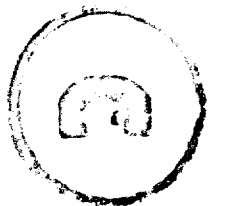


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JAN 1940
MADRAS

Vol. 34. No. 1

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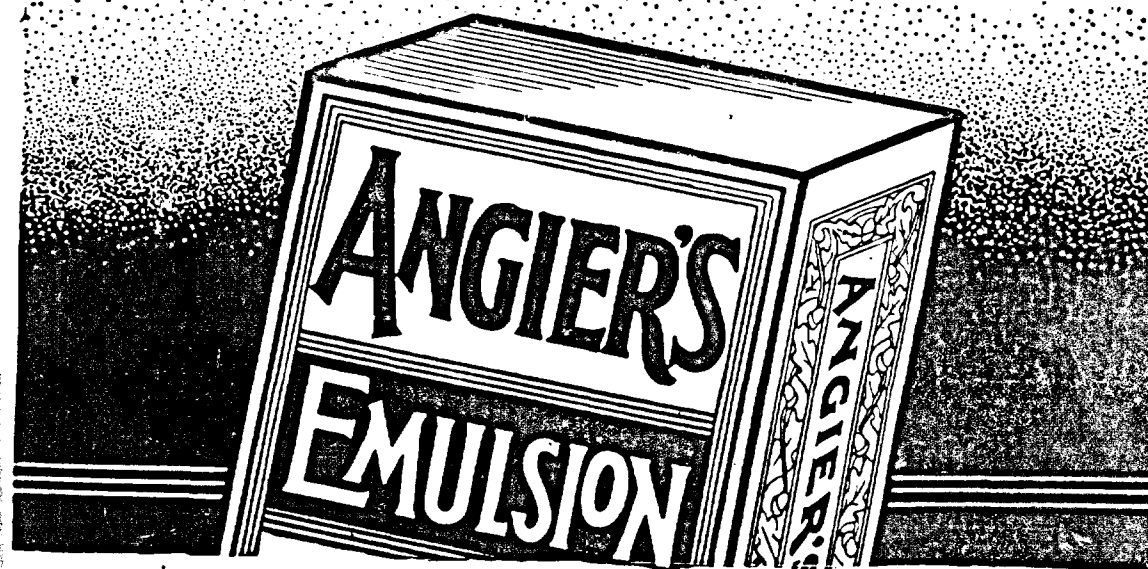
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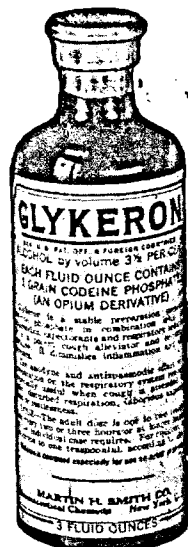
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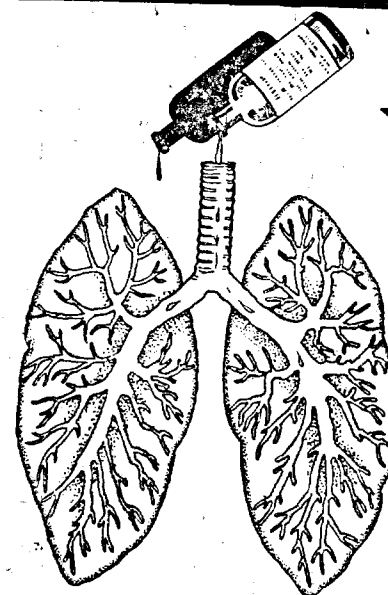
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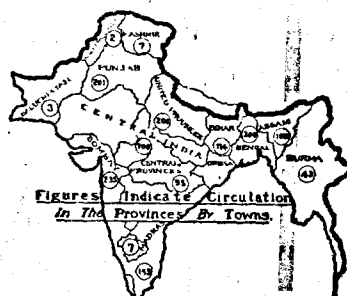
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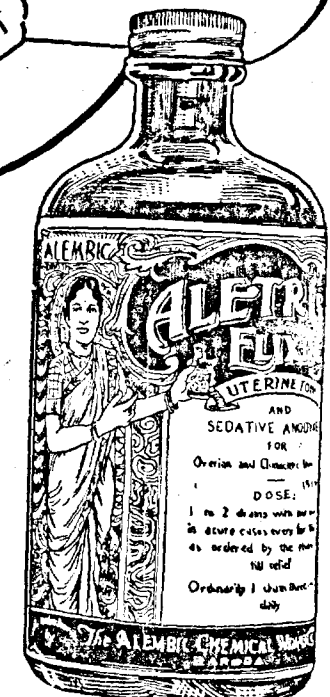
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SUPPLEMENT TO THE INDIAN MEDICAL JOURNAL

MADRAS

JANUARY 15, 1940

Vol. 2, No. 1

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Medical Organisations in India: Past, Present and Future*

• A. Viswanathan

[Under this caption three series of articles would appear in the successive issues of the Supplement, and it is hoped that this stock-taking would reveal to our readers the strength and weakness of the existing organisations and show the possible lines of development in the future.—Ed. I. M. J.]

INTRODUCTION

One hundred and eight years ago when the British Medical Association was born, the medical profession in India was still in the womb, shapeless and uncertain of its future. Till the year 1900, there was no such thing as organised medical profession either of regional or of an All-India nature. Not that there were no medical men before that time but a few who came out of the shoddy medical educational institutions, the creations of the East India Company, were absorbed in the Service of successive British Governments, mostly for the purpose of medical relief to the civil and military servants of the Crown, and partly to the people of the provinces. Even the Medical Services were arranged in concentric circles. The encircling circle was the Indian Medical Service. It was in reality, not Indian as the name suggests, but purely and wholly a British Medical Service for the benefit of the officers of the Crown and for imparting Western medical education to a select few of our country. It represented the principle of *imperium in imperio*, an inevitable step in any imperial organisation in a subject country. In Medicine it represented the power, the might and the beneficence of the British Government in India. The rest of the medical Services were naturally put under its control. These were the Provincial and

Subordinate Medical Services. The recruitment to these Services was always after a pre-arranged plan. And the plan was to keep the members of these two subordinate services in a pyramid whose planes meet at only one point—to serve, to please and to glorify the Imperial Medical Service. Very few were then left of the medical colleges and schools to choose the career of what we now call private medical practice. The question or the necessity, therefore, of organising the profession on the model of the British Medical Association did not arise till late in the history of Medicine in our country.

THE EARLY ORGANISATIONS

When the Medical Services in our country became regularised and enlarged, both in scope and strength, and particularly when there were no free-lancers in the medical profession, it was natural for Service members to create and develop a corporate existence if for nothing else at least to have their growing grievances redressed. But since the Service compartments were both rigid and water-tight; since there were no grievances common to all the Service cadres; and since the remedying of the grievances of one cadre meant treading on the corns of another, a homogenous single organisation was absolutely impossible of conception or creation. So, in the different parts of our country, at that time, provincial service organisations were formed. The Provincial Medical Associations represented the

*The views expressed in this article are personal—Author.

cause of Assistant Surgeons in Service and worked to improve their pay, promotion and prospects. The Provincial Hospital Assistants' Associations worked similarly on behalf of the members of their cadre. Both were fighting for loaves and fishes of office and its associated power. As for the I. M. S., it had no organisation of this kind, for they were already supreme both in position and power, and there was no real necessity for a guild of its own. It was occupying a fortified position and it could not be easily attacked by the meekly servants in the fort. It was, indeed, and would be, impregnable so long as India continues to be the White Man's Burden.

INSULAR OBJECTIVES

These early medical associations divided and formed themselves on the basis of Service groupings. The officers of the I. M. S. bossed over the Assistant Surgeons, and the Assistant Surgeons bossed over the Sub-Assistant Surgeons. There was no common meeting ground for these three classes except their professional work. Even in the exercise of the profession red-tapism was the rule, and there was not that respect which nowadays one medical man shows to another either in service or practice. The objectives, therefore, of these groups of medical men became insular. The conception that they were serving the country, that they belonged to a noble profession, and that every member of the profession was as good as the other was remote from their minds as this earth is remote from heaven. The main objective of the Assistant Surgeon was to become a Civil Surgeon, and of the Sub-Assistant Surgeon to become an Assistant Surgeon. To this end their respective associations worked sometimes with success but often times with discomfiture. Mud-slinging of one against the other was the rule. It was no wonder, therefore, that their associations never reached more than a certain degree of provincial importance and utility, and that these associations by the very defect in their objectives and composition were congenitally incapable of taking their stand on the broader issues of the profession and the still broader issues of national integrity and interests.

THE EMERGENCE OF PRIVATE MEDICAL PRACTITIONER

The writer believes that the appellation, Private Medical Practitioner (or Independent Medical Practitioner as he is sometimes called) is unique to our country, not in the sense of its importance but in the sense of its strangeness. The name suggests a strong contrast between Service and private practice, and the words "private" and "independent" were the first cries of revolt against the spirit of dependence on and the glamour for service among the freshers of the medical schools and colleges at the end of the nineteenth century. When the output of medical men and the demands for medical personnel in the provincial and subordinate medical services balanced, there was no residue left. In other words, for a long time, till the early years of this century very few medical men

took up to private medical practice. There were also other circumstances which did not help to create an independent medical profession. These were: the type of the then medical education and the absence of statutory recognition of the then qualified medical men.

THE EMERGENCE OF PROVINCIAL MEDICAL COUNCILS

Till 1858, the British Government in India conferred no degrees or diplomas on the successful candidates of their medical schools and colleges. They merely awarded to them certificates of having successfully undergone a prescribed medical course as qualifying the candidates for the office of hospital assistant or of assistant surgeon according as the candidates belonged to the medical school or medical college. After the Great Indian Mutiny, the Company's Government was taken over by the Crown, and by virtue of Lord Canning's University Act the then medical colleges were affiliated to the newly started provincial universities which started awarding L. M. S. and M. B., B. S. degrees to the successful candidates of the medical colleges. Even then there was no statutory status to these degrees except the recognition by the Government. But no such degrees or diplomas were conferred on the alumni of the schools till the year 1911, and that only after a strong agitation set up by the "Hospital Assistants" on an all-India scale. The Government of India Notification No. 1100-1106 dated 6th November 1911 declared to designate "the Sub-Assistant Surgeon in private practice as Licensed Medical Practitioner leaving the option to the Local Governments to decide cases for the award of this license." This order would show that already the then qualified medical men, both from the medical schools and the colleges—particularly the former as their number was greater—were slowly establishing themselves in private practice. It would thus appear that between the years 1890 and 1912, the residue of qualified medical men after absorption into Government service was steadily becoming numerically sufficient enough to venture into the field of private medical practice. The next inevitable step was "the formation of Provincial Medical Councils. The first proposals to form Provincial Medical Councils was mooted in July 1910 by the Government, and the General Medical Council of the United Kingdom supported by powerful organs like the *Lancet* and the *British Medical Journal* said, what may appear a strange contrast today to what they have recently said while the Indian Medical Council Act of 1933 was on the legislative anvil, that *no system of medical registration in India would be complete which did not include the military assistant surgeons and the hospital assistants*. The first provincial Medical Registration Act which permitted the formation of a Provincial Medical Council and a Provincial Medical Register with statutory control and guidance of the provincial medical education and medical ethics was passed in Bombay in March 1912. In this connection it would be of historical interest to note that a tearing campaign was

started by the late Sir Dr. Bal Chandra on behalf of the Bombay medical graduates against the inclusion of the medical licentiates within the scope and purview of the Bombay Medical Registration Act. The Government of Bombay, the Government of India and the Bombay Branch of the British Medical Association refused to yield to this campaign of vilification and rejected the insinuation that the Sub-Assistant Surgeons were not duly qualified medical men. But this campaign has produced one temporary effect, viz., although the medical licentiates of Bombay were included in the Medical Register they were yet given no representation in the Bombay Medical Council. And not until the late Hon. V. J. Patel, who seeing the gross injustice involved in such arrangements successfully moved a suitable amendment to the Bombay Medical Registration Act in Bombay Legislature in 1917, that the medical licentiates were given representation in the Bombay Medical Council. Between 1912 and 1918 other major provinces enacted similar Medical Registration Acts. The provinces which have no medical councils of their own even today are North-Western Provinces, all the Indian States, and Sind. Central provinces recently enacted a similar Act, although strangely enough the previous Central Provinces Medical Registration Act passed 24 years ago by its legislature was not given effect to by the Government for reasons which were never published.

THE FIRST ALL-INDIA MEDICAL ORGANISATION

At this point of our survey, and to understand the back-ground behind this first medical organisation on an All-India basis, it would be profitable to recapitulate the factors that led to this great event in the history of Medicine in our country. The conditions upto the year 1900 were such that no composite organisation on a scale wider than one's own province and on objectives greater than mere satisfaction of redress of service grievances was possible to be built. The rigid types of medical services based more on the needs of the Government than on the needs of the people, the corresponding types of medical education which aimed to produce more medical assistants than real medical men, the outnumbering of private medical practitioners by the men in the subordinate and provincial medical services, the absence of common grievances even among the members of the Services, and the absence of statutory recognition of the Indian Medical Degrees and Diplomas led to localisation and splitting of all the then medical clubs or associations in the country. By the year 1900 however, the number of Sub-Assistant Surgeons leaving the medical schools of the country became considerably greater than the Assistant Surgeons from the medical colleges. This inevitably resulted in two things: (1) The strength of the subordinate medical cadre became 5 or 6 times greater than that of the provincial medical cadre and (2) there was left a larger surplus of Sub-Assistant Surgeons outside the Service who had no other option but

to engage themselves in private practice. Collectively, therefore, their grievances became greater and more widespread, and the sub-assistant surgeons in service got a strong ally in their comrades in practice who were prepared to foot an organisation on an all-India scale or who, at any rate, were willing to help them in an organised agitation for the redress of such grievances. So in June 1906, a Sub-Assistant Surgeon from Madras (Dr. P. S. Ramachandrier), one from Indore (Rai Bahadur Dr. Sarju Pershad) and three from Bombay (Drs. Abdul Razak, Joitram Motiram Pandya and Jamiat Ram B. Desai) hatched an all-India Medical Organisation at the Haffkin Institute, Parel, Bombay. But this organisation excluded the Assistant Surgeons from its membership. This then could not have been avoided because the Assistant Surgeons who were then mostly in service made no common cause with the Sub-Assistant Surgeons. Therefore, both the trend in the Services and the medical education, left no option to them but to style their organisation as "All-India Hospital Assistants' Association" which later styled itself as All-India Sub-Assistant Surgeons' Association and All-India Medical Licentiates' Association according to subsequent changes in their official designation in the year 1910, and the conferment of a licentiate diploma in the year 1911. In spite of the exclusion of the Assistant Surgeons from its membership, this Association was always alive to the important fact that the grievances of the Sub-Assistant Surgeons and the Assistant Surgeons were due to hidebound system of medical education and medical services. Therefore we find that even in its very first All-India Conference at Bombay in 1907, it formulated its basic demand for affiliation of all the medical schools to the Provincial Universities, and, as a measure of immediate relief, demanded change of designation, generous promotion to provincial medical service, admission of the qualified Sub-Assistant Surgeons to the University medical course, and conferment of a diploma on the qualified sub-assistant surgeons. But although the objectives were broad and sound enough, and had sufficient coherence and perspective to justify the Association in shaping and spreading itself on an All-India basis, yet in the early part of its existence Service members predominated with the result that every one of its early conferences became one litany of prayers and supplications to the powers-that-be. Very soon however it realised its own mistake—the mistake of confusing the effect with the cause. It soon found out that to work for the removal of the causes that generate the grievances is more important and urgent than seek a mere symptomatic redress of the grievances themselves. In course of time, the perspective entirely changed for the better. But till the year 1928 it was ploughing a lonely furrow, because till then very few medical graduates, either individually or collectively, closely associated themselves in sympathy with the objects of the Licentiates' Association. It is no wonder therefore that in spite of its right objectives and effective

organisation with numerous and far-flung branches of its own in our country it has continued to represent only one class of medical practitioners. Any impartial historian will however acquit the Licentiate's Association of perpetuating wanton professional communalism, for, the facts of history would show indubitably that this cleavage was exonerated and even appreciated by the assistant surgeons, although they too were not responsible for this system of medical services and medical education which made both a pawn in the imperial game of medical administration in our country. But one thing the earlier assistant surgeons could have done, as their successors subsequently did, and that was: they should have condemned the medical schools which produced the licentiate instead of viewing the licentiate with contempt. This tragic mistake of condoning the institutions while condemning the licentiate of these institutions deprived the Licentiate's Association the help which was due to it from the medical graduates of the country, and made it nurture a sore which even the subsequent right action and attitude of the enlightened and right-thinking medical graduates of our country find unable to heal in spite of their best ministrations.

THE SECOND ALL-INDIA MEDICAL ORGANISATION

This great and tragic fault of isolating the medical licentiate from the body-politic of the profession in spite of their great numbers and successful careers, and even adventures in the profession in all fields of its activities—in medical and public health service, in research and in practice—was for the first time recognised and undone by a band of medical men at Calcutta who thought of Medicine in terms of Medicine and not of Medical Services, and in terms of professional solidarity and national interests. This noble band of medical men laid the foundation stone of the Indian Medical Association in the year 1928, and the membership was thrown open to all qualified medical men practising in our country—private practitioners and service-men of all ranks alike. This will ever stand as a mountain peak among the varying ranges of achievements in the modern history of Medicine in our country. It may even be said that it was born out of the travails and tribulations of our comrades in the previous century. This happiness of a new birth, although delayed, laboured and prolonged owing to internal and external causes, was well and truly voiced by one of India's greatest sons, Sir Upendranath Brahmachari, at the second Bengal Provincial Medical Conference*:

"Gentlemen, how happy one feels when one sees foreign diploma holders, University graduates and diplomates of State Medical Faculty have met today on a common platform to exchange their ideas for the good of the profession and their country. Here there is no jealousy, no undue rivalry, no feeling of superiority or inferiority complex..... Let truth come from whence it may, and point never so grimly as to what it may, he would be recreant to science who would for one moment hesitate to receive it."

* Jour. of Ind. Med. Assn., Vol. 8, No. 4, p. 249.

And he asked the members of the Indian Medical Profession to remember that:

"Some errors handed down from age to age,
Plead custom's force and still possess the stage,
Ah! that is vile,
Shall we our parents' faults adore
And err because our parents erred before."

The writer believes that Sir Upendranath has voiced the real spirit of the Indian Medical Association. Who is so insane or insensate in the ranks of the medical profession in our country who would not recognise the fact that the Indian Medical Association refused stoutly "to err because our parents erred before"? That is by itself a glorious record in the history of organised medicine in our country, if one, particularly the medical licentiate, would realise the fact that the Indian Medical Association could have as well and easily confined its membership and organisation to the medical graduates who had till then, unlike the licentiate, no all-India association of their own to represent their interests. None could have blamed it had it chosen to do so. But that it has refused to do so showed clearly that it was meant for a higher destiny and nobler purpose, and for the fulfilment of the inner urge of the entire profession for wholesome expression and expansion in the vital interests of Indian Medicine and Indian Nation. The background of events that led to the formation of Indian Medical Association as in the case of the All-Indian Medical Licentiate's Association will be described in the next article of this series. But between 1906 and 1921, there sprang up certain other medical associations in our country which deserve a brief mention at this stage.

LOOSE, INDEPENDENT AND UNAFFILIATED MEDICAL ASSOCIATIONS

It was already mentioned that from the year 1900, the influx to private medical practice was steadily growing, and by the time the provincial medical councils were formed the number of private medical practitioners, both licentiate and graduates, by far outnumbered those in service. Inevitably and naturally they became the forerunners of what we now call the Indian Medical Profession. This growth manifested its natural efflorescence: dignity and self-respect of the profession, the ethics of professional equality and comradeship. But there was a wild growth. Loosely knit organisations sprang in almost every district and in the chief cities of India under various captions, such as *Bengal Medical Association, Calcutta Medical Club, Bombay Medical Union, South Indian Medical Union, Patna Medical Association*, etc. Except *Bombay Medical Union*, all the regional associations threw open the membership to all the registered practitioners including those in Service. Many of them published their own medical journals. All of them concentrated their energies towards professional comradeship and professional discussion. Only a few of them took part in medical politics, mostly of local

(Continued at foot of next page)

SERVICE NOTES

[As per Resolution No. 18 of Gauhati Conference, A. I. M. L. A., we are publishing below only the transfer and leave of such of the Sub-Assistant Surgeons in each province who are members of the Association. The numbers given against their names indicate their membership roll numbers—Ed. I. M. J.]

Punjab—October 1939

- 422 Dr. Lachhmi Narain, Second Class Senior, Kharian Dispy., Gujrat Dist. to Toba Tek Singh Dispy., Lyallpur Dist.
879 " Ram Bhoj Madan, on return from leave to Indian Private and Family Wards, Mayo Hospital, Lahore.
3746 " Ghulam Mustaf Rizvi, Temporary Junior House Surgeon, Indian Private and Family Wards, Mayo Hospital, Lahore to General duty, Mayo Hospital, Lahore.
3509 " Mohammad Sharif Khar, Temporary General duty, Civil Hospital, Amritsar, to General duty, Civil Disy., Lahore.
1362 " Dr. Kidar Nath Rampal, on return from leave to Canal Dispy., Nanuana, Gujranwala Dist.
3212 " Pirthi Chand Beri, Khadr Dispy., Ambala Dist. to Jhajjar Dispy., Rohtak Dist.
3698 " Wazir Chand, on return from leave to Muktsar Dispy., Ferozepore Dist.
3496 " Bhagwan Das Sachdeva, Demonstrator in Anatomy, Medical School, Amritsar, to General duty, Civil Hospital, Amritsar.
3497 " Mohammad Din, Demonstrator in Physiology, Medical School, Amritsar, to General duty, Civil Hospital, Amritsar.
" " Mohammad Din, General duty, Civil Hospital, Amritsar, to General duty, Civil Hospital, Gurdaspur.
633 " Mool Chand, on return from leave to Faridabad Dispy., Gurgaon Dist.
3498 " Mohammad Sharif Chowdhury, Demonstrator in Materia Medica, Medical School, Amritsar, to General duty, Civil Hospital, Amritsar.
1541 " Fazal Haq Qureshi, General duty, Civil Hospital, Gujrat, to Civil duty, Tamman, Attock Dist.

Bengal—15th Aug. to 31st Oct. 1939

- 128 Dr. Surendranath Biswas, Jail Hospital, Barisal, held charge of the Bhola Subdn. and dispy. from 1st to 7th Aug. 1939.

(Continued from previous page)

interests. None of them however envisaged a strong all-India Medical Organisation. Notwithstanding their lack of cohesion and perspective, there was no doubt that all these local organisations served as so many harbingers of peace and good-will among the erstwhile divided members of the profession. These little sprouts indicated that the soil of the Indian Medical Profession was rich and capable of luxuriant growth and plentiful harvest. They filled the gap between the past and the future, and already a good number of them have been absorbed into the Indian Medical Association.

In what condition the existing medical organisations in our country are will form the theme of the next article in this series.

