lilavati, B.			332	Kunjalia, C. A.
	301	Dique, J. C. A.			340	Mohana Rangam, V.
23	333	Kuriyan, M. V.			342	Nandagopal, T.
	310	Gopalakrishnan, S.			357	Rajakannappan, A. C.
25	373	Sebastian Zacharias			358	Ramachandran, C. K.
					368	Sadasiva Menon, P. P.
					369	Sarada, A.
					384	Urumese, M. A.

SECOND M.B. & B.S. EXAMINATION, NOVEMBER 1938.

PART I.

Register number and name of candidate.

395	Achaya, Sita	424	Lakshmanan, M. V.
396	Alfred Paul, D.	425	Lionel Bannerji, M. J.
398	Babji, P. V.	426	Lobo, Lucy H.
399	Balakrishna Ayyar, N.	427	Loganatha Raja, V.
400	Bhasker Mahadevan	428	Madanagopal, A. V.
401	Bhavsar, C. K.	429	Mathias, Josephine A.
402	Bird, G. W.	430	Mathias, P.
404	Devairakkam, T.	432	Moses, Christiana
405	D'Souza, Muriel M.	434	Nayudu, Varalakshmi
406	Duraiaraj, T.	435	Norman, A. S.
407	Durgaprasada Rao, B.	437	Patil, L. H.
408	Gopalan, C.	438	Pitchaimuttu Samuel, D.
409	Gopalakrishna Prabhu, M.	439	Purushottaman, N.
410	Govindarajulu, N.	440	Raghavachar, V.
411	Haridas, A. K.	441	Raghupati, M.
413	Hogg, L. M.	443	Ramanujam, K.
414	Hughes, Olive M.	444	Rarukutti Nayar, K. T.
415	Jagannath, S.	445	Rebello, J. I.
416	Janaki, K. G.	447	Sarada, K.
417	Jansen, R. A.	449	Simson, Ruby
419	Kodandaraman, M.	450	Srinivasan, J.
420	Krishnamurti, S.	451	Srinivasan, T. P.
421	Krishnamurti Ayyar, M. S.	452	Sukumaran, K.

SECOND M.B. & B.S. EXAMINATION, NOVEMBER 1938—Contd.

Register number and name of candidate.

453	Sundararajan, N.	460	Venugopal, A.
454	Terry, S. W. W.	461	Venugopal, B.
455	Thimmappayya, A.	462	Wilson, E. M.
456	Thomas, Alice P.	463	Muhammad Yusuf Khan
457	Vasanta Rao K.	465	Shamba Shetti, K.
459	Venkatesan, T.		

The following candidates completed the Second M.B. & B.S. Examination by passing Part II:—

SECOND CLASS.					
Rank.	Register number.	Name of candidate.	Rank.	Register number.	Name of Candidate.
1	509	Parankusam Nayudu, G.	29	466	Anantanarayana Ayyar, R.
3	538	Vasudeva Rao, G.	30	478	Furtado, L. A. F. J. I.
4	485	Kalyanam, K. A.	31	542	Verghese, Lucy A.
5	496	Mahadevan, N. S.	32	517	Ramachandran, B.
6	540	Venkateswarlu, S.		520	Ramaswami, M.
7	512	Raghunathan, V. S.	34	483	Jaganivas, B.
8	481	Gopalakrishnan, V. S.	35	474	Dasanna, M. N.
	491	Kumaran, V. K.	36	529	Sivaramakrishnan, K.
	515	Rajamani, C. A.	37	463	Muhammad Yusuf Khan
10	468	Balakrishnan, T. K.		470	Bhavadasanunni Nayar, K.P.
11	543	Vincent, D. B.		477	Francis Chandradoss
12	472	Chandramathi Amma, C.		479	Ganapati, K. C.
	526	Sargunar, Victoria		482	Hamid, M. A.
13	528	Shambavi Bai, B.		484	Joshee, C. L.
15	522	Ratnakannan, N. R.		486	Kaveriamma, K. C.
16	524	Sarangapani, K. S.		488	Krishnamurti, T. R.
	493	Lily Salem		490	Krishna Rao, J.
17	535	Subrahmanyam, Y.		492	Lilavathi, C. M.
	523	Rebello, W.		503	Narayanamurti, V. V.
19	533	Stephens, D. S. B.		504	Natarajan, K. J.
21	516	Ralston, A. J. P.		505	Ninan Varghese
22	506	O'Neill, E. P.		507	Parthasarathi, S.
	473	Chellappa, Y. C.		510	Paul Devadoss, A.
23	497	Maragadavel, S.		511	Penhearow, Ray M.
	525	Sarathi, K. P.		519	Ramapandiya Raj, V. P.
26	534	Subrahmanyam, K. V.		521	Rapson, Sylvia M.
27	480	Gopalakrishna, C. B.		531	Srinivasa Rao, K.
	537	Vaidyanatha Ayyar, M. S.		536	Thomas, Sarah T.
				544	Vittal Rao, C. R.

FINAL M.B. & B.S. DEGREE EXAMINATION, NOVEMBER 1938.

PART I.

Register number and name of candidate.

546	Anandan, K. P.	564	Narayanan, G.
547	Arthur, D.	565	Orton, F. G.
548	Asirvatham, Josephine	566	Radhe Mohan Nigam
549	Atmaram Rao, G.	567	Raghavan, T.
550	Chandy, Saramma	568	Rajagopal, S. G.
551	Davidson, H. A.	569	Raja Rao, S. V.
552	Dominic Josephine	570	Ramanujachari, C.
553	Enoch, Jasmine	571	Ramaraju, P.
555	Joseph, K. P.	572	Ranganatha Pillai, T. V.
556	Kamalakshi Ammal, K.	573	Saguna Bai, M.
557	Kesava Pillai, E. K.	575	Samuel Victor, J.
558	Korula John	576	Somasundaram, M.
559	Koshy, P.	577	Sukumaran, R.
560	Krishna Rao, S.	578	Sunanda Bai, K.
562	Mahalakshmi, S.	579	Suryaprakasa Rao, J.
563	Marten, Basil H.	580	Vedakkan, Daisy

FINAL M.B. & B.S. DEGREE EXAMINATION, NOVEMBER 1938—Contd.

Register number and name of candidate.

581	Vytilingam, Kamala I.	595	Raghunandana, G.
582	Yusuff Siddiq	597	Ramakrishnan, K.
583	Antony, P. K.	598	Ramamurti, V.
584	Chacko, C. W.	599	Ramaswami, C.
585	Chandrasekhara Panikkar, T. G.	600	Sam Johnson, Y.
586	Dorairaj, T.	601	Sridharan, N. V.
587	Ganesh Mudaliyar, V. E.	602	Subbaratnam, G. L.
588	Gopala Menon, K.	603	Thomas Kuruvilla, T.
590	Joseph, M. P.	604	Tiruvengadam, C. R.
591	Krishnaswami, Vasantha, S.	606	Visvanatha Rao, S.
593	Oommen, P. O.	607	Waters, Alice M.
594	Pattabhiramaswami Reddi, A.		

The following candidates qualified for the M.B. & B.S. Degree by passing Part II of the Final M.B. & B.S. Degree Examination:—