- 3404 Dr. Sailendra Nath Choudhury, from leave to Jail and Police Hospital, Pabna.
857 " Suresh Chandra Dasgupta, leave on half average pay from 12-7-39 to 6-8-39.
3270 " Md. Anwarul Huq, held charge of the Baraset Subdn. and dispy. 24 pargs. from 12th to 17th Aug. 1939.
1352 " Bhuvan Mohan Sen Gupta, Demonstrator of Anatomy, Ronaldshay Medical School, Burdwan, held charge of the Asansol Subdn. and dispy. on 15-8-39.
2569 " Adhir Chandra Ganguly, from leave to Asst. to the Senior Demonstrator of Practical Pharmacy, Medical College Hospitals, Calcutta.
1078 " Priya Nath Ghosh, Sadar Hospital, Rangpur, held charge of the Kurigram Subdn. and dispy. on 28th and 29th Aug. 1939.
2012 " Satindra Mohon Ghosh I, Police Case Hospital, Alipur, to Supy. S.N.P. Hospital, Bhowanipur.
3302 " Abdus Samad Mian, R.M.O. Campbell Hospital, Calcutta, to Mahalcheri Dispy., Chittagong Hill Tracts.
3230 " Sukumar Ukil, Mahalcheri Dispy., Chittagong Hill Tracts, to Supy. Mitford Hospital, Dacca.
3404 " Sailendra Nath Choudhury, Jail & Police Hospital, Pabna, held charge of the Seraiganj Subdn. and dispy. on 2-9-39.
2211 " Promotha Nath Ghosh, R.M.O., Mitford Hospital, Dacca, held charge of the Munshiganj Subdn. and dispy. on 30-8-39.
1983 " Nailini Kanta Das Gupta, 2nd S.A.S., Dum Dum Central Jail, to Bagdogra Dispy., Darjeeling.
100 " Karunamoy Banerjee, Police Hospital, Rajshahi, held charge of the Natore Subdn. and dispy. on 8-9-39, 17-9-39, 26-9-39 27th Sept. 1939, 4-10-39 and 9-10-39.
2758 " Badsha Mian, Bandarban Dispy., Chittagong Hill Tracts, to Police Hospital, Rangamati, Chittagong Hill Tracts.
2398 " Rakhal Raj Sanyal, Jail Hospital, Krishnagar, Nadia, held charge of the Kushtia Subdn. and dispy. on 12-9-39.
318 " Nepal Chandra Bhattacharjee, Natore Subdn. and dispy., Dist. Rajshahi to Nilphamari Subdn. and dispy., Rangpur.
3305 " Hem Chandra Mukherjee, Brahmanberia Dispy., Tippera, held charge of the Chandpur Subdn. and dispy. on 7-8-39.
860 " Panchu Gopal Mukherjee, Jail Hospital, Darjeeling, leave on average pay from 11th to 30th Sep. 1939.
430 " Mano Mohan Sett, late S.A.S. Police Hospital, Burdwan, leave on average pay from 30-6-39 to 30-8-39.
205 " Shyampada Roy Choudhury, Sadar Hospital, Jessore, held charge of the Magura Subdn. and dispy. from 2nd to 4th October 1939.
3404 " Sailendranath Choudhury, Jail & Police Hospital, Pabna, held charge of the Seraiganj Subdn. and dispy. on 30-9-39.
3230 " Sukumar Ukil, under order to do Supy. Mitford Hospital, Dacca, to Demonstrator of Physiology, Jackson Medical School, Jalpaiguri.

ASSOCIATION NOTES

Proceedings printed below refer only to the Committee and Branches of the All-India Medical Licentiates' Association, unless otherwise stated.

STANDING COMMITTEE

Ref. Circular No. 33. Resolved that a sum of Rs. 3-14-0 (Rupees Three and annas fourteen only) incurred by Dr. Mohamed Yusuf Khan, Secretary, Simla Branch, be sanctioned. For 12; against 1.

Ref. Circular No. 36. Resolved that a sum of Rs. 16-9-0 (Rupees Sixteen and annas nine only) be sanctioned being the amount of the T. A. Bill of Dr. B. C. Sharma for having attended the Conference at Gauhati. For 15; against nil.

Ref. Circular No. 37. Resolved that a sum of Rs. 56-0-0 (Rupees Fifty-six only) re. the Omeara Gold Medal be sanctioned. For 13; against nil.

Gauhati: Proceedings of the annual meeting of the above Branch for the year 1939 held on 19-11-39 at 3 p. m. Dr. U. M. Lahiri presided.

Minutes of the last monthly meeting were confirmed and account for October 1939 was passed.

Annual Report for 1939 was read by the Secretary.

The following office-bearers for 1940 were elected: Drs. U. M. Lahiri—President; D. R. Sen—Vice-President; A. Bhattacharjee—Secretary; Miss L. Bhuyan and A. C. Mazumdar—Asstt. Secretaries; Md. Easin Ali—Auditor. Executive Committee: Drs. J. N. Roy, P. Dwara, J. Sarmah, Syed H. Rahman. Standing Committee: Drs. G. S. Das, A. K. Sen.

(1) A consolidated account of the last 29th all India annual conference, submitted by Dr. G. S. Das, was presented to the members and it was resolved that the account be audited by Drs. Md. Easin Ali and A. C. Mazumdar as early as possible for final settlement of the same.

(2) Resolved that congratulations be sent to the Hon'ble Dr. Mohendra Nath Saikia, L. M. P., for being appointed as Minister, in charge of Agriculture and Veterinary Deptt. with the Government of Assam.

(3) Resolved that the Director of Public Health, Assam, be requested to consider the promotion of the P. H. S.A. Ss. to the rank of Assistant Surgeon as prevailing in the civil medical department and to consider also the resolution passed in an extraordinary meeting of this Branch on 17-6-39 and sent to him to which no reply has as yet been received.

(4) Resolved that in view of the hardship and inconvenience encountered by the P. H. S. A. Ss., the present rate of house-rent be raised to Rs. 20/- a month, as prevailing in some other departments under the Government of Assam.

(5) Resolved that in view of the fact that medical examination of insurance cases is a legal obligation on the companies concerned, this Branch is of opinion that medical examination for insurance does not constitute a form of private practice and that therefore the D. P. H. be requested to kindly reconsider the matter and allow the P. H. doctors to issue insurance certificates when and where it does not interfere with proper discharge of P. H. duties.

(6) Resolved that the standard of medical education in Assam be raised as early as possible to the extent recognised by the Indian Medical Council.

(7) Resolved that the authorities concerned be requested to send the local board medical officers and sub-assistant surgeons in both civil and medical departments for post-graduate training at Calcutta Schools of Tropical Medicine and Hygiene.

(8) Resolved that both Sylhet and Habiganj Branches be requested to hold the next provincial conference.

(9) Resolved that the parent Association be asked to sanction more money for propaganda work which is very necessary and urgent in view of the present medico-political work of the Association.

(10) Resolved that actual lighting charges be given to the Secretary for the office of the Branch.

(11) Resolved to place on record the services rendered by Dr. U. M. Lahiri as President of the Branch, and his zeal and love for the Association notwithstanding his retirement from service.

The President spoke at length on the work of the Assn., and requested the members to be fully Association-minded. Dr. A. C. Dutta gave a tea party to the members and the meeting terminated at 7 p. m.

Annual Report of the above Branch for 1939:

I was in charge since January '39 and continued till today, as Secretary of this Branch.

Meetings: Ten general meetings were held, where many medico-political matters were discussed and dealt with. On 11-2-39, a public meeting was held in the Curzon Hall, under the presidency of Dr. B. Barua, M.B., Member, Indian Medical Council, where "All-Assam Medical College Education Day" was observed. The President and Mr. J. Barua, Bar-at-Law, late Principal, Law College, spoke on the necessity of an uniform standard of medical education and of a medical college for Assam.

During the period of last 10 months, this Branch—(1) Pointed out to the authorities concerned the unsatisfactory recommendations of the Assam Retrenchment Committee in respect of the pay and promotion of the S.A.Ss. A deputation also waited on the Hon'ble Minister of Health in this connection.

(2) Protested against the remarks made by a retired chief medical officer of the Oriental Life Assurance Co., against the medical licentiates of India and the matter was referred to the General Secretary of the parent Association for his timely interference and action.

(3) Expressed its earnest desire to co-operate with the Government of Assam in the working of the Opium Prohibition Act and two of our members, Drs. K. C. Barooah and P. C. Dwara did free service at Dibrugarh opium prohibition camp.

(4) Received a copy of the report of Assam Medical College Education Committee and unanimously supported it after due consideration. The Assam Medical Council accepted our proposal of raising the standard of 5 years' course in the B. W. Medical School. In this connection our Branch much appreciates the valuable services of Dr. Ghanasyam Das, a member of this Branch and Secretary of Assam Prov. Branch, who is one of the most energetic members of the Assam Medical College Education Committee and mostly instrumental in the matter of uplifting the medical licentiates from their present deplorable condition.

(5) Adopted a resolution requesting the Government of Assam to allow facilities to the S. A. Ss. in P. H. department for obtaining the D. P. H. diploma so as to become eligible for promotion to the rank of Assistant Surgeon in P. H. Deptt., No reply has as yet been received.

(6) Appealed to each member of the Branch to contribute to "Rai Bahadur Dr. Sarju Prasad Memorial Fund".

Finance: Balance sheet for 1939 (Jan. to Oct.):

RECEIPTS		EXPENDITURE	
Rs.	A. P.	Rs.	A. P.
Balance brought forward	5 15 0	Remittance to the Hony. Treasurer	30 0 0
Balance of account received from Dr. G. S. Das	9 8 9	Remittance to the General Secretary	4 0 0
Subscription received for Parent Association	28 0 0	Printing charges paid	13 8 0
Admission fee	2 0 0	Postage	14 10 0
Branch subscription	8 0 0	Contingency purchased	0 13 0
Amount received for contingency	25 10 0	Peon for circulating notices, etc.	1 2 0
From Dr. A. R. Bhattacharjee through Dr. J. N. Roy	4 0 0	Closing Balance: In cash 12-6-39	19 0 9
	Rs. 83 1 9		Rs. 83 1 9

Annual subscription at Re. 1/- for the Branch has been paid by 8 members only and owing to the default in the payment of local subscription the financial condition cannot be said to be very satisfactory.

Proposed Budget for 1940:

	RECEIPTS	EXPENDITURE
Contingency	Rs. 25	Rs. 25
Propaganda	" 25	" 25
Subscriptions	" 25	" 25
	Rs. 75	Rs. 75

Membership: Total number of members on roll 54. New members enlisted 3. Defaulters 7. Transferred 4. Remaining on roll 43. This Branch was given the unique opportunity to hold the last 29th annual conference of All-India Medical Licentiates' Association at Gauhati in December 1938. It was to the credit of the members of the above Branch, among others, that the conference was one of the most successful annual conferences held. One of the bye-results was the awakening of our Assam members to the reality of the situation and the need of intense work to achieve our goal. I firmly believe that the licentiates are fully competent like others in the field of medical practice and other public work, but for reasons too well known the field has been narrowed by the machinations of vested interests. It is no use, however, to beg for favours what should be achieved by honest work and honest fight. Since the introduction of provincial autonomy there is a new awakening among the licentiates, and that is perhaps the reason why more medico-political than scientific meetings were held by this Branch during the year under report.

It is worth drawing the attention of the members that though the notices of all meetings were sent to them, and even to the members outside Gauhati town, only a very few attended. Such an apathy is apparently a bad symptom which may in time become a predisposing cause for inaction, which, in other words, means that we are content to be hewers of wood and drawers of water in the profession.

Most of the propaganda work, for want of sufficient funds, had to be made by correspondence and circulars. Personal propaganda is necessary for better success and this Branch would be well advised to approach the General Secretary for allocating the necessary funds.

I am grateful to all my colleagues who have assisted me in my work. Errors are wholly mine for which I seek the members' indulgence. I would now respectfully call upon you to select a more competent successor of mine for the office of Secretary of this Branch. A. Bhattacharjee, Secretary.

Jorhat. Proceedings of a meeting of the above Branch held on 1-11-1939. 7 doctors were present. Dr. B. B. Sengupta presided.

Read the proceedings of the Standing Committee, Assam Branch A.I.M.L. Assn., held at Dibrugarh on 15-10-1939, and the house endorsed the views therein.

Dr. S. R. Ghosh delivered a speech on the difficulties of obtaining admission to medical colleges for higher medical education in spite of the standing rules of the universities for such admission. The house congratulated him in getting admission to the Carmichael Medical College, in spite of great obstacles.

Resolved that the following budget for the year 1940 be approved:

Contingency	Rs. 25
Miscellaneous	" 10
Propaganda	" 15
Total	Rs. 50

The account of the Branch for the month of September and October 1939, amounting to Rs. 4-0-6 having been audited by Dr. D. Bhattacharjee was scrutinised and passed.

Tinsukia. Proceedings of an ordinary meeting held on 19-11-39 with Dr. K. M. Ganguli on the chair. 15 doctors were present.

Minutes of the last meeting were read and confirmed. Dr. S. C. Barooah read a case note on "Black water fever" and all members took part in the discussion.

Read Prov. Secretary's Circular No. 17 and the following 2 members of this Branch have been elected as members of

the Standing Committee of the Assam Prov. Branch for the next year. Drs. S. N. Dutta and A. C. De.

Monthly accounts for the months of September and October 1939 were passed for payment.

As per resolution No. 4 of last meeting the proposed scheme of tea garden medical service was discussed and it was resolved that the same be kept in abeyance till such time as the Prov. Branch thinks proper to take action. It was further resolved that the General Secretary and the Prov. Secretary be requested to take active steps to move the tea authorities to get proper reply to resolution No. 16 of Gauhati conference. They are further requested to let this Branch know in detail the actions so far taken on the afore-said subject at an early date.

Resolved that Drs. F. C. McCombie and D. J. Lapping be requested to be the patrons of this Branch.

Bareilly. Proceedings of a meeting held on 10-8-39. Dr. Babu Ram was in the chair. 4 members were present.

Read circular No. 21 of 6-7-39 of the G. S. and resolved that since the annual conference was held in this province only 2 years back, this Branch is of opinion that the Punjab or Bengal province may be requested to invite the conference.

Read G. S. circular No. 24 of 22-7-39 and noted.

Read letter No. 196 of 26-7-39 of Prov. Secretary, U. P., and resolved that this Branch is pleased to invite the meeting of the Standing Committee of U. P. Branch to Bareilly about the first week of September 1939.

That the contingent bill of this Branch from 8-7-39 to 9-8-39 be passed.

This Branch is glad to learn that R. S. Dr. Lekhraj Singh, L. M. P., P. M. S., has been awarded the title of Rai Bahadur in recognition of his meritorious services which he so richly deserves, and this Branch congratulates him on this honour.

2. Proceedings of a meeting held on 2-11-39. Dr. P. L. Jain was in the chair. 5 members were present.

The proceedings of the last meeting were read and confirmed.

Read circular No. 4 dated 21-8-39 of the Prov. Secretary and recorded.

Read circular Nos. 28, 29, 30 and 31 of 39 and the Secretary was requested to take necessary action.

Read copy of letter No. 13173 dated 4-9-39 from the I. G. C. H., U. P. to the Prov. Secretary, Meerut re. control of civil surgeons and medical officers in charge of hospitals maintained by Local Boards over the compounders and the menial servants respectively. Resolved that the District Board Act be suitably amended since the present dual control stands in the way of efficient management of these institutions and that the I. G. C. H. may be requested to call for the opinions of the civil surgeons on the point at issue; and that a copy of resolution No. 4 dated 1-1-1939 be sent to all the Branches in U. P. for consideration and necessary action.

Read appeal regarding War and Our Duty, and noted.

Read extracts from the report of the Local Self-Government Committee, Part II, appointed by U. P. Government vide notification No. 1146/xi-457 (Municipal Deptt.) dated 24-3-38, and resolved that para 41 of the above report draws a true picture of the state of affairs in the Local Bodies. Therefore, the transfer of the medical and public health officers to work directly under such Bodies is most undesirable unless and until the standard of the Local Bodies is brought on par with the present standard of the Government administration, and should they be so transferred it should be done only with their free consent. It is apprehended that the existing evils in the Local Bodies will take a fairly long time to be materially eradicated. Dual control has proved a failure in the past in the case of compounders. Efficiency can only be obtained if the heads of the department are vested with powers of control over the medical officers, and medical officers of health of the local bodies. This Branch is also against the principle of different scales of pay for the same class of officers. It is suggested that the pay and prospects should be made uniform with extra allowances for responsible or difficult duties in bigger places and that such allowances should count towards pension. The scale of pay laid down in appendix B of the Report for the subordinate services in the medical and public health departments is too low considering their qualifications and the arduous nature of duties.

This scale compares unfavourably with that of other services.

That the contingent bill from 10-8-39 to 31-10-39 as presented by the Secretary be passed.

Meerut. A general meeting of the Meerut District Branch was held on 20-9-39 with Dr. Atma Ram in the chair. 6 doctors attended.

The proceedings of the last meeting were read and confirmed.

It was regretted that in spite of the reactionary and grossly invidious provisions in the Indian Medical Council Act the medical graduates should be co-operating with the Indian Medical Council. It was resolved therefore that their attention be invited to this serious matter and they be requested not to have anything to do with the Indian Medical Council until necessary amendments to the Act including recognition of medical licentiates were made.

The local Self-Government and Jail Committee reports were read and suitable amendments were suggested. The Prov. Secretary was requested to make representation to the Government on the lines of the suggested amendments.

2. An Extraordinary meeting of the above District Branch was held on 1-11-39 to welcome Dr. D. V. Venkappa, President, All-India Medical Licentiates' Association, Madras. 9 local members were present. Dr. D. V. Venkappa was in the chair.

Dr. Kunj Behari Lal Varma on behalf of the Provincial and Meerut District Branches welcomed the President. Dr. Venkappa explained the object of his visit and drew the attention of the members to certain outstanding problems affecting licentiates and impressed upon them how it was essential to increase the strength of the Association.

With the permission of the chair, the proceedings of the last meeting held on 20-9-39 were read and confirmed.

The Provincial Secretary brought to the notice of the meeting certain important resolutions which were passed by the U. P. Standing Committee on 1-10-39.

Tea and light refreshments were then served. The members present thanked Dr. Venkappa for the honour he had done them by visiting Meerut.

Nadia: A monthly meeting of the above Branch held on 12-11-39. 7 members were present.

The proceedings of the last meeting were read and confirmed.

The Branch accounts for the month of October '39 were examined and passed.

The Indian Motor Vehicles Act, VIII of 1914 and the rules thereunder were placed on the table and discussed.

Scientific discussions were made by the members on Insanity and Tuberculosis.

Rangpur: Meeting held on 20-2-39. 6 members were present. Dr. J. C. Lahiri was voted to the chair.

Resolved that the following be elected as office-bearers for 1940. Drs. J. C. Lahiri—President, J. Das Gupta—Vice-President, N. N. Mukherjee—Secretary, N. K. Dutta—Asstt. Secretary.

2. Proceedings of a meeting of the above Branch held on 21-8-39. 6 members were present. Dr. J. C. Lahiri was voted to the chair.

Resolved that Dr. A. D. Mukherjee be elected President for the ensuing Provincial Conference which will be held at Burdwan.

Resolved that Drs. N. N. Mukherjee and P. N. Ghose be elected as representatives for the Provincial Branch.

ANNUAL CONSOLIDATED ACCOUNTS OF THE ALL-INDIA MEDICAL LICENTIATES' ASSOCIATION

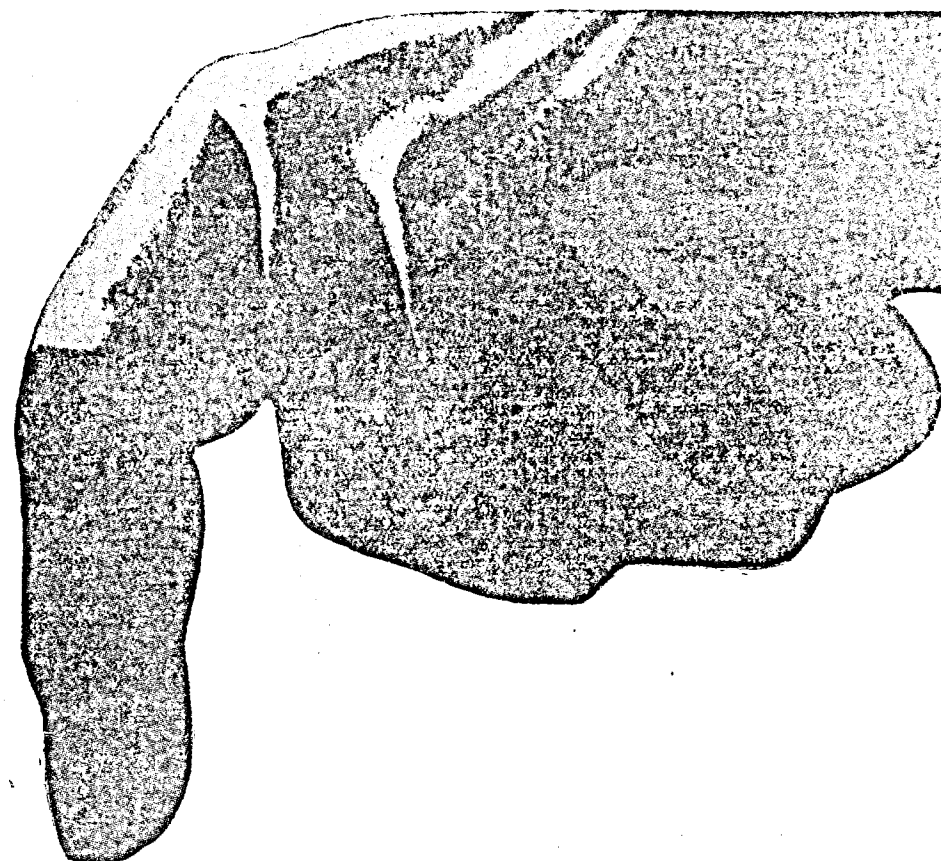
Receipts		The Financial Year MARCH 1938-39		Payments	
		Rs. A. P.		Rs. A. P.	
To Subscription (old and new)	...	11711 13 6	By Printing I. M. J.	...	6117 2 5
„ Advertisement	...	14085 8 1	„ Establishment	...	5189 0 0
„ Interest	...	266 7 4	„ Office Rent	...	710 0 0
„ Miscellaneous	...	26 15 6	„ Stationery	...	186 15 6
„ Sarju Prosad Memorial Fund	...	41 0 0	„ Travelling allowance	...	5913 6 6
„ Sale of the Furniture of the Ex-Gen. Secy.'s Office	...	32 0 0	„ Postage etc.	...	2635 4 0
„ Loan from the Office-bearer	...	773 15 3	„ Miscellaneous	...	1092 6 5
„ *Donation by the late R. B. Dr. Sarju Prosad	...	283 6 0	„ Other Printing	...	281 5 0
„ *Omera Gold Medal Account	...	362 10 3	„ Propaganda work	...	426 13 3
„ *13 Shares of the Bacterio Clinical Laboratory (1936) Ltd. Calcutta	...	85 0 0	„ Expenses for Branches	...	2071 8 3
Total	...	27668 11 11	„ Furniture	...	103 13 0
Opening balance on 1st Oct. 1938	...	64170 0 9	„ Audit Fee	...	50 0 0
Grand Total	...	91838 12 8	„ Payment to Contributors	...	195 6 6
			„ Advt. Commission	...	64 11 0
			„ Subscription to foreign Journals	...	118 13 2
			„ Office Equipment (Adrema Addressing Machine)	...	949 0 0
			„ Reception Committee Gauhati	...	732 1 0
			„ Scientific Section	...	239 15 0
			„ Loan returned to the Office-bearers.	...	773 15 6
			Total	...	27850 8 6
			Closing Balance on 30-9-39	...	63988 4 2
			Grand Total	...	91838 12 8

Note:—

* Last three items of income were already in the possession of the Association, but were not included in the Treasurer's Books. Hence taken on income side.