SECOND CLASS.					
Rank.	Register number.	Name of candidate.	Register number.	Name of candidate.	
1	674	Ramachander, P.	632	Harbhajan Singh	
2	717	Visvanatha Ayyar, P. S.	634	Ipe, C. F.	
3	706	Toomey, D. J.	638	John, Sosamma	
4	696	Srinivasaraghavan, N. G.	640	Kerala Varma Thirupad, K.	
5	662	Mukunda Menon, Kanalam	641	Krishna Bai, L.	
6	648	Krishnaswami, A. K.	646	Krishna Pillai, V.	
7	692	Satur, F. J.	649	Kumaran, V. C.	
8	669	Paul, P. A.	656	Money, N.	
9	691	Sarangapani, N. E.	657	Muhamad, K. C.	
10	664	Narayanan, T. K.	668	Pandidurai, C. S.	
11	673	Rama Ayyangar, M. C.	680	Ramanarayana Reddi, N.	
12	675	Ramachandra Reddi, P. V.	681	Raman Pillai, N.	
13	716	Verghese, Mary K.	682	Rama Rao, K. R.	
14	701	Subrahmanyam, N.	683	Ramunni Menon, P. R.	
15	619	Bhadrayya, C.	686	Sadanandam, T. M.	
	684	Chacko, C. W.	687	Sambasivan, V.	
	608	Abdul Sathar Ismail	698	Sriramamurti, K.	
	609	Abraham, M.	700	Subrahmanya Ayyar, G.	
	611	Aleem, G. A.	704	Suryakantam, L.	
	615	Audinarayana Raju, S. G.	707	Thomas George	
	618	Beetles, E. A.	708	Tayagarajan, M. K.	
	622	Chandroya Chetti, K.	709	Venkatachalam, T. N.	
	623	Cannor, Gladys nez Chester	711	Venkatakrishnan, S. M.	
	626	Duraiswami Ayyar, H.	712	Venkatakrishnayya, S.	
	627	George, T. M.	714	Venkat Rao, K.	
	628	Gomez, Mavis	715	Verghese, K. L.	
	629	Govindan Nayar, M.			

LIST OF FAILURES.

PRE-REGISTRATION EXAMINATION, DECEMBER 1938.

Register number.		Subjects failed in		Exemption earned in	
Inorganic Chemistry (written)		Physics (practical and oral)		Bilology.	
Do. (practical and oral)		Biology (written)		Do.	
Physics (written)		Do. (practical and oral)		Do.	
2	a	7	a b c d	...	...
3	a b	8	a b c d	...	...
6	a b c d	9	a b c d	...	...

PRE-REGISTRATION EXAMINATION, DECEMBER 1938—Contd.

Register number.	Subjects failed in	Exemption earned in	Register number.	Subjects failed in	Exemption earned in
11	a b	... Physics and Biology.	100	a b e f	... Chemistry and Physics.
13	c d	... Chemistry and Biology.	101	e f	... Do.
14	a c d	... Biology.	102	f	... Chemistry.
15	absent	...	103	c d f	... Biology.
16	c d e f	... Chemistry.	104	a b e f	...
19	e f	... Chemistry and Physics.	105	f	...
25	e f	... Chemistry.	108	b c	... Biology.
27	a b c d e f	...	109	a b c d e	...
28	e f	... Chemistry and Physics.	113	e f	... Chemistry and Physics.
30	a b c e f	...	116	a c d	... Biology.
31	c d e f	... Chemistry.	118	a c d e f	...
32	a b c d e f	...	121	c	... Chemistry and Biology.
34	a b c e f	...	122	a b c	... Biology.
35	c	... Chemistry.	124	a b c e f	...
36	a b e f	... Physics.	125	a b c d e f	...
37	c	... Chemistry.	126	a c	... Biology.
38	c	... Chemistry and Biology.	129	a b	... Physics and Biology.
39	e f	... Chemistry and Physics.	130	e f	... Chemistry and Physics.
42	a b e f	... Physics.	135	a c d	... Biology.
44	e f	... Chemistry and Physics.	137	c d	... Chemistry and Biology.
46	a b c d e f	...	140	a b c e f	...
49	a b c	... Biology.	141	a b c d e f	...
52	e f	... Physics.	143	a b	... Physics and Biology.
53	e f	...	146	a b c d e	...
57	f	... Chemistry and Physics.	147	c e	... Chemistry.
58	f	... Do.	151	a b c d e f	...
60	a b d e f	...	152	a b	... Physics and Biology.
61	a b c d e f	...	153	a c e f	...
63	f	...	155	e f	... Chemistry and Physics.
64	c d	... Chemistry.	157	a b e f	... Physics.
65	a b c d	... Biology.	161	b f	... Do.
66	a b c e f	...	163	a b c e f	...
67	a b c d e f	...	165	e f	... Chemistry and Physics.
68	a b e f	... Physics.	166	e f	... Do.
70	a b c e f	...	168	a b c e f	...
73	a e f	... Physics.	169	c e f	... Chemistry.
75	e f	... Chemistry and Physics.	170	a b c d e f	...
77	a b c e f	...	174	a c d f	...
79	c e f	... Chemistry.	175	c d e f	... Chemistry.
81	a b c d e f	...	178	a b c e f	...
84	c e f	... Chemistry.	180	c f	... Chemistry.
87	a b c e f	...	181	a b c d e f	...
88	a c d e f	...	183	c	... Biology.
90	e f	... Chemistry and Physics.	184	a b c e f	...
91	a b c	... Biology.	185	a c d e f	...
97	a b c d e f	...	187	a b c d e f	...
99	c d f	... Chemistry.			