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ADDRESSES AND ARTICLES

**Complications in Leprosy and
their Treatment**

• Dr. Mrs. I. V. Rukmani Adams,
Asst. Medical Officer, Hospital &
Home for Lepers, Manamadura

Medical practitioners know, from their medical school days, that leprosy is treated with hydnocarpus oil, but only a few of them are aware of the complications in leprosy, how to recognise and treat them. Often leper patients come to the asylum with some complications which were unnoticed or, if noticed, unsuccessfully treated by general practitioners. Asylums are too few in India and besides the big waiting lists for admission in all asylums, there are large numbers of leper patients who wish to take treatment at their homes. Unless general practitioners take their share in the treatment of leprosy, the eradication of this scourge in India will be almost impossible. The treatment itself is very simple, if only the complications are recognised as they arise. With a view to helping general practitioners, I have dealt briefly in this article with the common complications and their treatment.

LEPRO REACTIONS

Leprosy reaction or leper fever is of an allergic nature. There are two kinds of reaction:—

- A. Cutaneous Reaction.
- B. Neural Reaction.

(A) *Cutaneous Reaction* is the most common and distressing complication in leprosy. This may be general or local. In general cutaneous reaction there is usually fever with chill. All the patches are raised and reddish due to vascular engorgement generally known as rose spots. In addition, many small nodules are found all over the body. These are tender, painful and may be superficial or subcutaneous. In mild cases these are few but in severe cases the nodules are found all over the body with general swelling around these nodules. There is also fever with chill, malaise, loss of appetite, vomiting, diarrhoea and head-ache.

In cases with a mere local reaction a part of the body is affected such as ear-lobe, face, around the knee joint, or any particular area. This is usually accompanied by fever according to the severity of the case. In some cases the nodules become infected and form abscesses

which discharge pus containing large numbers of lepra bacilli.

The lepra reaction may last for a few days or even be prolonged for months. Sometimes it occurs periodically. Some patients have reaction in a chronic form.

A similar condition occurs if pot. iodide is given to leper patients. In such cases the condition subsides in about 48 hours after elimination of the iodide.

Treatment:—In mild cases a powder consisting of five grains of aspirin, phenacetin and pulvis ipecac co. (t. d. s) helps the patients. This relieves the pain in the body. Such mild cases often subside without any other medication. A purgative will also be useful.

In severe reactions the following treatment is suggested:—

1. Rest in bed.
2. Fluid diet.
3. A saline purgative to keep the bowels open.
4. Soda bicarb (dram 1) three hourly.

5. The heavy metals or aniline dyes given intravenously are of great help. If the reaction does not subside by the administration of one drug, then after two weeks' trial another should be given. Each case should be considered specially and one method should not be given in a routine way. The different drugs used are the following:—

(a) Potassium antimony tartarate 0.02 to 0.04 gms* dissolved in 6 c. c of distilled water or 5% calcium chloride given intravenously on alternate days is helpful. About 6 to 8 injections are usually sufficient. If reaction is not controlled within 2 weeks it should be discontinued as further injections are harmful.

(b) If potassium antimony tartarate is not suitable then a solution of 1.5% of mercurochrome in distilled water is given intravenously. 5 to 7 c. c. should be given twice a week. This should be given cautiously as some patients cannot tolerate it. Whenever there is salivation, tender gums and a feeling of looseness of teeth then the treatment should be discontinued. A purgative and bicarbonate of soda should be given. Mercurochrome should not be given when there are symptoms of nephritis because it irritates the kidneys.

(c) Aniline dyes such as acriflavine, trypan blue, fluroscein and brilliant green are sometimes useful when given intravenously. A 2% solution is used. Some specialists advocate oral administration of aniline dyes such as methylene blue, fluroscein etc.

* The usual drug used in this connection is Fouadin which is a trivalent antimony compound. Ed. I. M. J.

(d) Intravenous injection of cal. chloride (2%) in dose of 20 c. c. daily has been found effective in some patients. (N. B. In cases of reaction hydnocarpus oil injection should be stopped.)

B. Neural Reaction.—This may be either due to thickening of the nerve as a result of granuloma of a tuberculoid nature formed on the nerve itself. The tissue picture is a few giant cells in the centre with epithelial cells and an outer zone of round cells. In some cases the pain is due to the formation of a nerve abscess. We also get caseation, abscess formation or calcification of nerves.

The pain occurs specially in the arms and legs. In such cases there is thickening of the ulnar nerve as it passes behind the elbow joint and the peroneal nerve as it curves round the head of the fibula. The trigeminal nerve is affected in some cases. Then there is severe one sided head-ache. In neural reaction there is tenderness along the nerve and also weakness of the part supplied by it. This kind of nerve pain may last from a few days to even a month and the patient suffers agonies.

Treatment.—For mild cases a powder consisting of five grains of phenacetin, salol and eleven grains of caffein citras is helpful. In severe cases adrenalin m 10 (1 in 1,000 solution) injected hypodermically helps but this relieves the pain for a day or two only. Adrenalin (1 in 1,000) about $\frac{1}{2}$ c. c. diluted with saline and injected hypodermically along the course of the nerve also relieves the pain. Ephedrine has also a similar action, 0.04 gms. may be given orally or hypodermically or it can be dissolved in 10 c. c. of normal saline and injected along the nerve. In cases of nerve abscess it should be opened and drained. If it is due to pressure of fibrous tissue this should also undergo operative treatment such as excision of nerve sheath or cutting of fibrous sheath.

Snake venom is being tried in minute doses with a fair degree of success.

Betaxin (a vitamin B₁ preparation) is in the experimental stage in the treatment of neural reaction.

EYE COMPLICATIONS

There are two ways by which the eye is affected: (i) *B. lepræ* affects the tissues of the eye itself. This happens in the lepromatous cases in which the skin around the eye is affected. In such a case the eye lids are swollen. Conjunctiva is injected. There is photophobia and reaction of the pupil to light, and accommodation is affected. When atropine

drops are applied to the eye it will show sluggish or irregular dilatation of the pupils.

Treatment.—In such cases atropine drops should be instilled to prevent adhesions of the iris with the cornea. An ointment containing atropine sulph. gr. $\frac{1}{2}$; ung. hydrarg. gr. 30; Dionine gr. $\frac{1}{2}$; Vaseline add gr. 60, should be applied inside the lids two or three times a day. Yellow ointment of mercury is also useful. Pure hydnocarpus oil can be applied to the eye twice a day. Krysolgan and other gold preparations are useful. A subconjunctival infiltration of 1 in 1,000 is used.

Trypan blue in distilled water is also helpful. Sufficient quantity should be injected to balloon up the conjunctiva. This should be repeated after the colour disappears. Iridectomy can be tried in some cases.

The other way by which the eye is affected is secondary. There is paralysis of the muscles which close the eyelids due to the nerve supplying them being affected. In addition to this there is corneal anaesthesia. Because of the paralysis of the muscles the lids are unable to close and so the cornea is always exposed, especially during sleep. Consequently inflammation sets in and there is ulceration of the cornea.

Treatment.—Liq. paraffin should be dropped into the eye in the day time. At nights a pad of cotton wool dipped in paraffin should be applied over the exposed eye. Intra-dermal injection of chaulmoogra esters into the peri-orbital region can be tried in early cases.

In severe cases due to ectropion there is eversion of the punctum lacrymale and because of it there is always lacrymation. This is either due to the paralysis of the orbicularis muscle or to blockage of the lacrymal passage.

RESPIRATORY COMPLICATIONS

The nasal mucous membrane is thin, and through scratching *B. lepræ* gets entrance into the body. The mucous membrane may look quite healthy and show no bacilli. In some cases it is pink and in other cases thickened and reddish. In some nerve cases the mucous membrane looks dried up. As the nerves are affected infection occurs easily and the mucous membrane ulcerates. In some cases the ulcers cause perforation of the septum of the nose. It affects only the cartilage of the nose unlike syphilis which affects the bony part of the nose. Flattening of the nose is due to destruction of the cartilage of the nasal septum and contraction following it. Many cases have a feeling of blockage in the nose which is due to the mucopurulent discharge from the ulcers drying up and acting

like a plug. This crust at times separates and there is epistaxis. Sometimes there is severe epistaxis due to erosion of a fairly big artery.

Treatment.—For the inflammation and ulceration of the nasal septum, swabbing the cavity with a solution made of equal parts of camphor and double distilled creosote helps the patients considerably. This is applied daily. Swabbing the nasal cavity with argyrol after cleaning it is also of some use. When there is bleeding inhalation of tannic acid (like snuff) prevents further bleeding. When there is moderate amount of bleeding the swabbing of the nasal cavity with adrenalin (1 in 1000) or application of Tr. ferri perchlor is helpful. In severe bleeding the nasal cavity should be plugged with gauze soaked in adrenalin.

When the pharynx is affected to some extent it is treated with gargles and painting the throat with Mandel's solution.

The larynx is very often attacked when the vocal chords are damaged and the patient can only talk in whispers. In such cases there will be infiltration of the true vocal chords.

Pulmonary tuberculosis and asthma are sometimes complicated with leprosy. How far leprosy affects the lung is doubtful. In some cutaneous cases purulent secretion is brought out containing acid fast bacilli. This may be due to bursting of a lepra nodule in the trachea, or secretion from the nose which has trickled into the pharynx. All such cases should be thoroughly investigated. If there is still doubt then it will be best to inject the sputum into a guinea pig. If it is leprosy it will not produce anything in the guinea pig. The other alternative is to do an antiformin test to exclude T. B.

ALIMENTARY COMPLICATIONS

In many lepromatous cases the lips are thickened and ulcerated. In some cases due to cicatrization partial stenosis of the mouth occurs. The tongue is very often raw looking, fissured and sometimes nodules can be seen. Regular intake of codliver oil and external application of boroglycerine helps such cases.

Pyorrhoea is very common and this should be treated with antiseptic gargles. All carious teeth should be removed.

Because of the lowered vitality leper patients get dysentery very easily. This is more often of the amoebic type. This should be treated at the earliest opportunity.

Piles are also met with. External piles are excised after the acute symptoms subside.

UROGENITAL COMPLICATIONS

The parts that are affected most in the urinary system are the kidneys. This is due to

the fact that sweat glands in the patches are affected and they do not secrete sweat. Therefore the kidneys work harder to eliminate the fluid from the body. Due to overwork the glomeruli and tubes get damaged causing nephritis. This may be chronic or acute and should be treated carefully. When such cases react, intravenous injection of mercurochrome should not be given.

Another common complaint is phimosis. The fore-skin becomes greatly thickened and fibrous causing stenosis of the lumen. For all such cases circumcision should be done.

Stricture of urethra is found in some cases complicated with gonorrhoea.

ENDOCRINAL COMPLICATIONS

In most cutaneous cases of leprosy the testes are affected. It is due to the invasion of lepra bacilli into the seminal canals. They are grouped round the nucleus of the epithelial cells. Soon the gland cells are destroyed leaving fibrous tissue in its place. The result is gynaeco-mastitis. At first the patient has pain and swelling of the testis following which there is slight enlargement of the breasts. As the testis is destroyed more, the enlargement of the breasts increase. This is accompanied by pain which comes at irregular intervals analogous to the menstrual cycle of women. This is due to hormone stimulation resulting from loss of testicular endocrine functions. In advanced cases the breasts are big as an orange. The facial and pubic hair falls off. The testis can be palpated as a small shrunken mass. The thighs and gluteal region appear more feminine due to accumulation of fat.

Treatment.—In early cases when pain and swelling are observed in the testis, application of ichthyl and glycerine on the scrotum with intravenous injection of 10 c. c. of 5% cal. chloride are helpful. Injections are given on alternate days and improvement appears after the fourth injection. For the pain in the breast, external application of belladonna preparations are good. When there is slight enlargement of mammary glands, testoviron and other testicular extracts should be given. This is not of any use in advanced cases.

Thyroid deficiency is common both among men and women and such patients improve with thyroid treatment. Women having amenorrhoea of 2 or 3 years' duration menstruate after 6 months' treatment with hydnocarpus oil.

NEURAL COMPLICATIONS

Nerves are affected primarily as well as secondarily. The secondary lesions are due to

the fibrous tissue constricting the nerve fibres or due to pressure on the thickened nerves from adjacent structures. The secondary neural changes are sensory and motor. Sensory changes are anaesthesia, numbness, paraesthesia, loss of cold and heat sensations.

If the motor system is affected there is contraction of the fingers and wasting of the muscles of the hand. Claw hand is the result of this. Massaging of the arms and putting the hand in splints can be tried but it is not very helpful.

There is still another change and this is due to damage of the trophic nerves causing perforating ulcers, blisters, and eczema. Perforating ulcers take years to heal at times. When the ulcers are big complete rest in bed is absolutely necessary. Thickened indurated skin around the ulcer should be cut off and antiseptic dressings should be applied daily.

When there is any likelihood of the bone being involved it must be thoroughly investigated. Necrosed bones should be removed.

In chronic cases hydnocarpus oil can be injected around the ulcers and also along the nerve supplying that part.

The drugs used for these ulcers should be changed if there is no marked improvement after a fair trial. In connection with the intercostal nerves, herpes zoster occur commonly. The next common site is the face. Pituitrin injection helps to overcome this condition.

SKIN COMPLICATIONS

Itching is not a symptom of leprosy but some of these cases have dryness of the skin and itchy feeling. Sometimes itching is so great that the patients scratch and make abrasions on the skin.

Treatment :

- (1) External application of hydnocarpus oil.
- (2) Cal. lactas, and soda bicarb to be taken orally.
- (3) Soda bicarb bath.
- (4) Adrenalin m. 10 (1 in 1000 solution) can be injected hypodermically.
- (5) Failing these, intravenous injection of sodium thiosulphate helps some cases. (Sod. thiosulphate gr. 10 dissolved in 5 c. c. of distilled water is used.) About 4 or 5 injections are sufficient.

Eczema, ring-worm and other skin conditions occur due to the destruction of the trophic nerves.

Sometimes tinea versicolor is met with. To be sure of it, it is best to scrape the patch and put the scraped tissue into liquor potash and look under the microscope. The microsporon

Role of Vitamin C in the Complications during Pregnancy

● Dr. D. N. Basak, Dept. of Chemistry, Dacca University

Since the identification of Vitamin C by Szent Gyorgyi (1928) and its estimation by chemical methods undertaken by Tillmans (1932) and Birch, Harris & Roy (1933), using the indicator 2:6 dichloro-phenol indophenol several authors have put forward sufficient evidences to show that some substances other than ascorbic acid which are likely to reduce the indicator, do not interfere with the estimation, and the results agree as estimated by the biological method.

The present communication records (1) an accurate method of estimating L-ascorbic acid when present in urine; and (2) a marked degree of Vitamin C subnutrition in complications of pregnancy. It is generally recognised that the excretion of Vitamin C in the urine depends on the amount in the bodily store, but the major portion of the vitamin taken finds no permanent place in the tissues and is excreted in urine within a short period.

It has been estimated by Harris and co-workers that the daily excretion of ascorbic acid in urine under normal condition is 23-35 mg. It may vary with the intake of the food materials and some drugs. Difficulty in assaying lies in the fact that the daily output is not constant.

It is quite natural to expect that a biological fluid of such complex composition as urine should contain, besides ascorbic acid, substances capable of reducing the indicator used in the estimation.

furfer can be seen in bunches. The spores are stained by methylene blue.

INJECTION ABSCESS

Injection abscess formed at the site of injection of the oil is another complication. This should be strictly avoided. Causes of such abscess formation are:—

1. Impurity in the oil.
2. Non-absorption of oil in cases when the dosage is big.
3. Non-absorption of oil in weak patients.
4. Lowered resistance.
5. Lack of asepsis which should never occur. In all such cases the abscess should be opened and daily dressings done.

EXPERIMENTAL METHOD

Although there are about dozen chemical methods for the estimation of Vitamin C yet the method of 2:6 dicolorophenol-indophenol is found to be the best.

In order to protect Vitamin C against action of light and air urine is kept in a coloured phial with the addition of a few drops of acetic acid.

As we know that urine is a complex mixture containing cytin, glutathione, ergothionin, tannin, thiosulphate etc., so these substances are to be removed by precipitating with mercuric acetate solution (20%). The solution is then centrifuged and filtered. Mercuric acetate does not precipitate pure ascorbic acid (Vit. C). After removal of mercuric salt by H₂S, ascorbic acid can be quantitatively recovered from the filtrate.

In order to expel excess of H₂S pure nitrogen gas or CO₂ is passed for a long time, the removal of last trace of H₂S being confirmed by lead acetate paper. The final filtrate is made up to the same volume.

Then a little of 10% solution of trichloro-acetic acid is added to the filtrate in order to protect Vitamin C. Sometimes trichloro-acetic acid itself decolourises the dye slowly, so glacial acetic acid (a few drops) is added in the titration flask in order to inhibit the decolourising action.

Finally the titration is finished against 0.5 c. c. of N/100 2:6 dichlorophenol-indophenol solution.

The dye is titrated with a solution of ascorbic acid of known strength (e. g. M/1000). Here the titration is to be done very rapidly (within 2 min.), otherwise there will be a great error.

RESULTS.

Case.	Total quantity of urine passed in c. c.	Concentration of L-Ascorbic acid in mg. per c. c.	Total L-ascorbic acid excreted in mg.
Bed 24, 28 H. F. Anaemia with Pregnancy.	1200 c. c.	0082 mg.	9.85 mg.
Bed 17, 28 H. F. Ascites, Anaemia with Pregnancy.	500 c. c.	015 mg.	7.5 mg.
Bed 20, 15 H. F. Puerperal fever	1500 c. c.	013 mg.	19.5 mg.
Bed 19, 22 H. F. Pregnancy with Anaemia.	1100 c. c.	0088 mg.	9.68 mg.
Bed 24, 17 M. F. Eclampsia.	630 c. c.	0108 mg.	6.804 mg.
Bed 23, 18 H. F. Eclampsia.	600 c. c.	009 mg.	5.4 mg.

PRIVATE PATIENTS.

A. 22 H. F. Hypertension Gravidarum.	500 c. c.	012 mg.	6 mg.
B. 17 H. F. Pre-Eclampsia Toxaemia.	850 c. c.	012 mg.	12.75 mg.
C. 16 H. F. Pregnancy-Kidney.	650 c. c.	014 mg.	9.1 mg.
D. 20 H. F. Albuminuria Toxins during pregnancy.	800 c. c.	012 mg.	9.6 mg.

Some people get different results in the urinary output, most probably due to the fact that they do not remove interfering substances, e. g., cystin and sulphur compounds which cause the greater reducing capacity.

Sometimes prolonged use of H₂S may bring the ascorbic acid back to the reduced form and the results may be incorrect.

There are also other things to be considered:—

1. The exactness of the volume of urine during 24 hours is taken on average.
2. Vitamin C undergoes some change on standing which can be minimised by adding a little acetic acid.
3. The urine may be alkaline thus causing instability on standing which may be overcome by adding 20% acetic acid in the receiver.
4. Light, air and temperature above 60°C may reduce the quantity of ascorbic acid present in urine, so it should be kept in a blue or amber coloured phial in a cool place.
5. Vitamin C is destroyed in contact with metal e. g., copper or lead arsenate.
6. Aspirin and alkaline drugs may increase or decrease the quantity of ascorbic acid in urine, so those drugs should be avoided (Hawley and co-workers 1936).
7. People using much fruit and green vegetables produce more reducing substance in their urine.
8. In certain diseased conditions, there may be less excretion of ascorbic acid in urine such as:—

Fever—(Schroeder 1935, Harde & Co-workers 1935).

Tuberculosis:—(*British Medical Journal*, 1937).

Rheumatism:—(*An. Int. Med.* 1936, 9 671-689 Rinehart; *Lancet* 1938, 234, 20-24.)

Diphtheria—(Torrance, *Biological Chemistry* V. 121 p. 31 Oct. 1937.)

Whooping Cough—(*An. Inst. Pasteur* 1936, 56, 413-26 Abstract 1935, 1542).

Peptic ulcer—(*B. M. J.* 1938, 1, 560-562)

Cataract—(*Arch. Ophthalmol.* 1938, 124)

Tetanus—(*J. Immunology* 1937, 33, 203-214).

CONCLUSION

It may be observed from the above table that a marked degree of Vitamin C subnutrition is present. The question is whether Vitamin C is a factor which helps resistance against the complications during pregnancy. This possibility cannot be excluded altogether. The fact that a good many patients suffering from these complications, with or without scurvy, have excretions much below the minimum standard, is an indication that attention should be paid to this aspect of their nutrition. Further work in this line is in progress.

SUMMARY

(1) L-ascorbic Acid in human urine excreted in pregnancy with different complications has been studied.

(2) On the supposition that Vitamin C is identical with L-ascorbic acid, it has been estimated by a modification in the use of Tilman's reduction indicator.

(3) Fallacies in assaying have been indicated.

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Artificial Pneumothorax Treatment of Pulmonary Tuberculosis

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Pulmonary tuberculosis is a very common and fatal disease. There is no specific cure for it. Tubercle bacillus, the causative organism of pulmonary tuberculosis, is a very hardy organism and so far no drug is known which can kill it without killing the patient. Even if the lesions of pulmonary tuberculosis heal, they heal by fibrosis or calcification. The tubercle bacillus having once entered the body never leaves it, but in cases which recover, they are imprisoned or encapsulated by a wall of fibrous tissue in which calcium gets later on deposited, forming a calcified nodule. Thus it is that if we cannot kill tubercle bacilli, we could at least make them harmless. The suitable soil for tuberculosis is the body particularly when general health and resistance is undermined. The chief hope of cure lies, therefore, in increasing the bodily resistance of the patient.

The treatment of pulmonary tuberculosis nowadays rests on two legs. The first leg was discovered some 50 years ago by Behring and is known as *hygienic cure of tuberculosis*. This centres round the fact that the chief means of overcoming tuberculous infection is by increasing the bodily resistance and this consists in giving the patient good food, fresh air, sunlight and regular hours of work, meals, sleep, exercise and recreation.

The second leg was erected 15 years ago and it is in the shape of *artificial pneumothorax treatment*.