Note.—The results of candidates with Register Nos. 22 and 33 will be published later.

FIRST M.B. & B.S. EXAMINATION, NOVEMBER 1938.

Organic Chemistry (written)	...	a	Anatomy (dissections and oral)	...	d
Do. (practical and oral)	...	b	Physiology (written)	...	e
Anatomy (written)	...	c	Do. (practical and oral)	...	f

Register number.	Subjects failed in	Exemption earned in	Register number.	Subjects failed in	Exemption earned in
197	a	...	208	a	...
205	a b	...	210	a b	...

FIRST M.B. & B.S. EXAMINATION, NOVEMBER 1938—Contd.

Register number.	Subjects failed in	Exemption earned in	Register number.	Subjects failed in	Exemption earned in
213	a b	...	319	e f	... Anatomy.
224	a b	...	322	c d e f	... Physiology.
227	a b	...	324	c d	... Anatomy.
228	a b	...	325	e f	...
229	a b	...	326	c d e f	...
234	a b	...	327	d e f	... Anatomy.
239	a b	...	330	e f	...
240	b	...	331	c d f	...
242	a b	...	334	c d e f	... Anatomy.
251	a b	...	338	e f	... Do.
255	b	...	339	e f	... Do.
258	a b	...	341	e f	...
267	b	...	343	c d e f	...
271	a b	...	346	e f	... Anatomy.
275	a b c d e f	...	348	c d e f	...
276	absent.	...	350	c e f	...
277	a b c d e f	...	351	c d e f	... Anatomy.
278	absent for Part I.	Not permitted for Part II.	352	e f	...
			353	c d e f	...
			355	c e f	...
			356	c d e f	...
282	absent.	...	360	c d e f	...
283	c d f	... Anatomy.	361	c d e f	... Physiology.
284	f	...	362	c d	...
288	c d e f	...	363	c d	...
290	c d f	...	367	c d e f	... Anatomy.
291	c d	...	370	e f	... Do.
294	c d e f	...	372	e f	...
297	c d e f	...	374	c d e f	... Anatomy.
298	c d e f	...	377	e f	...
299	c d e f	...	378	c e f	... Physiology.
302	c e f	... Anatomy.	381	c d	...
303	e f	...	386	c d e f	...
305	d e f	... Anatomy.	387	e f	... Anatomy.
306	e f	...	388	e f	... Do.
307	e f	...	391	c d e f	... Physiology.
311	c d e f	... Physiology.	392	c d	...
314	c	...			
317	c e f	...			

SECOND M.B. & B.S. EXAMINATION, NOVEMBER 1938.

SECOND M.B. & B.S. EXAMINATION.			...		
Pharmacology (written)	...	a	Pathology, etc. (written)	...	e
Do. (practical and oral)	...	b	Do. (practical and oral)	...	f
Hygiene (written)	...	c	Ophthalmology (written)	...	g
Do. (practical and oral)	...	d	Do. (practical and oral)	...	h
Register number.	Subjects failed in	Exemption earned in	Register number.	Subjects failed in	Exemption earned in
394	a	...	467	e	... Pathology and Ophthalmology.
397	b	...	469	c d e f	... Ophthalmology.
403	Not permitted to sit.	...	471	e f	...
412	a	...	475	e	... Hygiene and Ophthalmology.
418	a b	...			... Do.
422	a b	...	476	f	... Pathology.
423	a b	...	487	c d g h	... Hygiene and Ophthalmology.
431	b	...	489	f	... mylogy.
433	b	...			... Ophthalmology.
436	b	...	494	c d f	... Pathology and Ophthalmology.
442	b	...	495	e	...
446	a b	...			
448	b	...	498	d e f g h	... Hygiene.
458	a	...	499	e f	...
464	a b e f g	...	500	d e f g h	...
465	c e f	... Ophthalmology.			

SECOND M.B. & B.S. EXAMINATION, NOVEMBER 1938—Contd.

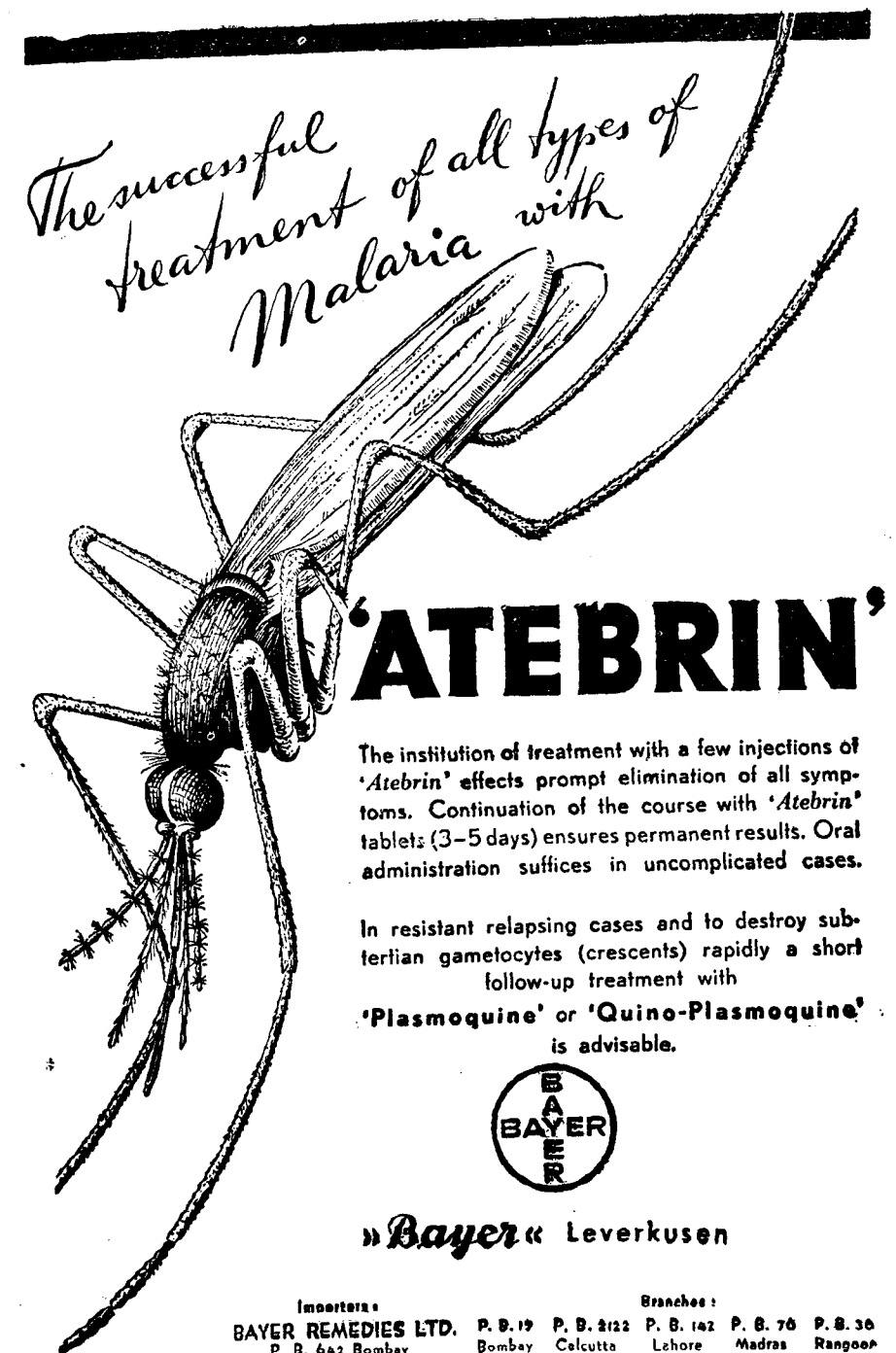
Register number.	Subjects failed in	Exemption earned in	Register number.	Subjects failed in	Exemption earned in
501	c d e f	... Ophthalmology.	527	e	... Hygiene and Ophthal-
502	e f	... Do.			... mology.
508	c d	...	530	e f	...
513	c d e f	... Ophthalmology.	532	absent.	...
514	c d e f g h	...	539	Not permitted	...
518	e	...	541	g h	...