The chief difficulty in the successful performance of artificial pneumothorax does not lie in its surgical aspect but on its medical aspect, i. e., greater care is required in proper selection of cases. All cases of pulmonary tuberculosis do not require A. P. treatment. Hence in order to understand fully which class of patients are suitable for this treatment, one must understand its rationale.

Artificial pneumothorax treatment does the same to the tuberculous lung what a plaster of paris cast or splint does to a diseased joint or what an eye pad does to a case of corneal ulcer. Basis of this treatment is the rest of the diseased part.

MECHANICAL EFFECTS

(i) *Physiological rest to the diseased lung* - Lungs being elastic are kept constantly out-

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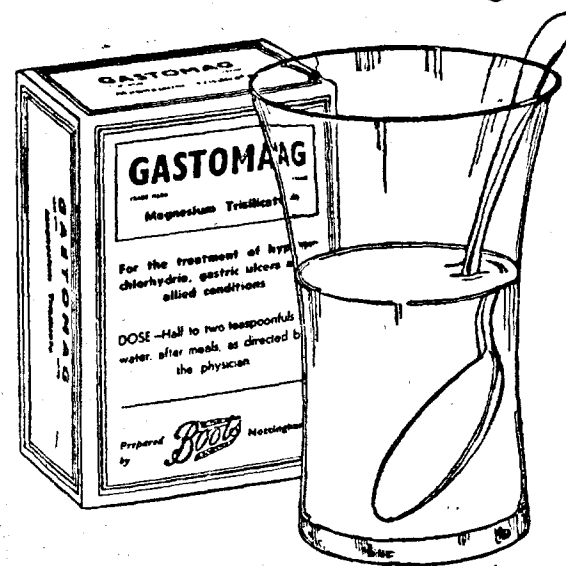
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stretched. Thus if there are tuberculous ulcers or cavity in it, they are also kept outstretched. The elasticity and constant movement of the lungs act as a great bar to the process of healing of ulcers and cavities in the lungs. By A. P. what we do is that we put air into a pleural cavity which normally contains nil. As a result intrapleural pressure gets higher than intravesical; thus the lungs get collapsed and it does not work. The tuberculous ulcers and cavities which were not healing up to now due to constant working and outstretching of the lungs, now heal just like a fractured limb which easily unites when put on a splint. Further as a result of collapse the diseased tissues are brought together thus promoting healing quickly. This is the first mechanical effect of A. P. treatment i.e., it gives physiological rest to the diseased lung.

(ii) *A contraction in the field of ulceration or cavity:* When we collapse the lung, we also collapse the cavity or ulcer in it, thus they also become smaller now. It is very easy for a small ulcer or cavity to heal than a big one.

(iii) *Lymphstasis:* As the lung is no more working, lymphstasis of the lung is produced and it helps (a) in curing the disease and (b) in checking its further spread.

(iv) A. P. also exerts a retarding effect on the growth of B. Tuberculosis by the deprivation of oxygen.

SEROLOGICAL EFFECTS

From the tuberculous focus in the lungs, poisons or toxins circulate in the system. If a person dies of pulmonary tuberculosis, he does not die because his lung is not working or because he has an ulcer or cavity in his lung, but because of toxæmia. The toxins produced at the site of focus are constantly absorbed and carried by blood stream or lymph, causing toxæmia. It is these toxins which produce so many symptoms in a case viz., fever, loss of weight, loss of strength, loss of appetite, anæmia, acceleration of pulse rate, night sweats etc. When the lung is collapsed there is stasis of the lymph and blood, the toxins are not absorbed so quickly and easily as when the lung is working, thus diminishing the amount of toxæmia greatly. This is what is called the *serological effect of A. P. treatment*. Local improvement in the condition of lung by A. P. treatment is very little as compared to the general improvement. This serological effect even overweighs its mechanical effect. The chief purpose of A.P. is to relieve toxæmia. In other words, it is urgently needed in cases of tuberculosis which in spite of complete rest in bed still shows signs of toxæmia. In a case

of mild tuberculosis with no toxæmia, A. P. is not going to do much good as in a case of tuberculosis with intense toxæmia uncontrollable by even complete rest in bed.

INDICATIONS IN PULMONARY TUBERCULOSIS

As A. P. treatment is good both for tuberculous and non-tuberculous cases, its indications can be broadly divided in two groups:

Chief purpose of A. P. is to relieve toxæmia. This toxæmia can also be relieved by giving the patient complete rest in bed. If toxæmia disappears after this regime of complete rest, no A. P. is indicated. Certain amount of toxæmia not sufficient to produce symptoms is necessary for the patient to develop immunity and so if we give extra rest by A. P. after disappearance of toxæmia by complete rest, this immunity cannot develop. But if toxæmia does not disappear after 3 to 4 weeks of complete rest, A. P. is indicated.

(1) *Unilateral cases of pulmonary tuberculosis:* (i) An early active unilateral case with toxæmia which does not yield with 3 to 4 weeks of complete rest. (ii) In unilateral acute type of cases, what is known as pneumonic phthisis or galloping phthisis. In such cases rest in bed is not likely to give any benefit and one should not wait and waste time but give A.P. at once when diagnosed. (iii) For uncontrollable, severe and repeated hæmoptysis. (iv) Cases of tuberculous lung complicated with diabetes. (v) Cases of tuberculous lung complicated with tuberculous laryngitis or enteritis. The latter are additional indications for A.P. as no chances of their cure are possible until we treat the lung as otherwise the T. B. laden sputum which is constantly passing through the larynx will not let the condition heal and will keep up the laryngitis.

(2) *Bilateral cases of tuberculosis of lung:* Although A. P. is contraindicated in bilateral cases yet with modern improvements such induction has been made possible and has been advised by the specialists.

In coming to a decision as to the necessity of inducing pneumothorax in a bi-lateral case, it is more important to consider the degree of activity than the actual area of disease as determined by the physical signs in the better lung.

INDICATIONS IN NON-TUBERCULOUS CASES

(1) *Bronchitis:* when we collapse the lung, we also collapse the cavity with it which then rapidly heals.

(2) Lung abscess when it has burst into a bronchus.

(3) Interlobar empyema.

(4) For replacement of large pleural effusions: when effusion is very large we do not want to take it out without replacing it with air as otherwise the viscera will be greatly displaced and this will produce a great shock. Hence to prevent this shock we replace the fluid by air.

(5) For X-ray of the chest for lung tumours.

CONTRAINDICATIONS

(1) *Bilateral cases of acute active tuberculosis of the lung*: Except in specialists' hands, A. P. treatment should not be resorted to by an ordinary practitioner in bi-lateral cases as the collapse of one lung in such a case is likely to aggravate the disease in the other also.

(2) *In elderly persons with advanced emphysema*: A healthy lung can do double work after the collapse of one lung; while if it is emphysematous, it will not be able to do the work of the collapsed lung. So in old people who are generally the subjects of emphysema, A. P. has to be done cautiously.

(3) In cases in which there is also tuberculous disease in other parts of the body in addition to the lung lesion e.g., tubercular peritonitis.

(4) It should not be done if the lesion is healing under ordinary treatment.

(5) When there are dense pleural adhesions or much adherent pleura it is only possible to produce a partial pneumothorax which may not give good results.

(6) In very advanced cases, A. P. with necessary refills often adds to patients' discomfort and should not be induced as a last resort when there is no hope for the patient.

(7) Patients with highly neurotic temperament do badly with A. P.

FUNCTIONS OF THE MONOMETER

(1) It tells where the end of needle lies. The end of the needle may lie:

(a) In the thoracic tissue (intercostal muscle)—in this position there will be no response to the monometer and hence no pressure whether negative or positive is recorded by it.

(b) If the needle gets into lung or bronchus, the oscillations of monometer become very characteristic. It will denote the intra-alveolar pressure which is negative during inspiration and positive during expiration. So if we get a reacting like $-4 + 4$, or $-3 + 4$, it indicates that the needle has penetrated even the lung or bronchus.

(c) It may be in the intrapleural space and it is here we want to get it. Here again

oscillations of monometer are quite characteristic—i.e., negative both in inspiration and expiration. It becomes more negative in inspiration and less in expiration but it is always negative. The normal readings in such cases we get are $-11, -7$ or $-12, -8$ or $-10, -6$. It is when we get this characteristic readings of monometer that we put air into pleural cavity.

(d) It may be in the vein—the monometer will then record a negative pressure which is always negative and remains at a constant level with no oscillations.

(e) It may be in the artery (blood vessels) and then the monometer will register a constant positive pressure without any oscillations. In this case the blood may even be pushed up the tube and seen through the tube. It is in such a case that there is a danger of gas embolism if air is forced under pressure.

(f) The needle may pierce the diaphragm and enter the abdominal cavity. In such a case the oscillations will be inverse, i.e., a low pressure will be registered with expiration and a higher one with inspiration.

Thus until you do not get the proper intrapleural pressure oscillations on the monometer, one should not even think of even putting the air in. After 2 or 3 fillings the lung becomes collapsed and so it recedes away and hence there is no fear of rupture of the lung; but in the first and second filling there is danger of rupture of the lung especially by a beginner and so it is very necessary to use the monometer for the first two fillings. Again you may get a case in which the readings neither show the needle in the lung nor in thoracic muscle in spite of all our endeavours. This is a case in which the two pleural layers are probably adherent to each other and that is the case in which A. P. is difficult or rather impossible.

(2) It regulates and guides:

(a) Quantity of air to be injected at each refill.

(b) Regulates the intervals at which refills should be done.

NEEDLES

Two types of needles are used for A. P. treatment:

(1) A special needle for the first refill—the needle is called *Riviere needle* or *Pearson's Trocar and Canula*. This has got a blunt end when the trocar is removed. In the first puncture the two pleural layers are touching each other with no potential cavity in between, so if we use a sharp needle like *Saugman*, there is danger of injuring the visceral pleura while

it is not so in the case of this needle owing to its blunt end.

(2) For the subsequent refill—another needle like Saugman needle or Leillongston A. P. needle is used. Owing to having a sharp end, it is not used for the first puncture as there is danger of injuring the visceral pleura with it. This needle has also in addition a side nozzle. As, after the first refilling, the two pleural spaces are apart, there is no danger of any injury to the visceral pleura. Hence this needle is used for subsequent refills.

CHOICE OF GAS FOR A. P. TREATMENT

For ordinary A. P. work the use of air is very good not only because it is easy to get, but also because it approaches most nearly to the alveolar air and therefore less interchange of gas takes place in pleural cavity. Oxygen is absorbed more rapidly than nitrogen or air and is therefore the best gas to be used if a rapid absorption is required, for example, in certain cases of pleural effusion. It has been advocated on the assumption that it is less likely to cause gas embolism owing to its rapid absorption. For similar reason carbon-dioxide which is rapidly absorbed by blood stream has also been used. With proper technique gas embolism should not recur and choice of gas in this matter makes no difference.

TECHNIQUE

(a) *Preliminary*: (1) Find out that the case is suitable for A. P. (2) Patient should be at least one week under observation before doing A. P. (3) Rest in bed before A. P. is essential. (4) Make sure that the other lung is healthy by x-ray and physical examination of the chest.

(b) *Preliminary Medication*: (1) Patient to be given potassium bromide gr. 20 t. d. s. for 24 hours before operation. This is particularly necessary for the first filling.

(2) 45 minutes before operation, inject morphia gr. $1/3$ or $1/2$ or any other drug of the same action like omnipon $1/4$ gr. to lessen the pleural shock.

(3) In order to avoid the fear of its being a sort of surgical operation, it should be done in the patient's room and not in an operation theatre. Of course all the instruments should be sterilized and strictest precaution taken against sepsis. Brandy or other stimulants should be in readiness, and hot water bottles at hand.

(4) Before using the apparatus, it is most important to see that there is no leakage.

(5) *Site of Puncture*.—Success of A. P. lies in the discovery of a suitable pleural space. Adhesions between the two layers of pleura is a common thing and if we put air in pockets, lung will not collapse fully. Base of lungs are more helpful as there are less chances of adhesions there. If you even get into pleural cavity, air stretches and separates the adhesions but if you get into the adhesions, you will not work well. *Axillary line* is the site of choice for the first puncture as (i) owing to ribs being far apart here, the intercostal spaces are the widest here; (ii) there is little muscle covering the chest here; (iii) adhesions are less likely to be found at the axilla than at other sites; (iv) the lung excursion is greatest here. The general principle to remember in the selection of site of puncture is neither to go too high where it is covered with thick muscles nor to go too low for fear of puncturing the diaphragm, liver, spleen, etc. Select any space in the middle. The usual site selected as advocated by Price and others is 6th intercostal space in the mid-axillary line. If there are adhesions here, one may try at the fifth intercostal space in the anterior axillary line or seventh intercostal space in the posterior axillary line. Failing all these one should make an attempt in the seventh space just below and internal to the angle of scapula. If the pleura is adherent at all these sites, one may try in the first intercostal space below the clavicle. Should the pleura be adherent here too, it is not necessary to make any further attempt, for with such wide adhesions any collapse obtained will not be sufficient to be of value. If the skin and pleura are properly anaesthetised with novocaine and sharp needles used, the punctures are painless and it is possible to make all the four attempts at one sitting. In the case of a patient who shows signs of nervousness it is sometimes best to stop after the second attempt and postpone other punctures for a day or two. It is hardly ever necessary to do this however, and the great majority of patients prefer to get over the whole proceedings at one time. Only a few patients get a satisfactory collapse after failure to produce pneumothorax after the first attempt and a successful collapse after a second failure is rare. If a patient has a pleural friction rub and you can hear it, it is the best spot to puncture here as it is certain that there are no adhesions at this place, although much pleural adhesions may be present elsewhere. While trying to induce A. P. never puncture the pleura over a large phthisical cavity or over an area of extensive caseation.

(6) *Position of the patient.*—Patient should lie on his sound side in bed comfortably with diseased side uppermost with a pillow underneath the ribs so that the site of puncture is uppermost. This also causes arching of the ribs. Hence the ribs become as far apart as possible with the result that there will be widening of the space and so more space for puncture.

Local Anaesthesia.—Take 2 per cent. solution of novocaine in a syringe and inject it layer by layer beginning from skin down to pleura to produce local anaesthesia. First inject 1/4 c. c. intracutaneously so that a small lump is raised and skin anaesthetised. The hypodermic needle is inserted into the middle of the lump and pushed slowly down between the ribs. At least half c. c. should be injected against the pleura. Thus the whole tract of the needle is infiltrated. This procedure is perfectly painless if the needle is sharp.

(ii) For the first puncture, it is better to make a small opening in the skin by a scalpel as in the first puncture we use a blunt needle while in the subsequent ones, we use the sharp needle.

The A. P. apparatus is arranged at the patient's bed side. All the clips except clips O and P are closed so that when the chest is punctured the pleural cavity is in communication with the monometer only. The needle, having already been fixed, is pushed gently through the anaesthetised area and through the small opening already made by the scalpel in the skin. On reaching the pleura, the trocar is withdrawn and the tap at the top of the needle is turned off. The blunt end of the canula is then gently pushed through the parietal layer of the pleura and when it is in the pleural cavity, the monometer will show the characteristic oscillations of intrapleural pressure both during inspiration and expiration. At this stage, the patient must keep absolutely quite and the needle held perfectly steady or else it is liable to slip out of pleural cavity. When by the reading of monometer, it is certain that the needle is in the pleural cavity (i. e., between the visceral and parietal layers) the clips are so unloosened that about 5 c. c. of air is allowed to be sucked into the pleural cavity. This allows a small air space to collect round the needle since the patient's posture is such that the site of puncture is uppermost. If the monometer still shows a negative-pressure, it is now safe to raise bottle

containing air and allow some 250 c. c. of air to enter the pleural cavity. The readings of the monometer are then noted and the needle withdrawn. The exact quantity of air which is introduced will depend upon the intrapleural pressure but for the initial injection 250 to 300 c. c. may be taken as a good average as it is not enough to cause a reaction and yet sufficient to leave an air space which lasts until the next refill. It is best not to put any dressing except collodion plaster over the small puncture which will heal without leaving a scar.

REFILLS

It is on correct spacing of refills and giving the correct quantity of air that success or failure of A. P. treatment depends. When the lung is collapsed, no special skill is required to put the needle into the pleural cavity and inject air; but it requires considerable experience to judge how much to give and when to give it. A common mistake is to give a definite quantity of air at fixed intervals regardless of the fact that the right amount varies as the treatment proceeds. A patient may require more air at one time and less at another. Another mistake is to leave too long an interval between the refills so that the lung re-expands sufficiently for the visceral pleura to come in contact with the parietal pleura and to become adherent in places. Firm adhesions may occur in 3 days or less and no amount of intrapleural pressure will separate the adherent surface. The process may gradually spread until the whole of pleura becomes adherent and the pneumothorax cavity obliterated. Sometimes we want the lung to expand in this way and a process of gradual obliteration of A. P. cavity with subsequent fibrosis is often a satisfactory termination of the treatment but if it is desired to maintain a pneumothorax, it is of utmost importance to prevent the visceral and parietal pleura from coming in contact with each other. Perhaps the most common mistake is to maintain the wrong degree of collapse. Some patients do best with a very partial collapse and if this is increased, they begin to develop dyspnoea and lose ground. Others fail to improve until a complete collapse is maintained and large and frequent refills are given. The first refill should be given 24 hours later and the subsequent refills every four days so that a desired collapse is obtained in about a fortnight. It is very necessary to maintain an A. P. chart of all such cases. An A. P. chart as shown below should always be maintained. A study of it will help us to clear everything.

A. P. CHART OF A CASE					
Number of refills	Date	Interval	Initial Pressure	Amount of air injected	Finishing Pressure
1	2-10-1938	After 24 hours	-11-7	250 c.c.	-10-6
2	4-10-1938	After	-10-7	300 "	-14-5
3	7-10-1938	3 days	-11-6	300 c.c.	-9-5
4	11-10-'38	4 "	-9-6	350 "	-8-4
5	16-10-'38	5 "	-9-5	400 "	-7-4
6	23-10-'38	6 "	-7-5	450 "	-6-3
7	30-10-'38	7 "	-6-3	500 "	-4-1
8	7-11-'38	8 "	-5-2	500 "	-3+0
9	17-11-'38	9 "	-4-1	550 "	-2+1
10	28-11-'38	10 "	-3+0	600 "	-1+2
11	10-12-'38	11 "	-2+1	650 "	+0+3
12	23-12-'38	12 "	-1+2	650 "	+1+3 or 4
13	5-1-'39	13 "	+0+2	700 "	+1+3
14	20-1-'39	14 "	+0+2	750 "	+1+4

Note: (1) The increasing of interval by one day between each A. P. (2) The difference in initial pressure at each operation which is due to absorption of air (3) The increase in the quantity of air injected by 50 cc each time which is necessary to maintain satisfactory collapse.

Any pleural shock or pain should be noted at each operation.

Thus the amount of air injected is slowly increased till one reaches the maximum of 700 or 800 c. c. and the finishing intrapleural pressure goes upto +1 +3 or +1 +4 which is obtained after 3 or 3½ weeks.

Now at the end of a fortnight, or say 3 to 4 weeks, when the optimum degree of collapse has been obtained, refills should be regulated according to rate of absorption and the condition of the patient. It must be remembered that even in the same individual the interval between the refills and correct quantity of air required vary as the treatment proceeds. By optimum degree of collapse is meant that which best suits the patient. Some patients do best with a very partial and others with a complete collapse. The next thing to find out is how long the optimum degree of collapse will last without a refill and this can be done by watching the degree of re-expansion of lung by x-ray and by noting the return of symptoms.

The patient, during A. P. treatment and between the refills, should be kept under observation and careful supervision because not only the rate of absorption tends to vary as time passes but also of the possibility of such complications as spread of adhesions, pleural effusion etc.

DURATION OF TREATMENT

Prof. Saugman suggests that A. P. after being completed it should be continued for 5 years. If all is normal then and the patient wishes it, let the pneumothorax close, choosing the summer season to re-expand for the first

months, observing the patient very closely if possible in a sanatorium. No sooner symptoms of relapse in treated lung reappear, renew the injection of gas. But it occurs only in very few cases.

In the opinion of Pearson, A. P. should be kept up for at least 3 years if it is to be effective. After 3 years continue treatment with occasional refills if:

(1) the patient is over 33 years of age and has lost the resistance and recuperative power of youth,

(2) the compressed lung was a fairly useless one before the initial injection and if in addition it was producing chronic poisoning;

(3) the things are going well during the maintenance of collapse.

In a large number of cases the termination of treatment is settled by various factors such as obliteration of cavity by adherent pleura, development of active disease in the other lung etc.

Generally, if the patient is doing well and keeping free from symptoms and at work, I think collapse should be maintained and A. P. treatment carried on for 2 to 3 years, till one is sure that the disease is not likely to relapse. Then the lung may be allowed to expand gradually during the summer. Before allowing complete re-expansion; it is advisable to give 2 or 3 refills at long intervals using only sufficient gas to prevent the visceral and parietal layers of pleura coming into contact. By this means it is possible to recollapse the lung fully should a return of symptoms make this advisable.

A. P. treatment to be successful requires a great time and there is no need for trying it for a month or two because this treatment is not a matter of months but of years. Moreover it is very necessary for one to advise the patient that the benefit of A. P. treatment can be given once and once only. So he must continue the treatment upto the end. If he leaves it in between treatment, adhesions will form between the two layers of the pleura and after it no second A. P. is possible. Hence A. P. treatment in order to be successful should be continued to the end.

DANGERS AND COMPLICATIONS

According to Ward Cock, there are dangers in connection with the production of A. P. but the greatest—and about this let there be no mistake—is the neglect in which it is held. Actual dangers of inducing pneumothorax under proper precautions are negligible but of the various complications which are liable to

(Continued at foot of next page)

A Possible Case of Lathyrism*

S. C. Dutta, L. M. P., Assistant Medical Officer, Itakhooli T. E., Khet., Assam

In the month of July last a female child of about five years of age was admitted into the Hospital with stiffness of neck and dysphagia of 3 days' duration. A few minutes after her admission the child got a convulsive seizure of short duration, while attempting to have a drink. Temperature, pulse and respiration were normal. The child was given immediately an intramuscular injection of quinine after taking a blood-film, which was found to be negative for malarial parasite. Temperature was observed very frequently but it kept constant all along.

Next morning a thorough case-taking was done.

The child belonged to 'Bauri' class. She did not suffer from any serious ailments except occasional attacks of fever. Her usual diet consisted of rice, dal and vegetables. The mother of the child described that amongst the dals she always preferred "Motor dal" and "Kalai dal". They are not in the habit of taking "Khesari dal", wheat or maize.

The look of the child was very anxious, spinal column was stiff and straight, knees were slightly bent and elbows slightly flexed.

The gait was trembling. The child stepped forward on bent knees with scissor-like steps.

*Read in the Scientific meeting of Tingri Valley Branch, A. I. M. L. A. on 24-9-39.

(Continued from previous page)

develop, gas embolism and pleural shock are very serious and often fatal.