FINAL M.B. & B.S. DEGREE EXAMINATION, NOVEMBER 1938.

Forensic Medicine (written) ...	a	Surgery (written) ...	e
Do. (oral) ...	b	Do. (clinical) ...	f
Medicine (written) ...	c	Surgery (oral and operative) ...	g
Do. (clinical and oral) ...	d	Obstetrics and Gynaecology (Midwifery, written).h	
		Do. (clinical, oral and practical.) i	

Register number.	Subjects failed in	Exemption earned in	Register number.	Subjects failed in	Exemption earned in
545	a	...	637	c d e f g	...
554	a	...	639	c d f g	...
561	a b	...	642	c d	... Surgery.
574	a b	...	643	e h	... Do.
583	c d e f g	... Midwifery.	644	d	...
585	c d e g	... Do.	645	c d e f g h	...
586	c d e f g h i	...	647	e h i	... Surgery.
587	d e f g h	...	650	c d e f g	...
588	c d e f g i	...	651	e h	... Surgery.
589	b c d e f g h i	...	652	absent.	...
590	d e g	... Midwifery.	653	c d e f g h	...
591	e f	... Medicine and Midwifery	654	c d e f g	... Midwifery.
592	a b c d e f g h i	...	655	c d g i	...
593	d e f g	...	658	d	...
594	c d e f g i	...	659	c d e f g h i	...
595	e f g	... Medicine and Midwifery.	660	h	... Medicine and Surgery.
596	b c d e f g	... Midwifery.	661	e h i	... Surgery.
597	c d h i	... Surgery.	663	d	...
598	c d e f g	... Midwifery.	665	c d f	...
599	c d e f g h i	...	666	d	... Surgery and Midwifery.
600	c d e f g	... Midwifery.	667	e f	... Medicine.
601	c d e f g i	...	670	e f g	... Do.
602	c d e g h	...	671	f g	... Do.
603	c d	... Surgery and Midwifery.	672	c d e f g	...
604	c d e f g	... Midwifery.	676	c d f g	...
605	a b c d e g	... Do.	677	f g	... Medicine.
606	Absent for Part II.	...	678	c d f	... Midwifery.
607	e g	... Medicine and Midwifery	679	e	... Surgery and Midwifery.
610	f g	...	684	absent.	...
612	e	... Surgery and Midwifery.	685	c d	...
613	d e f h	...	688	c d	... Surgery and Midwifery.
614	h	... Medicine and Surgery.			... Do.
616	c d e f g	...	689	c d e f g h i	...
617	e g	... Medicine.	690	c d f	...
620	d	... Surgery and Midwifery.	693	c d e f g	...
621	h	...	694	e g	...
624	d	... Surgery.	695	c d e f g	... Midwifery.
625	d	... Do.	697	c	... Surgery.
630	c d e f g	...	699	absent.	...
631	e f	... Medicine.	702	c e f	... Midwifery.
633	e f	... Do.	703	c d	... Surgery.
635	e f g h	... Do.	705	e f	... Medicine.
636	e f g h	... Do.	710	c d f g	...
			713	c d e f g	... Midwifery.
			718	c d e f g	... Do.