The various complications which may occur are:—

1. Gas embolism
2. Pleural shock
3. Puncture of lung
4. " " large vessels or heart
5. Surgical emphysema
6. Pain
7. Dyspnoea
8. Displacement of mediastinum
9. Pleural hernia
10. Febrile reaction
11. Infection along the track of the needle
12. Perforation of the visceral pleura
13. Thickened pleura
14. Pleurisy
15. Pyo-pneumothorax.

It is not possible to give a detailed account of these in this article. They will be dealt with in a separate article.

On physical examination, the neck was found to be stiff but the child could turn the head on the sides. No enlargement of cervical lymph glands was detected. The child was afraid of opening the mouth, but on forcible opening nothing abnormal was found in the mouth and pharynx.

There was no spinal curvature but there was stiffness of the neck and the child felt pain on bending forwards. No tender spot was detected over the spinal column.

No sensory loss on any part of the body was detected. Partial loss of motor functions of both legs and slight weakness of upper extremities were present.

The reflexes were as follows:—

Abdominal reflex	...	exaggerated.
Babinski's plantar reflex	...	extensor.
Knee jerk	...	slightly increased.
Ankle jerk	...	slightly increased.
Ankle clonus	...	absent.
Romberg's sign	...	positive.
Kernig's sign	...	negative.
Ocular reflexes	...	normal.
Sphincter control	...	normal.

Treatment and progress:—The child was put on pot. iodide mixture and cod liver oil. The diet was improved by addition of egg and milk with usual hospital diet.

No improvement was noticed during the first fortnight but the case did not go worse. After that period the child improved steadily and quickly. The child was discharged cured after 30 days of her admission.

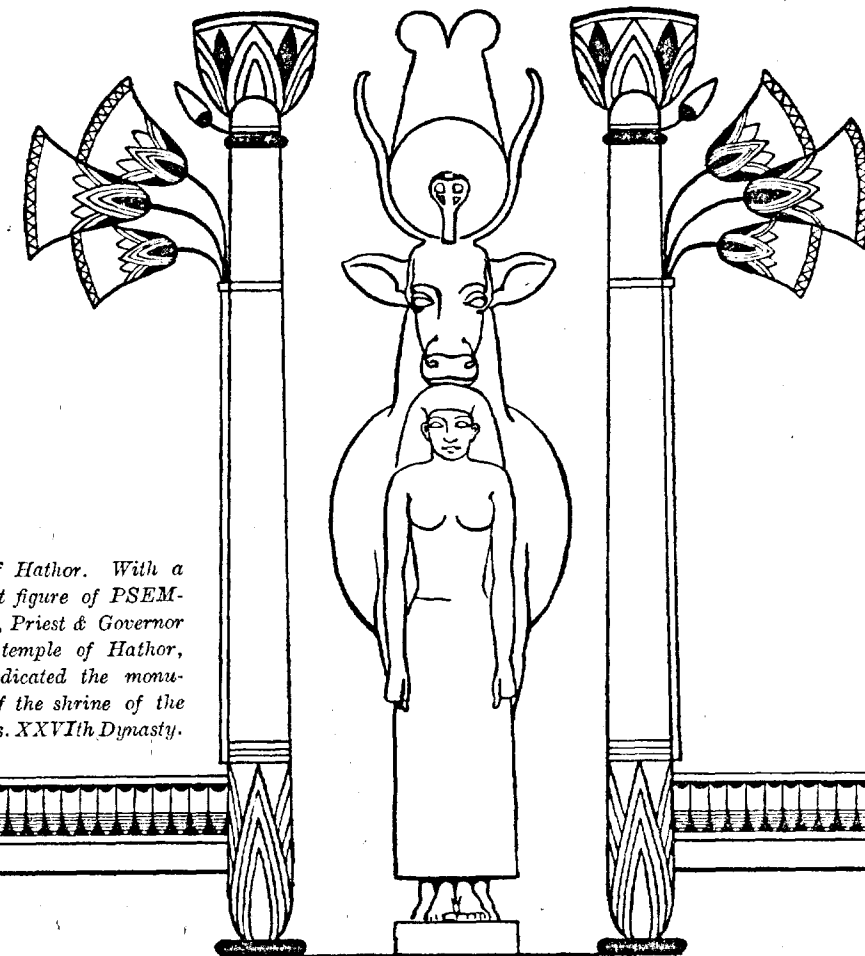
DISCUSSION

Lathyrus Sativus ("Motor dal" or "Khesari dal") was for a long time believed to be the only cereal connected with the etiology of this disease but it was found by DR. SHAH of Sialkot (1939) that grains contaminated with *Vicia Sativa* (AKTA) was also responsible for an epidemic outbreak in the Punjab. Farther it has been stressed by him that these cereals when stored for a long time in a damp place usually develop a toxin.

A theory that vitamin A deficiency is one of the causative factors is extended by many and the consensus of opinion is that it is a disease of food intoxication and avitaminosis.

The present case was found to be etiological connected with "Motor dal" (*Lathyrus Sativus*) and "Kalai dal". The consumption of the same pulses and procured from the same source did not produce symptoms in any other person. So, storage of these pulses in a damp corner of the patient's quarters is suspected to be responsible for this sporadic case. Besides, vitamin A deficiency in dietary

(Continued at foot of page 17)



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of the temple of Hathor,
who dedicated the monu-
ment of the shrine of the
Goddess. XXVIIth Dynasty.

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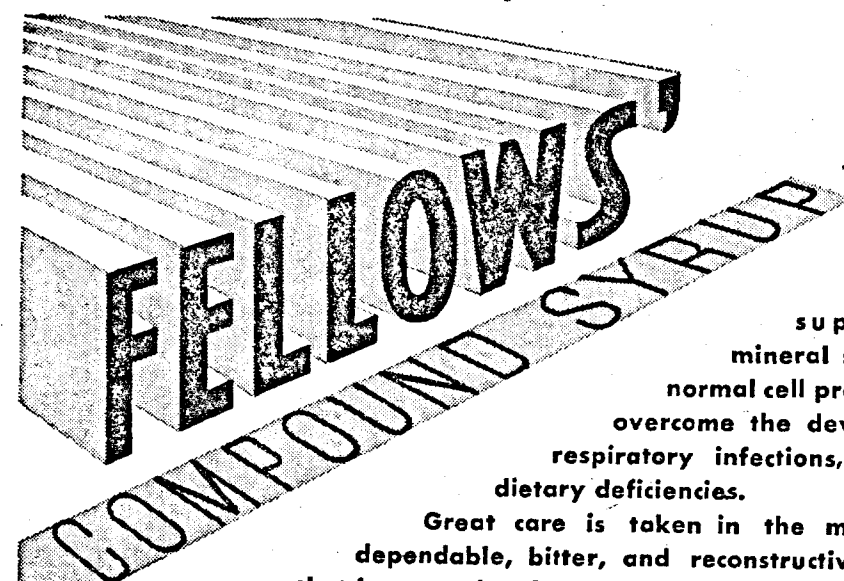
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We are on the threshold of a New Year which finds the world in a state of utter confusion, and its people in a state of great distress. No greater travail in the history of mankind has been experienced than what we are passing through today — destruction of ancient cities and innocent people, despoilation of the independence of small and great nations, and paralysis of social happiness and normal trade brought about by the foolish ambition of the hysterical ruler of Germany. And the ambition which covers its enterprises under the appearance of principle or national necessity is the most incurable and inflexible of all passions. Unless such an ambition is smothered, there can be no security for men of peace and good-will on earth, no safety for inoffensive nations, and no hope for peace and for progress of civilisation. All are agreed that Germany is a great country with a tradition, short as it may be in terms of history, of no mean achievements in science, philosophy and religion; in social, political and military

organisations; and in art, music and literature. All are agreed that today the greatest sufferers are the German people themselves who are led like sheep to the slaughter-house by their war-maddened and unscrupulous Reich Chancellor. All are agreed that, when the peace comes, the German territories shall be protected and the German nation treated with every consideration. This war, therefore, is not against Germany and her great people, but against her ruler who has created a cataclysm in the affairs of men and nations and who wants to impose his will on them — whether they like it or not. There should be only one end to this war:—abandonment of aggression of any kind and of arbitrament by war.

We join with the millions of people in all parts of the globe in their prayers of the New Year for the victory of the oppressed people, for the triumph of righteousness, and for the establishment of a just peace.

Medicine and the State

We have often written in these columns that the present economic and social conditions in our country are such that the best and the quickest way of affording medical relief to our people is possible only through State organisation and control in such a manner as would absorb the largest number of medical men without in any way dwarfing the dignity and the independence of the medical profession.

Unlike many other countries, we have already evolved, during the course of last one hundred years, a fairly efficient system of State Medicine. Its unpopularity is however due to glaring defects in its organisation. It lacks perspective, cohesion and uniformity, and it is made to serve more the imperial than the Indian interests. It lives in haughty seclusion from the rank and file of the profession, and has created vested interests of various kinds.

The reaction to these defects took the form of a demand by the independent medical practitioners for an important share in hospital work. The Local Governments met this demand some 25 years ago by creating a fifth wheel to the Service carriage by the introduction of Honorary Medical Service. But the motif was not to satisfy the demands of the profession but to save as much money as possible under medical personnel. In course of time this also has become a replica of paid Service without its corresponding advantages. It has assumed the form of patronage, resulted in a further cleavage of the profession and embodied in it, in a more intense form, the defects that developed in

State Medicine, viz., lack of perspective, cohesion and uniformity.

The demand for the introduction and extension of Honorary Medical Service was voiced by some of the prominent members of the profession who were jealous of the power, position and influence of the higher hierarchy in the Indian and Provincial Medical Services and who wanted to show and prove that they were in no way unequal to them. The Government yielded to this demand, possibly for two reasons: if the honorary service succeeded in its objective it would save some money for them: if it failed, the causes of failure could be foisted on the profession itself.

The protagonists of the Honorary System are always profuse in quoting foreign analogies conveniently forgetting that our conditions differ both absolutely and relatively from those in the Western countries. There, the average citizen is able to pay for private medical service, the man with low income is forced by the Statute to get into the Health Insurance, and the poor can get into State Infirmaries for free treatment. Here, the average citizen, much less the poor, is unable to pay for private medical service; neither is there a compulsory health insurance for them. Of course there is a fairly wide net-work of Government Hospitals, originally intended for the convenience of Government officers and later thrown open to the public, but which in reality has become a close preserve for the more influential and powerful among the middle and the upper classes. The Honorary Service is, therefore, a complete misfit in the Government Hospitals in our country, and there is no meaning in urging for the sacrifice of professional emoluments in the Service of Government Hospitals which, in actual working, cater more for the rich than the poor. It is also conveniently forgotten that in the Western countries, most of the honoraries are paid a decent honorarium, and do not serve in Government Hospitals but in voluntary hospitals founded on public beneficence with a little State-aid and no State intervention at all. The people there would certainly look down upon a Government which engages men in its work without reasonable remuneration.

This contrast is as striking as it is significant. Even so, particularly in Great Britain, the recent trend has been to close up the gap between Medicine and the State. This is evident from the editorial remarks of our British contemporary, the *Post-Graduate Medical Journal**, which writes under the caption A STATE MEDICAL SERVICE.

*October, 1939, p. 356.

"The organisation of the nation into one cohesive whole will, however, have far-reaching effects on the personal relationship of medicine and the State. For some years now the trend has been to close gradually the gap between the two. It is unnecessary to recount all the numerous ways in which this approximation has taken place, but perhaps the organisation of the L. C. C. hospitals is outstanding. The emergency medical service which provides for London, and which is based on the teaching hospitals of the metropolis, is shaping well in spite of many minor difficulties, and is in a state to do its work efficiently should air-raid casualties unfortunately occur. The organisation of this scheme will have a bearing on the future of medicine which will be of the utmost importance. For the first time there is Government control of those most stout and gallant-hearted last ditchers of the medical profession, the consultant and specialist groups. Whereas the National Health Insurance Scheme started by attracting the general practitioner, what may possibly prove to be the genesis of a State Medical Service has been precipitated by war, and its initial step has been the enrolment of the consultant groups. The difficulties attending such an enrolment could only have been solved so quickly during a national crisis, and the advent of the emergency has probably put medical politics forward ten years. A great struggle is still in store, for voluntary system, well-suited to the national character, and with many advantages as compared to a rigid State service will have many adherents. It seems probable that a compromise will be effected, that the great voluntary teaching hospitals will retain at any rate a partial autonomy, but that a large number of their staffs will become full-time men under the scheme. The British Post-Graduate School is an excellent example of the good-work which can be done under conditions which seem at first sight rather complicated."

The truth is that the demand for Honorary Medical Service in our hospitals is a form of psychological escape from the feelings of oppression and down-troddenness among the members of the profession. They thought that this would heal the time-long wound; they thought that this would give them the same prestige and status as the State Medical Officers; they thought that their sacrifice would be rewarded in kind if not in coin. All these have proved to be delusions, both by virtue of the intrinsic demerits of the Honorary Service as well as of the defects in its organisation and working.

The only alternative for the profession to find its level in the body-politic of the country is to work for the re-orientation of the existing State Medical Service. Such a Service should accommodate the largest number of medical men possible on a fair and reasonable remuneration and on the basis of equal opportunities for all in Service without the doggerel of superior and subordinate cadres.

But any alternative scheme, under the present political conditions in our country, are bound to suffer from certain common defects arising out of certain common causes. We have already pointed out the defects in the existing State Service, both paid and honorary. They are: lack of perspective, cohesion and uniformity. These arise from common causes. They are: our political subordination and

consequent political interest in the services, and lack of uniformity in medical education and consequent division of the profession according to racial and academical qualifications.

After all, the relief obtained by us by entering Honorary Service is a symptomatic relief, like unto the cure of headache by aspirin. Even the fact of this relief is questionable. Honorary Service is also, in a true sense, a State Service, inasmuch as it is the State that selects, employs and rules the honoraries *minus* its duty and responsibility to pay for services rendered.

Our future perhaps lies in the Socialization of Medicine—a much condemned phrase in the politics of many countries, east and west, coveted in the heart by many but who are afraid to speak or write or persuade others about it. Meanwhile, let us not shift our trouble from the heart to the stomach by listening to specious sermons on the nobility of the profession and its capacity to sacrifice at the altar-table of Honorary Service under direct auspices and patronage of Governments which have not yet given up their bureaucratic traditions and the rule of the thumb.

I. M. S. Commission for the Medical Licentiatees

The present war would naturally require a good number of medical men from India for field medical service. Many medical licentiatees, both in service and in practice are, we know, willing to volunteer. In response to the Association's appeal, some of them have written to us enquiring whether temporary I. M. S. Commission would be granted. The President of the Association who has been appraised of this fact has recently written to the Director-General of Indian Medical Service suggesting to him the advisability of granting the King's Commission to such of the medical licentiatees who are willing to enter active military medical service. No official reply has yet been received. We hope that the Government of India would view this legitimate request with favour and sympathy. The only constitutional difficulty is the fact of the non-recognition of the licentiatees by the Indian Medical Council, but this, we believe, can be surmounted by the application of Section 121 of the Government of India Act (1935) which leaves the residual power of granting a Commission in the Indian Medical Service to the Governor-General. This seems to us an opportune time for such intervention. Apart from the military needs, it will be an act of equity and a just requital for services rendered in the past if the Government of India offers such a Commission to the medical licentiatees. They form the largest part in the Civil Medical Service and in private practice, and they have the right to demand the Commission.

CURRENT COMMENTS

Bangalore Medical School

This is the only Medical School in our country which is affiliated to an University. For the first time in the history of medical school education, Mysore University has taken the forward step of convening a special meeting of its Senate to confer the L. M. P. diploma to the 51 successful candidates of the year, and all the credit goes to the two great well-wishers of the licentiatees, Dr. (Miss) Albuquerque, Principal of the University Medical School and Dr. N. S. Subba Rao, Vice-Chancellor of the Mysore University. This may not mean much to the medical licentiatees of Mysore, for, they are still under-paid and their prospects and promotion are no better than before. But it indicates a change of heart, and is a recognition of the personality of the medical licentiate. This is a great gain, because even this was denied to him by those in authority. The Vice-Chancellor gently reminded the licentiatees that they suffered generally from inferiority complex, and advised them not to feel ashamed of their position and work. But we wonder whether they have could avoided developing an inferiority complex when during the last 150 years they were forcibly kept in a trodden condition. In spite of this they are today alive and kicking, which shows that their erstwhile inferiority complex was more an imposition from outside than of their own making.

Another forward step which the Mysore University has taken is to convert the School into a College. Thus Mysore will have two medical colleges. Here again, we see the kindly hand of Drs. Albuquerque and N. S. Subba Rao. The fact that the existing University Medical College is not recognised by the Indian Medical Council is unimportant and irrelevant. Everyone knows the genesis and the working of this Council, and non-recognition by such a Council need not be deplored. And we are definitely of opinion that no medical school in our country should be left unconverted into an University medical college for fear of non-recognition by the Indian Medical Council, which, as we have often pointed out in these columns, is neither Indian in its composition, nor medical in its perspective nor a Council in the proper form.

Dr. Gilder's Promise

While we write this comment, we do not forget that the Bombay Ministry has resigned on political issues, but that does not take away

the force of our question: *Why has not Dr. Gilder, Bombay's Health Minister, fulfilled his promise which he made in December 1938 to convert the two medical schools of his province into University medical colleges?* One year is not a short period to make the necessary arrangement when Madras was able to do it overnight. It is obvious that the Bombay Health Minister while yielding to the demand was not convinced either of its urgency or utility. Otherwise, there is no reason why he should have delayed putting into effect what he had publicly pronounced. It was certainly not due to lack of courage, for no Congress Minister could be accused of that. It is plain that it was due to lack of conviction. We would not quarrel with him if he had said so, although we would be pressing for a change in spite of his opinion. We wish, however, our surmises are wrong, because we are not for fault-finding but for achieving our object of uniform medical education in our country. The opinion of the Bombay Medical Profession is absolutely unanimous on this question, and only recently the Chairman of the Reception Committee of the IV Maharashtra and Karnatak Medical Conference, Nasik, expressed the opinion of the profession that:

"There is at present a wholly unnecessary distinction between the M. B., B. S., and the L. C. P. S. For this brief period of one year's difference there is a life-long distinction maintained between the two. It is therefore of urgent importance to have one uniform standard of minimum medical education, viz., M. B., B. S. If better facilities are given to the present L. C. P. S. for appearing at M. B., B. S., a great more towards the goal will have been made."

If there is any province in India where Medicine's vested interests lie strongly entrenched in power and position, it is undoubtedly in Bombay, and it is these interests, we believe, that must have stayed the hands of Dr. Gilder. It is for Bombay to fight these vested interests and win her case for the establishment of a uniform standard of medical education.

If Bombay Wins

If Bombay wins her case for uniform standard of medical education, she must be wary of good friends like Dr. Jiviraj Mehta who wants to introduce provincial languages as a medium of instruction, *let it be noted, not in the Grant Medical College nor in his own of which he is the Dean but in the newly converted colleges.* This is an experiment at others' cost which Bombay should stoutly resist and kill the proposal in its offing. We had already commented in our November Issue that if higher and technical education is not given in the accepted *lingua franca* of

India, viz., the Hindi, we will divide ourselves into warring races within our own borders, and we will be, in spite of our good intentions, stemming the orderly evolution of Medicine in this country. We will only repeat the medieval history of India and divide ourselves once again into a jumble of little nationalities.

What of Bengal?

The Punjab, the United Provinces and Madras have practically fallen in line with the modern trend in medical education. Even the small province of Assam is trying to put the ball of progress into the goal. Sind is not averse to a change for the better, should she find the necessary funds for the same. But what of Bengal? Whenever we think of this Province reverential feelings rise in our breast, because for the last 100 years she has been the mouth-piece of our country, in religion, politics, literature, science and educational and social reforms. We are quite sure that the present elected Government of this Province are conscious of its greatness and are willing to contribute further to its greatness. May we entertain the New Year's hope that they will effect the necessary reforms in the medical school education of their province? Like Bombay, the medical profession in Bengal is unanimous in its demand for such reforms. Will her Health Minister harken to this demand? We have a lurking suspicion in our mind that he is led away from the right path by his Surgeon-General and we base this suspicion on the fact that the latter expressed at the 1938 Conference on Medical School Education at Delhi that the abolition of medical schools in Bengal would lead to difficulties in the extension of cheap medical relief. We believe his plea is wrong, because what Bengal needs is more intensive Public Health campaign than mere medical relief. Besides, the unemployment is so sorely acute that it will be a crime of no mean magnitude if the Government go on adding to this unfortunate number, year in and year out. Both expediency and right policy require the abolition of all medical schools if none of them is in a position to be converted into a medical college at some convenient centre like Dacca.

Necessary Adjustments

While the medical licentiates have been asking for reforms in medical school education, and while these reforms have already been effected in three big provinces, they never thought for a moment what would happen to the existing licentiates. We will leave out of consideration the licentiates in private practice, because they are able to take care of themselves.

It is the licentiates in Service who would be badly hit by this change. We think it is the duty of the Government to see that in any scheme of reorganisation and reforms the existing incumbents are in no way incommoded but helped to find their level with the rest of the profession. The best ways of achieving this are: (1) to stop further recruitment to the Subordinate Medical Service (2) to allow them facilities for higher medical education and (3) to absorb them as quickly as possible into the Provincial Medical Service. Thanks to the Hon'ble Dr. Rajan, the position of Madras in this respect is somewhat satisfactory. The Madras University is allowing the eligible licentiates to appear for its M. B., B. S. examination. The Government have absorbed into the provincial medical service all the licentiates with higher medical degrees. They have also abolished the subordinate cadre. And the actual position of the existing cadre is that none of its members are less than 15 years of service, and therefore most of them are drawing a pay which they would get if they are today promoted as Assistant Surgeons. We do not know the exact position in the other two provinces, but we hope that our regional Branches would take stock of the situation and do the needful.

Assam's New Health Minister

We understand that Assam's new ministry in the offing has put up the Hon'ble Dr. Mahendranath Saikia, L. M. P., as the Health Minister but that the Inspector-General of the Province felt it *infra dig* to work under a medical licentiate Health Minister, and that the premier has to cancel this nomination owing to the secretarial pressure. If this is true, it will be a further proof that the provincial autonomy under the Government of India Act (1935) is both a sham and a delusion. Any government in which the secretariat is more powerful than the ministry cannot be said to be autonomous.

(Continued from page 12)

is, as a rule, present in tea garden coolie population.

The unusual symptom in this case was marked involvement of spinal column resulting in stiff neck, which in all probability was responsible for dysphagia.

The convulsive seizure is also rare in lathyrism but have been reported in some cases observed by Chopra (1938).

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POST GRADUATE ARTICLE

Cardiology

(14)

Left Ventricular Insufficiency

• Dr. Jai Gopal

There are many pathological states which bring about heart failure by exerting their influence primarily on the left side of the heart. Of the various causes affecting these chambers, the valvular defects of the aortic and mitral orifices deserve special mention, and from clinical standpoint it is also essential to realise the significance of the aortic regurgitation and mitral stenosis, the two defects that are commonly seen, besides the fact that these are responsible for the early breakdown of circulatory efficiency and ultimately to incurable type of cardiac failure. The aortic stenosis is seen rarely except in old people as a senile change of the fibro-calcareous type and is not of great significance because it is a focal manifestation of a general sclerotic state. It is sometimes met with as a congenital malformation or sometimes as specific aortitis (syphilitic) spreading to the adjacent cusps. Apart from these causes the occurrence of stenosis at the aortic orifice is a rarity. This is due to the fact that the contraction of the left ventricle is very strong and ejects column of blood with a force almost like that of a projectile with the result that aortic cusps are thrown aside; and when the aortic arch recoils on this ejected blood causing the cusps to form a diaphragm to prevent regurgitation the force of the rebound is too powerful. In violent form of exercises the force of this rebound has been known to have caused rupture of the cusps. Therefore in rheumatic infection involving the aortic orifice the possibility of coalescing of the cusps to cause an obstructive lesion is a remote possibility, because during systole the force of the left ventricle and during diastole the considerable force of the recoil action of the aorta do not permit the cusps to coalesce. Hence we need not fear that the healing process in the aortic valve is likely to cause a stenotic obstructive lesion.

In assessing the real significance of the aortic regurgitation, the first essential is to understand its effect on the intracardiac circulation. We have already referred to the fact that the coronary circulation takes place during the diastole of the ventricles when the aortic cusps are brought into

action to prevent the reflux of the blood from the aorta. When there is leakage of blood through these cusps, not only there is so much loss of blood to cardiac nutrition, but there is also a definite fall in the coronary blood pressure, resulting as it would in insufficiency of coronary circulation. We have already studied in detail that a depleted coronary circulation ultimately leads to the gradual replacement of the highly specialised cells comprising the conductive and the genetic system as well as the specific contractile tissue of the myocardium, resulting in slow fibroid heart.

Apart from the fibrosis occurring in the cardiac musculature, the same change begins to take place in the arteries. The vascular degeneration is the usual accompaniment of the aortic regurgitation and in this condition the arteries become rigid tubes after losing their resilience due to the fibrosis occurring in their muscular coat. Hence they are no longer capable of adjusting themselves to the circulatory needs.

The reason for the degenerative changes occurring in vessel wall is that owing to fibrosis of myocardium the heart is no longer capable of adjusting the circulation to the demands of body, because now it is incapable of appreciating the stimuli reaching it *via* sympathetic. Hence the adjustment in the circulation is brought about through vaso-motor mechanisms by their action on the vessel walls and thus producing variations in the calibre of the arteries. The arteries are subjected to chronic vasoconstriction, the initial hypertrophy leads to atrophy and premature degeneration.

In aortic regurgitation, the reflux of the blood into the left ventricle results in compensatory hypertrophy of the left ventricle, and consequently increase in the force of contraction, thus neutralising the effect of regurgitation. The circulation therefore in the early stages is carried on efficiently unmindful of the local lesion at the aortic orifice. But this state of affairs does not last long. Hypertrophy means in-roads on the cardiac reserve. If the demands made on the circulation are heavy, particularly if the mode of life is strenuous, this potential energy is soon exhausted. Ultimately the time comes when the circulation cannot be maintained efficiently even under conditions of rest.

In considering the treatment of the aortic heart failure, we have to bear in mind that the heart is slow in its action due to fibrosis. Hence slowing action of digitalis will serve no purpose. The circulation can only be effec-

tively maintained by enforcing bodily rest and by improving the quality of blood. When the reserve energy is entirely spent out the outlook is hopeless.

In comparing the picture presented by mitral stenosis with that of aortic regurgitation, we find a different story. In stenosis at the mitral valve, less quantity of blood enters the left ventricle and hence there is no hypertrophy with the result that the force of the ventricle is decreased and the circulation cannot be maintained efficiently. If the obstruction at the mitral valve is not of a severe degree, as in the case of mere thickening of the valves, the hypertrophy of the left auricle may compensate for the loss caused by the obstruction, with the result that normal quota of blood may enter the ventricle and its output may become normal. Such cases of mitral stenosis live a life of activity for many years. But if the stenosis is rigid and the hypertrophy of the stenosis is incapable of overcoming it, because the degree of hypertrophy in the auricles is only of a limited nature the circulatory balance is upset. There is no hypertrophy of the left ventricle as it occurs only in the chamber proximal to the lesion. Thus the output of the left ventricle is diminished and this is incapable of maintaining the systemic circulation efficiently. The loss in the force of ventricle is neutralised by enhancing the rate of heart in order to maintain normal circulation. Thus lack in the force of the beat is compensated by tachycardia. When tachycardia is maintained for a long time, the shortened diastolic period and the curtailment of the coronary circulation not only brings about loss of compensation of the myocardium but degenerative changes are also added on to it. The auricles, which had so far carried on their struggle and were in a state of hypertrophy, finding the task too much for their capacity and overcoming of obstruction an impossible task, relinquish their fight, and are now in state of fibrillation. The onset of fibrillation denotes loss of compensation when the potential energy of the myocardium is exhausted. Under these circumstances the heart is now barely capable of maintaining circulation during restful conditions in bed, and any effort on the part of patient is associated with dyspnoea and appearance of oedema, and ultimately both these become permanent features even if the body is resting. Thus we find in aortic regurgitation, the rate of the heart is slow (80 to 90), usually there is bradycardia, the left ventricle is hypertrophied, the heart is enlarged, and the force

of the beat is consequently enhanced. In contrast to this, in mitral stenosis we find tachycardia, the size of the heart is diminished and the force of the beat is reduced. This difference in clinical aspect is to be borne in mind in treating these two conditions. In aortic regurgitation preservation of energy is advocated to avoid non-essential tasks being imposed on the myocardium, because activity entails expenditure of cardiac reserve, whereas in mitral stenosis graduated exercises are encouraged in young and growing children, firstly, with a view to develop myocardium and its reserve power and secondly, to develop hypertrophy of the left auricle and thirdly, to stimulate the circulation in order to prevent the sclerosis occurring at the mitral ring. In mitral lesion full bradycardial action of digitalis is required to allay the excitement of the heart and to afford the much needed rest it urgently needs prolonging of diastole, which results in efficient filling of the left ventricle. Thus the outflow and the stroke value of the ventricle is enhanced, and hence there is efficient circulation. On the contrary in aortic incompetence, the digitalis therapy will have the least value as the action of the heart is already slow. Here the idea of preservation of energy by securing restful condition and improving the quality of blood by the use of liver preparations and iron tonics will be helpful in maintaining the circulation at its normal efficiency.

The occurrence of pregnancy in women suffering from mitral stenosis or aortic regurgitation is a severe strain which exhausts the cardiac reserve and sometimes labour may not be accomplished without undue difficulty. We know that the strain of pregnancy even on a healthy myocardium is considerable, because the heart has not only to meet increasing demands of enhanced metabolism, but it has also to fight against the increased intra-abdominal pressure, besides enduring the exhaustion entailed by the labour. In a case of heart disease there is already a depletion of myocardial energy, hence the accomplishment of pregnancy and labour may not be possible unless measures are adopted towards the conservation of myocardial energy. If she is carefully looked after she may safely have one child, but a second pregnancy occurring not less than two years after may be permitted, provided the heart has not been left crippled by the previous pregnancy. A third pregnancy is not advisable, though there are women who had more despite such gross lesions. The later pregnancy together with the additional worries in rearing up a family

of small children contribute to exhaust the myocardial reserve and hence ultimately fibrillation ensues, making the life thereafter a precarious affair. These facts should be brought to the notice of the partners to the marriage by the family physicians, so that they may not be in ignorance as to the future of the mother.

If the failure develops in the early months of gestation viz., in the second or the third month, it is advisable to terminate it after the measures have been taken to clear up the failure as there is risk in following the pregnancy to continue to full term, particularly if signs of auricular fibrillation are present. Secondly, it is essential to know that once failure has occurred it is likely to recur whenever extra strain of any type including that of another pregnancy is to be borne by the heart. When failure develops in the latter months it is usually possible for the pregnancy to reach full term. In women suffering from heart disease and showing signs of early failure such as dyspnoea on exertion out of proportion to the amount of activity or signs of congestion of the bases of the lungs revealed by the presence of moist rales, the patient should be kept under careful observation throughout her period of pregnancy. A mid-day rest is essential, and she should rise late, go to bed early, and should spend at least ten hours in bed. Climbing up the stairs should be reduced if it cannot be altogether avoided. As regards exercise she must avoid getting out of breath, hence restriction in house work should be advised.

Acute Endocarditis

It is seen as a complication in general infectious diseases or supervening on a case already suffering from valvular lesions.

The common causes are rheumatism, scarlet fever, typhoid fever and pneumonia. Sometimes it complicates chronic illness such as Bright's disease, diabetes, gout and pthisis. The onset of endocarditis in any severe illness may be indicated by a smart rise in temperature above the previous level, increased rapidity in the pulse rate, dyspnoea and præcordial distress. Absolute rest in bed is imperative for several weeks, over-stimulation of heart is avoided and digitalis used only if there are signs of failure and not otherwise.

From the data presented by R. H. Williams, it has been shown that *gonococcal endocarditis* was present in 26 percent of patients admitted with acute bacterial endocarditis in the Vanderbilt University Hospital. The duration of the illness was from a few days to several

months, the average duration being five weeks. The onset of acute polyarthritides coincides with the generalized gonococcal infection, and acute nephritis was a common complication. Sulphanilamide and its derivatives are powerful therapeutic agents which when given in adequate amounts are secreted by the kidneys and exert bactericidal action, and are more active in an alkaline urine. An adequate dose is two five grain tablets with an equal amount of soda bicarbonate every four hours, the daily dose being 40 grains. Various warnings have already appeared against heavy doses and its indiscriminate use. Large doses for many days are known to have developed severe complications such as prostatitis, visculitis, and epididymitis granulocytopenia, anaemia, toxic optic neuritis, dermatitis, photosensitization of the skin, skin eruptions, severe damage to the erythrocytes and sulphæmoglobinæmia (Medical Annual 1939). Magnesium sulphate and coal tar derivatives are the drugs which should not be administered concurrently with sulphanilamide. The *Journal of Am. Med. Assn.* in giving a warning remarks regarding sulphanilamide: "Seldom has any new drug produced such remarkable results; seldom has so much pharmaceutical research been stimulated, but until further evidence is available, careful discrimination in their use will be necessary."

Subacute Endocarditis

The predisposing causes are (1) physical and mental over-strain combined with anxiety or worry, (2) exhaustion due to starvation, excessive sexual indulgence and injury, (3) prolonged illness such as malaria, dysentery, typhoid, influenza and pneumonia. J. Gracine in reviewing thirty cases remarks that clubbing of fingers, pallor, slight irregular intermittent fever followed by an apyrexial period, increased pulse rate, splenic enlargement and valvular lesion are the indications to be borne in mind in diagnosis and he recommends prolonged rest and careful supervision during illness.

Aortitis

It may be of rheumatic origin, but its association with syphilis is also very common. Cases are on record in which the patients were having treatment for months and years with only increased crippling of the heart, and only when the blood was tested for Wasserman's reaction, the true nature of the disease was revealed and antisyphilitic measures instituted. It is indeed a wise precaution to suspect the presence of a syphilitic lesion in all cases of aortic disease seen in persons

under fifty years of age and who do not present a clear history of rheumatic infection during early life. A critical review on the syphilitic involvement of the heart would serve the useful purpose in emphasising the need for an early diagnosis of the syphilitic disease of the heart, and blood vessels. In syphilitic autopsies on 412 cases Etinna found 50 per cent with aortitis, while Joltrain recorded 60 per cent. In 463 cases of aortic regurgitation, 167 were syphilitic. The cases of syphilitic aortitis suffer from cardio-vascular symptoms, e.g., dyspnoea, palpitation and cardiac pain which may in some cases amount to anginal attacks. In advanced stages aortic regurgitation with its associated physical signs takes place. Therefore in syphilitic aortitis the importance and need for early diagnosis and intensive prolonged treatment is emphasised with a view to prevent gross and permanent damage of the valves.

Myocarditis

It may be acute due to rheumatism or may occur in the course of any severe infectious illness viz., influenza, pneumonia and acute septic involvement of throat. That due to diphtheria provides a characteristic example. Thus any severe toxæmia may damage the myocardium and cause failure. The chronic myocardial degeneration may be fatty or fibroid. The usual cause is coronary atheroma bringing about the condition of defective nourishment of the cardiac muscle. The heart that has withstood the strain of valvular lesion for years efficiently, or has long laboured against the burden of hypertension with impunity may show signs of breakdown. In syphilitic endarteritis obliterans of coronary vessels, thrombosis may occlude the vessels resulting in ischaemic fibrosis. The heart muscle disappears in the area deprived of blood, and aneurysm of the heart may form or its rupture may take place. If an embolism is set free sudden death may be the result.

Myocardia

It is another form of gradual development of left ventricular insufficiency occurring in persons over fifty years of age without having any relation to hypertension. This is probably endocrine in origin.

Thyrotoxicosis

It is a condition due to the hyperactivity of thyroid, and is associated with a headlong speed of the heart. There is an increase in the rate at which the blood circulates and the blood volume is also raised. The young heart can tolerate the break-neck speed at which

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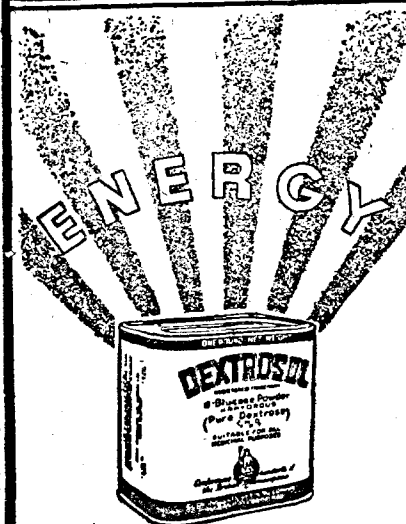
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NUTRITION

during Pregnancy

Horlicks is rich fresh milk modified by the addition of the nutritive extracts of malted barley and wheat. It contains a balanced rate of first-class body-building and energy-giving food elements, which make it a valuable addition to the diet of expectant and nursing mothers.

It is generally recognised that many cases of morning sickness can be prevented or relieved by modifying the diet and Horlicks is a useful food for this purpose. A Doctor writes:—

"My patients, while suffering from sickness during pregnancy, find Horlicks of the greatest help to them".



Many expectant mothers show a tendency to anaemia. Tests show that Horlicks remakes blood in nutritional anaemia. Another indication of the value of Horlicks during pregnancy is the opinion of many physicians that Horlicks definitely increases the quantity and quality of the maternal milk, making breast feeding possible.

HORLICKS

the heart beats for a long time; but in elderly person fibrillation of auricles soon sets in resulting in the development of congestive heart-failure. In this condition thyroid may not show any conspicuous enlargement or the hypertrophy may be concealed under the sternomastoid muscle, or the increase in the lower pole be masked behind the sternum and be invisible. Sometimes there may be no sign of protrusion of the eye-balls, and the only condition present may be extra hardness or a nodule in the glands. A steady progressive loss in weight together with over-action of the heart, the presence of fine tremor in hand and fingers, feeling of extra warmth in the skin or extraordinary toleration for cold, and sometimes the presence of auricular fibrillation reveals to mind the nature of the malady.

Restoration of stable normal rhythm by rest in bed or by the use of digitalis may be helpful in removing the thyrotoxic state. The amount of digitalis required is often unduly large and in the event of its failure to establish normal rhythm, quinidine may be useful. The question of performing a sufficient degree of partial thyroidectomy has to be considered if the measures mentioned above fail. Before operation Lugol's Iodine solution should be given in one minim doses thrice daily and the dose increased daily by one minim till thirty minims are being taken daily.

The resection should be sub-total in order to avoid the creation of one pathological entity in our endeavour to cure another, and if sufficient amount of gland be removed there is no likelihood of recurrence. Auricular fibrillation disappears and many cases resume normal rhythm while others need quinidine, which may be given in 3 or 4 grain doses every three hours for one or two days and on the resumption of normal rhythm a maintenance dose of five grains per day should be given for three or four weeks. If fibrillation persists, digitalis may be used in one drachm daily dose. The post-operative management consists in propping the patient up in bed with the head leaning a little forward to allay discomfort in breathing and swallowing. As an anæsthetic, gas and oxygen are the best although some surgeons prefer local analgesia. This is a severe ordeal for some patients and even if morphia and scopolamine is given beforehand, it not only necessitates the co-operation of the patient, but also demands a more gentle technique in operation besides precision and efficient hæmostasis.

Anaemia

The nourishment of the heart muscle suffers when there is poor blood condition, but the cardiac muscle suffers degeneration, becomes soft and flabby when the level of hæmoglobin falls below 50%, and later congestive failure develops. The pallor of the face is the marked feature and there will be no cyanosis. Oedema of the feet is the early symptom due to lack of vitality in the capillary epithelium. The measures directed to improve the quality of blood are helpful in the recovery of the heart and no permanent defect remains after recovery.

Coarctation of Aorta

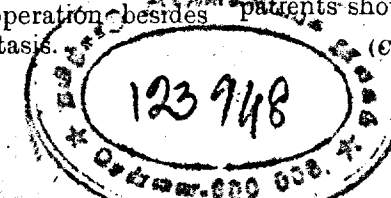
In this condition there is severe constriction of the aortic arch with the result that there is high blood pressure. The condition is a congenital malformation. The arterial pressure against which the left ventricle is required to contract may assume appalling proportions, viz., 200 mm. Hg. or even more in a recumbent posture. If constriction in aorta is situated distal to the origin of the left subclavian artery, both the arms show equal rise in blood pressure, but when occasionally the stenosis may be proximal to the left subclavian the increase in the blood pressure will be noticed on the right side whereas the pulse on the left side will be small. If the heart muscle is intact and there is no anaemia, the sufferers from this condition may live a fairly active life even upto the ages of forties or fifties.

Adhesive pericarditis

In this condition the pericardial sac is obliterated by the formation of dense adhesions. It may be of a rheumatic origin but is sometimes of tubercular nature the constriction of the sac imposes an overload on the heart by hampering the systole and there is interference during diastolic filling.

The apex beat is usually displaced and its position does not vary with the change in posture. The area of pulsation extends from the second to sixth interspace and the pulsation is wavelike. There is systolic recession of the intercostal spaces and epigastrium. There may be diastolic rebound or shock after the systolic retraction at the apex beat. Collapse of the veins of the neck during diastole (Friedrich's sign) may sometimes be present. The use of counter-irritants and internal administration of iodides are indicated after the acute stage is passed. Frequent tapings may be required to afford relief. These patients should adjust their activities in pro-

(Continued at foot of next page)



FOREIGN MEDICAL NEWS

Our London Letter

(From Our Own Correspondent)

MALARIA IN WAR

Sir Richard Christophers, while addressing the Royal Society of Tropical Medicine during Oct., 1939, said that the features of malaria when it occurred as a concomitant of war were both interesting and important. Its features, he said, were by no means necessarily those in civil administration. It might modify or even determine the results of a campaign. The first measure of control he stressed was the formation of a malaria enquiry laboratory, and secondly, anti-larval operations to protect base camps and lines of communication. He gave only a third place for quinine prophylaxis and was of the opinion that it could not be relied upon unless there was a detailed planning as to how the administration was most likely to be facilitated. He preferred mosquito-proofed huts to mosquito curtains which could not be used under war conditions. Dr. Wenyon who followed him said that although malaria was not unknown in previous wars yet it was only in the last Great War that scientific attempts were made on a large scale to control malaria in the war theatre. His Macedonian experience proved that it was possible to clear streams and carry out anti-malarial measures over half-a-mile area around the camps, although he doubted whether the transmission rate was really reduced. Neither quinine prophylaxis seemed to do much in the matter of control of infection though he admitted it controlled the disease as a whole and that the men under quinine did not often go sick. But he was of the opinion that the mosquito net did more to prevent malaria in Macedonia than all the other measures put together. Major General Marrian Perry stressed on the organisation for the laboratory diagnosis of malarial infections in the Army, through the provision of mobile diagnostic malaria units. Dr. Manson-Bahr

(Continued from previous page)

portion to their circulatory capacity and should curtail physical and mental strain in order to delay the advent of failure. Operation of cardiolysis is indicated to free the pericardial adhesions by resecting the costal cartilages from the 2nd to the 7th, together with one inch of the bone of 4th and 5th rib on the left side. Pericardiectomy is performed if the sac is thickened. The pericardium is incised and the thickened parietal pericardium is separated by blunt dissection from the whole of the anterior and lateral surface of the exposed heart. The musculo-cutaneous flap of the chest wall is sutured after the operation without any drainage.

mentioned the danger of subtertian infection owing to its short incubation period and agreed with the previous speaker as to the necessity of a well-equipped mobile diagnostic units. Sir William Wilcox, talking from his Mesopotamian experience, thought it worth while to remember that if there was an epidemic of malignant influenza it might be complicated by malaria acting in a symbiotic way. Col. S. P. James believed that it would be quite impossible to initiate successful anti-larval operations in the important war centres, and that they would prove to be futile. He favoured the concentration of methods applicable to the individual soldier rather than indirect measures. He strongly advocated the use of insecticidal sprays in barracks and out-buildings, and recommended quinine in 5 gr. dose a day to prevent at least clinical attacks.

DISLOCATION IN MEDICAL EDUCATION DURING THE WAR

The Emergency Medical Scheme which came into force recently due to the present war has deprived many of the medical teaching institutions and hospitals in Great Britain of eminent professors, and there is a consequent fear that the standard of medical education would be badly affected. It is even anticipated that as the need for more doctors becomes greater with the prolonged continuance of the war medical education would receive a great setback. The voluntary evacuation of London has further complicated the problem. There is a dearth of clinical materials and the students are distributed among casualty clearing stations. We are also short of pathologists and technicians who have either gone to the front or defensive sectors within the island itself. There is however the hope that the Ministry of Health would soon take such steps as would minimise the difficulties and help the medical students to complete their course with as much efficiency and fullness as is possible under the emergency of the kind we are facing to day.

Our American Letter

(From Our Own Correspondent)

BETTER METHODS TO CUT WAR TOLL

The American Medical Association's officials gave a picture of the role modern medicine might play in another conflict, presenting these as the chief developments that probably would result in more effective treatment: Blood banks for quick transfusions; better treatments for gas gangrene; new immunity protection, before injury, against tetanus; greater control of communicable diseases; portable X-ray machines; advances in surgery and anaesthesia; improved treatments for burns; more knowledge of nutrition.

In Spain's civil war physicians at Jorda's Institute in Barcelona asserted that blood transfusions saved at least 10 per cent. At 70 centres throughout England blood donors are being registered. In times of food scarcity, donors will be given extra rations to maintain the quality of their blood.

Another medical advance has been made in treating gas gangrene, which has an appallingly

high death rate even in civil life. In the last War the American Expeditionary Forces in France had a death rate from gas gangrene, according to the Surgeon-General's office, of 48.52 per cent. Promising results have been obtained recently by treating gas gangrene patients with a specific bacillary antitoxin. Many physicians believe the best method is surgical removal of the torn and crushed muscles and foreign matter.