The successful treatment of all types of Malaria with



'ATEBRIN'

The institution of treatment with a few injections of 'Atebrin' effects prompt elimination of all symptoms. Continuation of the course with 'Atebrin' tablets (3-5 days) ensures permanent results. Oral administration suffices in uncomplicated cases.

In resistant relapsing cases and to destroy subtertian gametocytes (crescents) rapidly a short follow-up treatment with 'Plasmoquine' or 'Quino-Plasmoquine' is advisable.



»Bayer« Leverkusen

Importers: **BAYER REMEDIES LTD.** P. B. 19 Bombay P. B. 2122 Calcutta P. B. 142 Lahore P. B. 76 Madras P. B. 36 Rangoon

When writing to advertisers, please mention this Magazine.

WILFRED PEREIRA, LTD.

Qualified Chemists

Head Office: Vepery, Madras.

Local Branch: 25, Mount Road, Madras.

Mofussil Branches: Ootacamund, Coonoor,
Kotagiri and Coimbatore.

THE HOUSE FOR SURGICAL AND MIDWIFERY
INSTRUMENTS OF HIGH QUALITY

Dissecting Sets, Stethoscopes, Sphygmomanometers. Rubber
Goods, such as Catheters, Hot Water Bottles and Air cushions;
Surgical Enamelware by Kockums (Sweden), comprising Kidney
Trays, Rectangular Instrument Trays, Bed Pans, Spittoons, Etc.

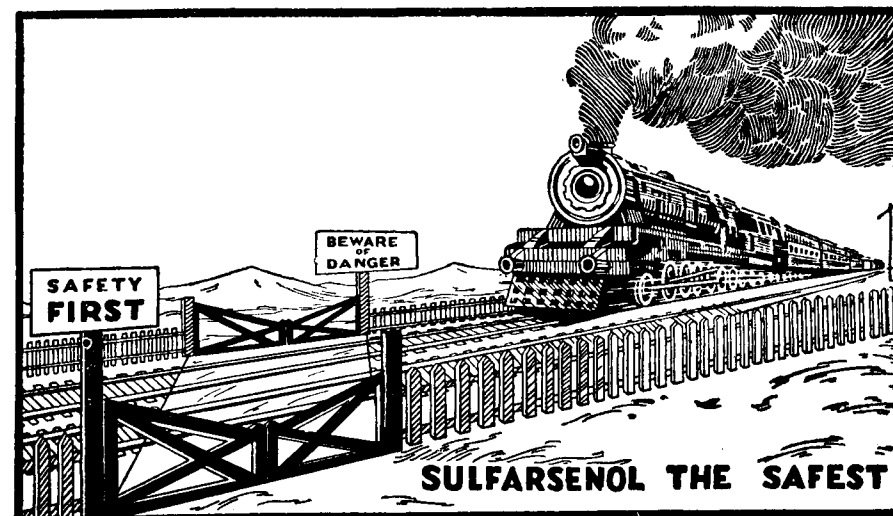
A varied range of Hypodermic Syringes and Needles always in Stock.

A Trial will convince You.

Try us before purchasing elsewhere.



When writing to advertisers, please mention this Magazine.



ANGLO-FRENCH DRUG COMPANY



When writing to advertisers, please mention this Magazine.

Nyal Vitavim

The Improved Vitamin Compound

Contains **Vitamin A, B₁, B₂ (G), D.**

The enjoyable taste makes it an ideal tonic for both children and adults. Promotes growth, Improves digestion and is very useful in the treatment of rickets and malnutrition, when these conditions are due to Vitamin-deficiency.

NYAL COMPANY,
DETROIT., U.S.A.

Sole Agents for
The Madras Presidency:
APPAH & CO.,
CHEMISTS AND DRUGGISTS,
MADRAS.

TO LET