New portable X-ray machines could be brought up behind the lines to field hospitals, which had no such equipment in 1918. Psychiatrists report a better understanding of "shell shock", and functional nervous disabilities in which no organic change can be found to explain the symptoms. This will decrease the number of soldiers and civilians disabled because of mental disturbances rather than because of any obvious physical injury.

For burns, tannic acid, introduced into therapy in 1925, has been accepted as the best method, if given within 48 or 72 hours after injury. It relieves pain, forms a crust which prevents loss of body fluid and acts as an impervious membrane preventing contamination of the wound. Little can be said with certainty about medical defences against poison gases, since many of the remedies and some treatments are closely guarded military secrets. Medicine's advances offer the hope, not that fewer will be killed, but that more will be saved.

POTENCY OF DIGITALIS PREPARATIONS

During the past few years, several communications have appeared in medical and pharmaceutical journals calling attention to the increased potency of the digitalis of the Pharmacopeia XI of 1936 as compared with the previous U. S. Pharmacopeia. The statement that the official drug of to-day is stronger than that of ten years ago is true, and there remains to be determined only the approximate increase in this potency.

Charles W. Edmunds, Professor of Materia Medica and Therapeutics, University of Michigan Medical School, gave a survey on this subject. The new digitalis preparation is from 25 to 30 per cent stronger than the digitalis of the 1926 U. S. P. This change was made by the adoption of the international standard powder as a standard for the United States in order to secure as far as possible international uniformity in the potency of this drug. Statements to the effect that the strength has been increased from 50 to 70 per cent, are erroneous and are based in most, if not all, instances on faulty calculations or technic, or both.

At the 1925 Conference, held in Geneva, a composite powder of digitalis obtained from different sources was adopted as the international standard, and the different countries were urged to make their own national standards conform to the potency of this blended powder. The powder was secured by Professor Cook, Chairman of the Revision Committee, and was a mixture of the drug obtained from three sources, two-thirds being of American growth, one-sixth from England and one-sixth from Switzerland. In the following table are given in milligrams the mean systolic dose per kilogram of frog for the international powder and

U. S. P. XI reference powder and in the second column are the percentages calculated from the Rowe-Pfeifle figures.

PERCENTAGE OF INTERNATIONAL STANDARD		
	Milligrams Systolic Dose per Kilogram	Percentage of International Standard.
International Standard 1926	619	100
U. S. P. XI	463	133.7

Taylor, Chairman of the Committee of Digitalis, sent to each of ten laboratories an ampule of the international powder and one of U. S. P. XI reference powder, asking that the two be assayed according to the official method in U. S. P. XI. Five of the laboratories reported an average strength of 101.3 per cent or within 1.3 per cent of theoretical perfection. The other five had various results ranging from 107 to 136, averaging 134.9 per cent. The unanimity of the first five workers far outweighs in importance the results of the second group. Edmunds cannot help but endorse the sentiments expressed by Beal in discussing the same report that "we need some method of investigating the investigators" in order to see what variations are made in the technic of the assays which account for the great discrepancies in results. It does not seem to be realized, he says, that it takes just as much experience, skill and attention to details to make an assay by biologic means as by chemical.

ONE HUNDRED PER CENT OXYGEN

The ability to administer practically 100 per cent oxygen in the inspired air, economically, efficiently and comfortably, has opened a new field for oxygen therapy,—according to research work by Walter M. Boothby, Charles W. Mayo and W. Randolph Lovelace II, from the Mayo Clinic in Rochester, Minn. The scope of oxygen therapy is broadened because the oxygen can be given in any concentration up to pure oxygen, thus enlarging the field of treatment to include diseases that are benefited by high concentrations of oxygen and which do not respond much, if any, to lower concentrations. Inhalation of 100 per cent oxygen does not cause pulmonary irritation if administration is not maintained continuously for more than two days: after two days, lower concentrations should be used. Thereafter the flow of oxygen and the airports be so adjusted that the patient receives from 50 to 70 per cent oxygen. On the other hand, the authors have administered 100 per cent oxygen intermittently for several days without the slightest trace of pulmonary irritation.

The conditions which chiefly can be benefited and often prevented by early inhalation of 100 per cent oxygen are traumatic or surgical collapse or shock, abdominal distension, headache following encephalography, certain types of migraine, profuse pulmonary edema, massive collapse of the lung, pulmonary embolism, angina pectoris and some other cardiac conditions, infections due to anaerobic organisms such as those of gas gangrene and

tetanus, and possibly certain infections due to partially anaerobic organisms.

In acute pulmonary edema the inhalation of 100 per cent oxygen is of very great benefit; in some cases, its inhalation under slight positive pressure (5 cm. of water) has an additional favourable effect. Pulmonary embolism is another condition in which the dyspnea, distress, anoxemia and resulting shock in some instances can be dramatically relieved. Many types of heart disease will respond more favourably to a standard therapeutic procedure if 100 per cent oxygen also is administered. Relief of the pain of angina pectoris sometimes is obtained with striking rapidity.

Oxygen therapy should be used early in the course of a disease, as an adjunct to other well established procedures. It is not a panacea. It is rarely of value as a last resort.

DRUG DETECTIVES

The new drug legislations has made an end to a difficult situation for all officials who had to administer the existing and insufficient laws. The Food and Drug Administration has put up a five-year fight to win these new powers from Congress. In the end, it was only the wholesale tragedy of the 107 victims of the Elixir Sulphanilamide that persuaded Congress to take action.

In this catastrophe the fact was revealed that the Food and Drug Administration was able to seize the dangerous goods only because of a technical error. The Massengill product which caused the poisonings, had been called an "elixir". According to federal standards an elixir must contain alcohol and the Massengill medicine did not. Had the product been labelled a "solution", the Food and Drug Administration would have been powerless to act (at least legally) though a hundred people died.

The difficult task of the Administration officials, the "food and drug detectives", has been described clearly by E. R. Keyes. The real backbone of their work is built of the day-to-day routine seizures of contaminated food and below-standard drugs. Products diverted to the dump heap last year included: 2,600,000 lbs. of maple syrup dangerously contaminated with lead from syrup-making equipment; 758,000 lbs. of worm-infested Canadian Whitefish; 3,700,000 lbs. of condiment seeds containing insect and rodent excreta; 6,000,000 lbs. of insect-infested dafes; 37 shipments of non-sterile surgical supplies.

Each year, the Bureau selects for special investigation a dozen or so divisions of the drug industries. Recently, it has made check-ups on jams and jellies, candy, macaroni, flour, frozen fish, tomato products, pecan meats, head-ache and cold remedies, contraceptive devices, and bandages and surgical dressings.

In the last fiscal year, according to Keyes, the Government spent 1.1 cents per citizen to protect the public against the ever-present threat of poisonous foods and dangerous drugs, while it spent about 1 sh. a citizen on naval armament against the remote threat of an armed invasion.

INDIAN MEDICAL NEWS

(From Our Own Correspondent)

IPECAC CULTIVATION

There are suitable localities in India where Ipecac, one of the most widely used amongst vegetable drugs and one of the few known remedies for dysentery, can successfully be grown, according to a recent survey by the Industrial Section of the Indian Museum, Calcutta (Botanical Survey of India). A considerable quantity of the crude drug is at present imported into India, but with judicious cultivation India may make herself largely independent of foreign supply.

The drug of commerce is the root of the plant popularly known as Rio or Brazilian Ipecac. Most of it is produced at Matto Grosso in Brazil. The United Kingdom and the United States of America, each imports about 50,000 pounds a year.

Ipecac is slow to grow and demands careful supervision, cultural skill and much labour. The difficulties attending its successful cultivation have deterred many in India from taking it up as a commercial proposition, even though its requirements regarding soil, temperature, moisture and shade are fairly widely known. Experimental cultivation may, however, be started in small plots and the areas expanded as cultivation proves successful.

Nearly allied to cinchona, the plant is indigenous to the dense, humid tropical forests of South America. In fact, it thrives best in forest areas, preferably on river sides with a sandy loam of loose texture, rich in potash, magnesia and lime. An annual rainfall of 90 to 100 inches distributed over monsoon, winter and spring and annual temperature varying from 56° to 100° F. and a fairly even temperature throughout day and night are amongst other desiderata. Frost is detrimental to its growth.

Areas satisfying the above conditions are found in different parts of India; Jorhat and Srimangal in Assam, Morlang, Kaliganj, Chittagong and Jalpaiguri in Bengal and the Balasore district of Orissa are a few of the localities that fulfil the requisite climatic conditions. But the nature of the soil in these areas should be studied before plantation is attempted.

For the first time in 1866, a parent plant was introduced into India by the Royal Botanic Gardens, Calcutta, from Kew. Nine plants were raised from it and five sent to the Cinchona Plantations at Mungpoo in Darjeeling. By 1933, there were over 226,000 plants in Mungpoo.

Indian Product's Qualities: The plant has been tried in various places in Madras, but the quality of the product was not satisfactory. It was, however, felt that mineral phosphates for manure and natural trees for shade would give better results.

Analysis has shown that in its emetine content, the Indian grown drug compares favourably with the Brazilian root which fetches good prices.

From the Indian stock, the plant was taken to the Federated Malay States. By 1887, the drug from Johore was placed in the market. Johore Ipecac has even now a ready sale. It is also successfully cultivated in the Highland and Lowlands of Selangor and at the Central Experimental Station, Serdang, Malay.

The plant is grown either from the roots of mature plants or from the top and side shoots or from the perfectly matured but not old leaves. Roots or shoots sliced into small pieces about a quarter of an inch length or leaf stalks with the lower third of the blade are planted not less than three inches deep in pans containing fine sand. They are kept under cover, are well-watered but not saturated and are protected from drying draughts and direct rays of the sun, but given free ventilation.

Careful Nursing Needed: Callus is formed in two or three weeks and in another five weeks, when the young plants are about an inch and a half, they are potted out about four inches apart into other pans with a layer of broken porous crockery covered by a thin layer of cocoa-nut refuse or half-rotted leaves. The soil above is made up of two parts of thoroughly-rotted leaf mould, one part of sand and one part of old manure.

When the plants are four to six inches high, that is in about six months, they are transplanted 12 to 18 inches apart in well-prepared beds raised one foot above the ground. The soil in the beds is previously trenched to a depth of at least two feet to allow the roots to penetrate. Shade is provided throughout the period of growth, and the soil is kept moist, but not allowed to become sloppy. At intervals of about a month, the surface soil is made loose by light forking to a depth of two to three inches. The beds are to be freely manured with cattle or other dung, as the plant is fond of rich feeding.

Yield per Acre: The plant grows as a small ever-green bush to a height of three to four feet. The root is harvested at two to two and a half years from the date of planting in the permanent beds. A healthy plant gives six to eight roots which, when dried, weigh one to two ounces.

In large-scale production, the average yield is usually much less, the estimated weight of dried root being about 600 lbs. per acre, per annum.

Roots are dried as quickly as possible. They should be protected from dew at night, if the common method of sun-drying is adopted. Artificial heat can, however, be used and drying accelerated, without affecting the quality of roots.

Propagation of the plant from seeds is also not unknown. In Mungpoo, 60,000 plants were raised in this way in 1922-23. The germination period of the seed varies from one month to twelve months, but 30 per cent of seeds are found to be sterile.

AN INTERESTING MEDICO-LEGAL CASE IN THE LAHORE HIGH COURT

Does a man really become insane when he runs amok?

This question was put to the Superintendent of the Punjab Mental Hospital by a Division Bench of the Lahore High Court consisting of the chief Justice and Mr. Justice Bakshi Tekchand, when a murder case appeal came up for disposal before Their Lordships on Dec. 4, 1939.

Replying to the question, the Superintendent said that, as a psychologist his explanation was, "we all know that when an officer has his tail twisted by his wife he is angry with his subordinates. Similarly, a wife after a row with her husband gives a thrashing to the children and sacks her servant, while none of them deserves it. The reason is, that in these cases there is a free floating anger which attacks the nearest object." Referring to the appellant in present case the Superintendent said that he kept the man under his observation and found him perfectly sane.

After examining the Superintendent, Their Lordships dismissed the appeal and confirmed the sentence of death.

The prosecution story was that the accused ran amok and flourishing his 'kirpan' shouted about the streets of a village, like a man possessed, that evil days had come. First of all he killed his son, then a neighbour's wife, besides severely wounding his own wife and various other persons in the village.

HEALTH SURVEY IN ASANSOL COLLIERIES

Arrangements have been made to start a leper settlement near Asansol to segregate leper beggars and highly infectious cases from collieries and villages.

A re-survey made during 1938 revealed the incidence of leprosy as 1.6 per cent among the general population and 2.3 per cent among the students of primary schools. Nearly 3,000 cases were registered for treatment in 14 clinics out of 5,600 cases detected. As a result of treatment 89 patients were discharged cured, 183 were declared symptom free and 40, who were infectious, became non-infectious.

Intensive anti-malaria operations have been carried out by Asansol Mines Board of Health in four malarious areas. To stimulate and supplement local efforts, a partial campaign was also undertaken in six other areas. The campaign included pre-epidemic cleaning out of tanks, treatment of breeding places by spraying and abolition where possible. Inoculation of private wells with a local larvacide fish—Dankono—has met with considerable success.

The Board carried out a tuberculosis survey for a period of six months among a group of miners and also retired miners to find out the incidence of tuberculosis infection. A boys' school and a girls' school were included in the survey.

The medical arrangements at the collieries were overhauled, the unqualified doctors being replaced by registered practitioners. Indoor beds have been provided at many collieries.

The steady effort made during the last few years to get the mining population protected by

means of revaccination, has been effective in controlling small-pox infection, the attacks being few. The total number of revaccinations during the last five years was nearly 309,000, while children and adults primarily vaccinated numbered 77,000. The colliery population enjoyed better health than the general population, the mortality rate fluctuating from 10.1 per thousand to 10.6 against a variation between 17.9 per thousand in the general population.

DR. MUTHU'S PLEA FOR REVIVAL OF INDIAN SYSTEMS OF MEDICINE

Dr. Muthu in his presidential address to the Siddha Physicians' Conference held at Madura during the second week of November last stated that the Siddha system of medicine was contemporaneous with the Tamil civilisation and literature which existed many centuries before the invasion of Aryans from North India. It was significant that while Siddhas placed great importance on salt and minerals, the modern science of Biochemistry taught that the deficiency of mineral salts in the human body was the main cause of disease and decay and that health could be restored and disease averted if the various organs and tissues were supplied with those deficient minerals.

Dr. Muthu further stated that the Siddhas laid great stress on breathing exercises which they claimed possessed psychic powers and asserted that man was more than body and that beyond the physical, there was the psychic and the spiritual, which widened their perceptions and intuitions and revealed the inner secrets of life. Here again the modern methods of psycho-therapy and faith and spiritual healing were anticipated by their ancestors, who believed that mind and spirit had a profound influence over the body in health and disease.

PHARMACEUTICAL DIPLOMA

The Pharmacy Committee appointed by the Bengal Government has just now submitted its report recommending the establishment of a College of Pharmacy and advising the Government to initiate legislation ensuring that only qualified pharmaceutical chemists should be allowed to carry on the druggists' business in future.

The report of the Committee includes among other things, the detailed syllabus of diploma course of two years' duration after Matriculation and a degree course of three years' duration after I. Sc., and an estimate of the capital and recurring expenditure likely to be involved in the establishment of the college.

If the scheme is given effect to, it has been estimated that Rs. 3,65,000 (including the donation of Rs. 2,00,000 promised for the purpose by Dr. Anklesaria) would be required for capital investment and Rs. 40,000 for recurring expenditure (excluding receipts from student fees, etc.). The Committee appeals to the Government for sympathetic consideration of its proposals. It further recommends that there should be legislation to control the profession of pharmacy in Bengal, as it thinks that without legislation, the scheme for the establishment of a College of Pharmacy and imparting pharmaceutical education to the youths of the province will not be successful.

The Government of Bengal are now considering the recommendations of the committee.

TUBERCULOSIS NEWS AND NOTES

Opening of Tuberculosis Hospital at Amritsar by the Vicerine (1-12-39)

Requesting Her Excellency to open the institution, Rai Bahadur Gujjarmal announced another offer of Rs. 40,000 for a sanatorium to be built between Pathankot and Dalhousie to provide suitable accommodation for the patients of the sanatorium at Amritsar. He said that in 1930, he fell ill and took a vow that after recovery he would do something in the name of God which might be of some little service to His creatures. He, therefore, offered a sum of Rs. 50,000 for building a hospital at Amritsar and later offered another sum of Rs. 10,000. When Her Excellency Lady Linlithgow opened a fund in the name of His Imperial Majesty to combat tuberculosis throughout the country, he expressed his willingness to have the sum offered by him transferred to this fund.

"Hundreds of thousands of families in our country have been wiped out by tuberculosis", said the Rai Bahadur, "and the city of Amritsar alone loses 400 precious lives every year through this disease. Even if one life is saved by this hospital, I shall be satisfied that the institution has done its duty and that my money has been well spent."

Associating himself with H. E. the Governor of the Punjab in welcoming Her Excellency, the Hon. Mian Abdul Haye, Education Minister, expressed his profound gratitude for Her Excellency's wide sympathies and deep solicitude for the suffering millions.

The Minister added that the Punjab Government contributed Rs. 49,000 annually as grants-in-aid towards the maintenance of tuberculosis institutions and sanatoria in the province. An elaborate scheme had been formulated further to arrest the progress of this fell disease. The scheme contemplated the stimulation of public opinion by means of propaganda and publicity, the opening of tuberculosis clinics, etc., and the adoption of preventive measures such as medical examinations of school children, free supply of milk to poor and under-nourished children and training in cleaner and more hygienic ways of living.

HER EXCELLENCY'S SPEECH

In opening the Sanatorium, Lady Linlithgow spoke as follows:—

"It will not be hard for you to realise what very real pleasure it gives me to open this sanatorium to-day. My interest in tuberculosis is now widely known, and each time that I see a new building of this kind, I look upon it as a step towards the fulfilment of my dream, a dream of an India free from one of her most deadly foes. It will take time but I do feel that unlike most dreams it will not fade away with the dawn. On the contrary, the dawn of each day will bring it nearer to fulfilment, shedding the light of knowledge and of progress amongst the millions of India's people."

"We are here to-day to bear testimony to the generosity of Rai Bahadur Gujjarmal in building this sanatorium and he has told us the story of his illness which gave him the inspiration and of his vow to do something for suffering humanity. He has by this act further enhanced the claim of this city as being famous for its charitable and religious works. I have also to acknowledge another magnificent donation by Rai Bahadur Gujjarmal of Rs. 40,000 for a sanatorium in the hills which is now being considered, and I would like to thank him most warmly for this further act of generosity."

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Lt.-Col. McRobert's Appeal to the Profession

(The following appeal was made by Col. McRobert while addressing the Post-Graduate Students on the Role of the General Practitioner in the Prevention of Tuberculosis during the October 1939 session of the Post-Graduate course in Tuberculosis. It is extracted from the Medical Practitioner with due acknowledgment. Ed. I. M. J.)

The early diagnosis of pulmonary tuberculosis is by no means easy and the practitioner should seek the aid of the specialist or clinic for help in suspected early cases. Even the specialist with X-rays at his command may be unable to give a definite opinion at the first examination as there is generally nothing sufficiently characteristic about a single X-ray film to justify a diagnosis of tuberculosis in an early case. By taking a series of plates at intervals, shadows may be seen forming some two or three years before symptoms present themselves. The function of the general practitioner is to investigate carefully all cases of cough, expectoration, haemoptysis and chronic fever with loss of weight and to co-operate with experts in the prevention of early cases from turning into cavity cases, for, it is these which spread the disease. The procedures to be undertaken for the actual shutting up of cavities are beyond the range of service of the general practitioner. Much can be done by the family medical attendant to remove factors which have an inhibitory influence on good health. The removal of protozoal and helminthic infections can be performed by him. Great irritation is caused in the lungs by the passage of the larvæ of such helminths as ascaris and ankylostome.

A doctor well versed in the principles of nutrition can advise about the wise spending of the family income and in particular he can divert some of the lakhs of rupees which have flowed out of the country from the purchase, often by very poor persons, of elaborate patent pharmaceuticals when simple preparations of cod liver oil and malt would serve the same purpose.

Care should be devoted to inspection of the sleeping quarters of the family and if the infective patient cannot be removed he or she must be isolated on a verandah or screened off beside a window. Too much stress cannot be laid upon the necessity for improving the oxygen carrying power of the blood. Anaemia is very prevalent and can be cured by a few pice spent on iron much more readily than by many rupees spent on proprietary preparations. The general practitioner must of course keep his eyes open for causes of chronic fever and wasting other than tuberculosis and I feel strongly that every patient should see a general practitioner or general physician before consulting a specialist in one particular disease as chronic urinary infection and chronic hepatitis are apt to be missed.

In conclusion I would plead for a helpful attitude towards the tuberculosis patient and for the abolition of the too-often prevailing tone of the practitioner in the newspaper advertisements, who with minatory finger and awful mien "condemns to death from tuberculosis" the father who did not drink his particular brand of cough syrup. Tuberculosis of the lung is a common disease. Most of us get it at some time or other and the majority recover without knowing that they have had it.

Let us then do our best by applying known principles of hygiene and therapeutics, to increase the disease resisting and body-building powers of our patients, and when we do have an infective case let us think not only of our patient but of all those around him to whom he may spread the disease and from whom he may have caught it.

A BIOLOGICAL LABORATORY ITS GROWTH AND PROGRESS

About a quarter of a century back physicians of India had to depend solely upon foreign drugs, specially Sera and Vaccines, for treatment of patients. As a result, the country was faced with a very serious situation during the last war when supply of foreign medicines was totally stopped and consequently doctors had to watch helplessly their patients dying without any medicine. This was a condition very grave for the country, but it must now be admitted that this was not altogether an unmixed evil. *Necessity is the mother of invention*, and this critical situation set athinking the medical profession of the country and gave really an impetus to some of the renowned physicians of this metropolis to start a company for manufacturing biological products under the style of "The Bengal Immunity Co., Ltd."

Since its establishment, this Company has been serving the medical profession and the public with its varied products—biological, chemical and indigenous—all of which have earned reputation for their purity and standard quality. The Bengal Immunity Company, the pioneer in the field of manufacture of Biological Products in this country, can justly be proud of this noble achievement. The high standard the Company has attained in the quality and in the technique of production, the efficiency with which the whole concern is managed, its unfailing attention to the need of the medical profession and general public have rightfully earned for this premier concern an enviable position among manufacturers of Biological Products in this country.

The fully equipped laboratory of the Company replete with all the most up-to-date apparatus is really an acquisition to be proud of. The research departments have been vastly extended and improved while new lines of investigation have been taken up not only to meet the exigencies of the time but also to explore the hitherto untrodden fields in the cause of medical science. For better efficiency and control, all departments are subdivided into various sections and each section has been placed under an expert who has specialised particularly in that very line only.

Full credit of today's success must entirely go to its Managing Director Captain N. N. Dutt under whose able and watchful management and superior guidance and direction, the Company has risen to its present stature and figured as the best among the manufacturing concerns of Biological and Pharmaceutical products in the East.

Today in 1940 we stand once again face to face with a grave international situation due to the outbreak of war among the Western nations and its inevitable consequence, namely, complete stoppage of supply of foreign drugs—particularly medicinal preparations. But we do not feel so helpless today as we did in 1914. If the supply of foreign medicines has been stopped to day there are Indian Concerns to meet the demands of the country and it can be said that there is no risk of patients dying any longer without medicine. It is at this time that the great contribution of the Bengal Immunity Co. to the cause is rightly remembered.

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EXTRACTS

Probable Effects of Vitamin A Deficiency

Arthur M. Yudkin (*Bulletin of the New York Academy of Medicine*, June 1939, p. 406) writes in the course of his review on vitamin A therapy that although vitamin A deficiency is practically unknown in nurslings, nevertheless, when the mother suffers from malnutrition, the nursing will also present manifestations of deficiency disease. The usual history of this type of disturbance reveals that the infant has been fed on a diet containing either insufficient milk, prepared milk, or no milk products at all over a period of at least one or two months; in many instances a digestive disorder may precede the onset of symptoms resulting in a diminished food intake together with imperfect absorption of the food consumed. Simultaneously there is a failure to gain in weight, and this may be followed by an actual weight loss. The normal activity of the child is diminished. The skin may become dry and scaly. In older children the eyes may show a viscid, stringy conjunctival secretion, and matting of the lids. When the discharge is removed the cornea is clear and the conjunctiva is not congested. There is present a marked photophobia and blepharospasm which is aggravated by exposure to light. As the condition progresses, a dryness of the bulbar and palpebral conjunctiva takes place with a typical Bitot's plaque adherent to the exposed conjunctiva of the eyeball. The cornea may now show small single or multiple ulcers which, if unchecked, go on to perforation of the cornea. Sooner or later hypopyon may result. In older children the eye condition often does not progress beyond a xerosis conjunctivae, and corneal destruction is less frequent even with a long period of vitamin starvation. In infancy the course of the disease is more rapid. This may be due to the greater need of the vitamin for growth. As the disease progresses, intercurrent infections of the skin, lungs, and urinary tract may occur, and finally the condition may terminate in bronchopneumonia or a diarrhoeal disorder.

Characteristic lesions of the human skin have been attributed to vitamin A deficiency. The lesions usually occur in sexually mature persons between sixteen and thirty years of age. They are much more frequent in men than in women. The disturbance appears first on the anterolateral surface of the thighs and posterolateral portion of the upper forearm and later spreads to the adjacent areas of the skin. The lesion consists of small pigmented papules at the site of the hair follicles. At first they appear as papules with keratitic plugs; later some of them develop into pustules. The skin is dry and scaly. Atrophy of the sweat glands and keratinizing metaplasia of their ducts are responsible for the condition. There is a general increase in the pigmentation of the skin.

It has been suggested that gastric ulcers may be associated with vitamin A deficiency, but this condition is rather rare in the laboratory animals and in man. Likewise it has been said that diets deficient in vitamin A may cause urinary calculi. This assumption was based on the presence of urinary stones in experimental animals deficient in vitamins A and D and unbalanced in mineral content. This finding has not been corroborated by most investigators. Clausen points out that although urinary calculi may be produced in experimental animals by feeding on special diets, the factors involved are not yet clearly defined.

Although the vaginal mucous membrane becomes permanently cornified in animals deprived of vitamin A and the vaginal smear may be used as a method for the detection of the deficiency, the effects of moderate deficiency of vitamin A on fertility in man are unknown. Bessey and Wolbach, however, believe that atrophy of the testes and keratinizing metaplasia of the uterine mucosa may be expected in human adults.

Treatment.—Obviously two lines of therapy suggest themselves: (1) the use of a high vitamin A diet, and (2) the administration of the concentrates or the pure substance in large doses. Inasmuch as the relief of deficiency symptoms seem quite definitely related to the amount of the needed factor supplied, up to the ability of the organism to utilize the vitamin, it is evident that the use of a high vitamin diet is of value chiefly in prophylaxis and in support of other therapy. It would probably be impossible to give the most effective therapeutic dosage simply by feeding on excellent diet. The use of various concentrates and the pure vitamin, when it becomes available, is definitely indicated therefore when marked symptoms of vitamin A deficiency appear. Patients suffering from this deficiency disease should be treated with a form of vitamin A that can be completely utilized. When cod-liver oil or other fish oils are not tolerated their concentrates are valuable. Some clinicians use carotene in these cases. In urgent cases where the digestion will not tolerate these substances, it is possible to administer vitamin A by an intramuscular injection of a cod-liver oil concentrate or the pure substance when it becomes available. In the advanced cases which occur so frequently in infancy, the digestion is often disordered and this must be treated carefully in order to allow the proper absorption of the vitamin A administered.

Haematology in General Practice

David Mitchell (*Irish Jr. of Med. Sc.*, Sep. 39, p. 644) gives an useful summary of haematology. Many patients, he writes, with quite low haemoglobin have their anaemic state concealed under a sun-burnt skin. While the conjunctivae, nails and mucous membranes afford a fairly reliable clinical guide, to be certain of the presence or absence of anaemia the haemoglobin should be estimated. This is the most important single investigation in blood examination and can be easily and quickly carried out by the practising physician. The Tallquist method is too misleading to allow its simplicity to recommend it. The Sahli method is probably the best, and the "Neoplan" instrument of the Hellige Company allows an accurate reading to be taken from a finger prick in five minutes. If the reading is less than 85 per cent. further investigation should be undertaken. Frequent haemoglobin estimations have several advantages. The patient is saved the expense of full blood examination in the case of the pale person with a normal blood; on the other hand, surprisingly many cases of anaemia are recognised in their earlier stages; furthermore, to follow the effect of treatment, haemoglobin estimations alone are sufficient when the type of anaemia has already been established by a full examination. If the haemoglobin is found to be below 85 per cent., the further investigation necessary is in most cases outside the scope of the physician in general practice. In order that he and his patient may get the best value from the haematologist or clinical pathologist, two things are essential: (a) that the blood be collected in the most suitable manner, and (b) that the tests most suitable to the case be asked for.

From the oxalated blood the following examinations can readily be made: (1) Red cell count, (2) Haemoglobin

percentage, (3) Mean corpuscular volume, (4) White cell count, (5) Platelet count, (6) Percentage of reticulocytes, (7) Fragility of red cells in hypotonic saline, (8) Sedimentation rate, (9) Icterus index or Van den Bergh test.

Nature of examinations to be undertaken: It is rarely necessary to perform all the nine possible examinations listed above. The best co-operation between the practitioner and the clinical pathologist is obtained if a concise account of the clinical condition and the name or names of the blood diseases suspected are submitted with the blood. The laboratory man is then enabled to give the clinician a satisfactory answer with the least expenditure of time and energy. This is particularly important as nowadays most cases of anaemia have already had some treatment with liver or iron or even both and are sent for haematological investigation only if the response to treatment is poor. This partial treatment always obscures the diagnosis to some extent and if such treatment has been given, the fact should be mentioned when sending specimens.

Significance of Various Findings. (1) R. B. C. and Hb.—These figures indicate primarily the balance between the rate of blood destruction and the rate at which cells are leaving the marrow. The average amount of haemoglobin per red cell (colour index) is normally 1, and is related to the cell size as follows:—

Haematological type	Colour Index	Mean Vol. of cells	Concentration of Hb. in cells	Clinical type
Normocytic	1	Normal	Normal	Aplastic anaemia
Macrocytic	1.3	Increased	Normal	Pernicious anaemia
Simple microcytic	0.1	Decreased	Normal	'Secondary' anaemia due to toxins, etc.
Hypochromic microcytic	0.5	Decreased	Diminished	Iron-deficiency anaemia

(2) **Mean Corpuscular Volume:** This is easily determined. The red cells are packed to constant volume by centrifuging in a haematocrit tube of the Wintrobe type and the volume of packed red cells divided by the total number of red cells in the same volume of whole blood. The mean corpuscular volume is a more useful criterion of the type of anaemia than the colour index, which, as has been noted has two variable components, the cell size and the concentration of haemoglobin in the cells.

(3) **White Cell Count:** This should always be considered in conjunction with the differential count. Since the polymorphonuclear leucocytes are more affected by disease processes than the others, leucocytosis is usually produced by an increase in the number of these cells in response to an acute infection, while leucopenia, as seen in enteric fever or pernicious anaemia, is due to diminution in the absolute number of the granular cells with a resulting relative increase in the lymphocytes.

(4) **Platelet Count:** This is probably the least satisfactory of the examinations of the blood. In spite of the fact that numerous methods have been devised,

none is entirely satisfactory. Two points are of practical importance: one is that an experienced observer can exclude any severe decrease in the number of platelets by examining good blood smears; the second is the value of the "tourniquet test". If no petechiae appear on the forearm after a sphygmomanometer cuff has been left on at the diastolic pressure for five minutes, no significant decrease in the number of platelets is likely.

(5) **Reticulocytes:** Normally somewhat less than 1 per cent. of the red cells have a reticulum. As this is only present during the first three or four days of the life of the red cell, it follows that an increased number of reticulocytes means an increased rate of liberation of new cells from the marrow into the blood. Reticulocytosis thus occurs transiently during treatment when the deficiency is made good and the marrow pours out a large number of new normal cells; it also occurs permanently in acholuric jaundice where the marrow by overactivity compensates for the increased rate of haemolysis.

(6) **Bilirubin of Serum:** Just as the degree of reticulocytosis is a measure of the rate at which new red cells arrive in the blood stream so the amount of bilirubin in the serum is a measure of the rate at which old ones are being removed. Thus the bilirubin is increased in the haemolytic anaemias proper and in pernicious anaemia where, as well as abnormal production, increased destruction occurs.

(7) **Fragility:** Important only in acholuric jaundice. The abnormally spherical red cells in this condition are much less resistant to hypotonic saline solution than are normal cells.

Treatment (1) *Hypochromic Microcytic Anaemia:* This is always due to lack of iron, whether from insufficient intake or from loss of iron by repeated or continued bleeding. Treatment consists of discovering and checking any source of bleeding, and in giving adequate amounts of iron salts by mouth. The most satisfactory and simplest preparations to use are either ferrous sulphate (12 to 18 grains a day) or iron ammonium citrate scales (grs. 30 t.i.d.). Iron is absorbed in any amount only from the upper part of the small intestine and it is therefore useless to give iron by injection; haemoglobin itself is ineffective; and organic or colloidal preparations of iron or the inorganic salts in the ferric state are relatively inactive.

(2) *Normocytic and Simple Microcytic Anaemia:* The toxins of chronic nephritis, tuberculosis and other chronic inflammations, the invasion of a secondary carcinoma or other tumours, the action of x-rays or radium, or poisoning by benzol or the heavy metals may all interfere with the blood-forming function of the marrow. Lastly, the marrow become aplastic for no known reason. Both red cells and haemoglobin are progressively reduced in amount. The cells may be smaller than normal but contain a normal concentration of haemoglobin. Thus a normocytic or simple microcytic anaemia with some lowering of the colour index results. The white cells are usually reduced in number except in toxic cases. The serum is pale as there is no increased blood destruction. Unless the cause can be identified and removed, treatment is unsatisfactory. Continued transfusions are of temporary benefit, but may be the decisive factor in recovery by tiding the patient over till the marrow regains sufficient function after the damaging element has been removed.

(3) *Pernicious Anaemia:* The treatment of pernicious anaemia is now so well understood that satisfactory results are obtained in almost all cases. Theoretically

the anaemias of this group may be treated with either stomach or liver extracts, the later being given orally or parenterally. In practice the parenteral liver extracts are so convenient and now uniformly potent that they are to be preferred. In cases where absorption from the intestine is poor, this is, of course, the only method. The more crude extracts in one c.c. doses every second day quickly bring about a remission and the blood can then be kept normal by injections of the highly concentrated extracts given at intervals of some weeks.

(4) *Anaemia due to blood Destruction*: Normal red cells may be broken up in the circulation by extrinsic agents, such as phenylhydrazine, sulphonamide or lead, malaria, or haemolytic streptococci. Or abnormal cells may be too rapidly destroyed by the spleen, as in acholuric jaundice and, as has been seen, in pernicious anaemia. In cases where the bone-marrow is normal, the anaemia is usually not severe. The haemolytic nature of the process is readily recognised by the yellow serum due to hyperbilirubinaemia. In acholuric jaundice, the essential abnormality of the red cells is recognised by the "fragility" in hypotonic saline solutions. In the cases of extrinsic origin, the causative agent must be removed. In acholuric jaundice splenectomy while not remedying the abnormality of the red cells, often corrects the anaemia and jaundice by slowing the rate of destruction.

(5) *Polycythaemia Vera*: Here for some unknown reasons the marrow is hyperplastic. The blood contains red and white cells in increased numbers; the total plasma volume likewise is increased. There are three methods of treatment. Diffuse long distance x-ray treatment ("spray therapy") exposes the red marrow throughout the body to the rays with destructive effect on the marrow; the only drawback to this form of treatment is the difficulty of controlling the dose, as overdosage can easily produce aplastic anaemia. The other methods do not attack the abnormality of the marrow but merely reduce the amount of circulating blood. Phenylhydrazine (gr. 1½) may be given for one or two weeks and then stopped; the haemolysis produced continues for some time longer: later a maintenance dose of 1½ grains once or twice a week will keep the cell count within normal limits. The third method consists of repeated venesection; this has the advantage of reducing not only the number of cells but the volume of plasma. The only objection to this method is that repeated removal of blood stimulates the marrow further.

(6) *Leukaemia*: In the acute forms and in chronic lymphatic leukaemia, treatment of any kind has little effect. In chronic myelogenous leukaemia, however, the patient's life can be considerably prolonged by treatment. X-ray treatment of the spleen is probably the most satisfactory; where this is not available, gradually increasing amounts of Fowler's solution produce considerable reduction in the number of leucocytes. In several American clinics it is now the custom to treat myelogenous leukaemia with arsenic as long as it produces any effect, reserving the more potent radiotherapy for the later stages of the disease.

(7) *Agranulocytosis*: The important points about this rare condition are the sudden onset, often with fever and ulceration of the throat, while the blood shows almost complete absence of polymorphonuclear cells, but relatively little anaemia. Treatment consists of identifying and stopping any drug, such as amidopyrin, N. A. B., or gold, to which the patient may be sensitive and in giving large amounts of pentonucleotide.

(8) *Purpura*: When one is satisfied that the purpura is primary and not merely symptomatic on some condi-

tion such as acute leukaemia, the question of splenectomy must be considered. The operation produces the most marked results when the platelet count is very low and after blood transfusions have been liberally given.

(9) *Scurvy*: Mild scurvy is not as rare in this country as might be supposed. The response to vitamin C is usually remarkably satisfactory. The possibility of scurvy should be kept in mind when dealing with obscure anaemia associated with bleeding.

(10) *Haemophilia*: True haemophilia is rare. The disease almost always shows itself in infancy. The clotting time of the blood is so much increased as to leave the diagnosis in no doubt.

Senile Cataract: The Usual Method of Operating in India

W. A. Fisher (*Am. Jr. of Ophthal.*, July 1939, p. 765) gives an interesting review of the operative methods in senile cataract adopted by ophthalmologists in India. He writes as follows:

So much has been written describing the different methods of operating on senile cataract, that it has been suggested some surgeons operate on one hundred senile cataracts by the capsulotomy method, one hundred by the Smith intracapsular method, one hundred by the Barraquer method, and one hundred by the blunt forceps method.

To find a surgeon equally skilful in all four methods would be difficult, and his conclusions might be misleading. My belief that I can come as near at this time to making an unbiased report as I could by waiting for more experience is my excuse for offering this report. To give a wholesale report of the operation of senile cataract one must consult the Indian literature. My report will consist largely of what is found in Indian literature, together with some personal experience.

The Bombay Medical Congress in 1909 was divided into sections and was conducted in the same manner as the annual meetings of the American Medical Association, and the intracapsular operation for senile cataract was the topic of the ophthalmological section.

At the time of this meeting there were two schools of thought regarding the operation of senile cataract, one headed by Colonel Henry Smith and his followers, advocating the intracapsular operation; the other headed by Professor Maynard of Calcutta, Professor Elliot of Madras, and Professor Herbert of Bombay, representing the capsulotomy method.

The meeting seemed to be one-sided, and all the senile-cataract papers were discussions of the intracapsular operation by the Smith method, and practically all who read papers dealing with senile cataract had received their instructions from Colonel Smith.

There did not appear to be any opposition at the meeting to Smith's method of operation, and one would naturally suppose, after reading the papers of the eye section, that Smith's method would be followed by all ophthalmic surgeons, but Smith probably overstressed the fact that his specially trained assistant was indispensable. Naturally, a good assistant is an asset, but he or she is also an asset in the capsulotomy operation as well as in the intracapsular. Two nurses can be made good assistants in a very short time by holding the eyelids open upon each other, using Fisher's lid hooks after instilling two or three drops of two-per-cent butyn in the eyes, and a similar amount three minutes thereafter.

I am in agreement with many good surgeons that the only way of obtaining the Smith technique is to go to Smith and receive his personal instruction. I held this opinion, and operated in his clinic at Amritsar, India, in

1913, when in four weeks I operated upon 563 eyes for senile cataract with Smith watching and coaching me.

At the first dressing of my first fifty cases there seemed to be far too many cases of prolapsed iris. When I told Colonel Smith of this complication he simply said, "Your hand is too heavy," and added that I would notice fewer complications in my next fifty cases. He was right. My hand was too heavy at first, and when I loosened up a bit the iris prolapse was less frequent.

Smith (*Indian Medical Gazette*, 1922) and Smith's book, "Treatment of Cataract," 1928, page 81 advised many operations upon the eyes of six-week-old kittens as the best method of obtaining skill in technique. Holland expressed the same view (*Eye, Ear, Nose and Throat Monthly*, January 1925) and stated that if the student operated upon one hundred kittens (two hundred cataract operations) before operating a human eye, he would get more satisfactory work in the Holland Clinic than by any other method.

The afore-mentioned meeting of the Bombay Medical Congress lasted three days, and the eye section had many interesting papers dealing with diseases, some of which are never seen in America and create no interest here. The papers upon cataract (Bombay Medical Congress, 1909) all concerned intracapsular operations.

No capsulotomy papers were contributed.

McKechnie stated in his paper that Smith adopted the intracapsular operation as a routine in 1899, and operated upon both eyes at the same sitting, and that he had performed 20,000 operations in that manner in 10 years. He stated that in his opinion 200 operations would give one a fair training, but who in America or Europe, or in any place except India, could hope for such extensive training?

Jamison began his cataract surgery in the Smith clinic and reported 290 operations with 1.5 per cent iritis, and states that any good operator with a fair amount of work should have equally good results after he has mastered the Smith technique.

Gidney of Dhubri expressed the opinion that 100 operations amounted to practical experience.

Oxley believes the great advantage of the intracapsular method over the classical capsulotomy operation is the elimination of capsule tags left in the wound and the low percentage of iritis. His conclusions are: (1) the operation is safe for the average operator; (2) it eliminates iritis due to cortical and capsule remains; (3) eliminates incarceration if the iris; (4) corneal incision does not cause excessive astigmatism or liability of infection; (5) detachment of the retina he has not seen.

Mathra Das began his cataract surgery in 1903 by the capsulotomy method, performing 3 operations in 1903, 41 in 1905, 153 in 1906 and 317 in 1907. After visiting Col. Smith the second time, he operated upon 804 patients by the Smith method. (He has used Smith's method since that time).

Elschnig of Prague, one of the foremost operators in Europe, stated that one should perform at least one hundred capsulotomy operations before attempting the intracapsular.

The average operator in America or Europe would consider himself an expert after performing one hundred cataract operations by any method, and after acquiring that experience would hardly think of making a change.

In "One thousand cataracts in six weeks," by H. T. Holland; Shikarpur, Sindh, India, (*Indian Medical Gazette*, May, 1914) it is stated that he performed 95 per cent of senile cataract operations within the capsule by the Smith method, and operates upon both eyes at the same sitting.

Dr. Holland stated that after an experience of 3,000 senile cataract operations the Smith method is his choice. He also states that one of the great advantages of the Smith method is the practice of the first dressing of the eye on the fifth day, and again on the seventh and eighth days, after which the patient is usually discharged, Holland decided that the increase in his cataract operations from 220 to 1,024 annually, which increase occurred within a five-year period, is sufficient proof to him that the results of the Smith method are satisfactory to those upon whom operations have been performed.

Dr. B. Baird of Gonda (*Indian Medical Gazette*, January, 1914) stated that he had not been fortunate enough to have seen Col. Smith operate, but he had observed some of Smith's pupils and had read Smith's book. He believes that Smith's intracapsular operation offers the best results.

Smith, in his tour of the United States and Canada (*Indian Medical Gazette*, Feb., 1922) performed about 500 senile-cataract operations. He refused no one who had the slight chance of improvement, and many patients stated that they had been refused operations by other doctors. He told his large audiences that he had no concealed tricks, and many who witnessed the operations thanked him for the opportunity of witnessing the operation of complicated cases. (Naturally by operating upon all persons regardless of complications his percentage of good results would not be increased.)

Capt. M. M. Cruickshank's article, "Complications in 1,322 consecutive intracapsular operations in the Holland Clinic in Shikarpur" (*Indian Medical Gazette*, 1932) is worth reading and rereading. It was my pleasure to be in the Shikarpur Clinic that season, and as there was no electricity in Shikarpur I had a hand power Barraquer machine made in Barcelona, and carried it to Shikarpur. The power was produced by turning the fly wheel by hand. The pump was of the same construction as the electric one used in Barcelona by Prof. Barraquer. Dr. Cruickshank's article describes 18 operations that were performed by him, Dr. Holland, and myself. I explained Barraquer's technique as best I could after observing him perform twenty cataract operations in Barcelona.

Fifteen of the operations reported were not complicated, and the visual results were reported as very good, and in three cases the capsules were ruptured. There were no other complications in the three cases with ruptured capsules at the time of operation. In one of these no useful vision resulted, but no cause for visual loss was given. The other two ruptured capsules were reported as successful operations.

The machine refused to function after eighteen operations had been performed, and it could not be repaired in Shikarpur.

Capt. Cruickshank, Dr. Holland, and I were well pleased with the results of eighteen operations performed by us whose experiences with that method was very limited.

The month I spent in Shikarpur in 1923 was one long to be remembered. Capt. Cruickshank, Dr. Holland and I were so engrossed in our work, seeking certain results, that when the time came to depart my only regret was that I could not stay on to perform a few hundred more cataract operations. (I returned to Holland's clinic the following year.)

All methods of incisions were described at the Bombay meeting, but it is my opinion that any well-made incision, either with or without (a conjunctival flap, with or without) sutures, or one entirely in the cornea, will be good provided the puncture and counterpuncture are made deep enough, and the incision embraces nearly one-half of the cornea. Such an incision will usually allow free passage of the lens.

There are only a few papers in the literature reporting the results of 1,000 or more cataract operations; however, it is interesting to know that most of the results of 1,000 or more operations recorded in this paper were performed within a period of six weeks.

The Jungle Hospital: In the *Indian Medical Gazette* (1924) there is a most unusual article entitled, "Notes on seventeen thousand capsulotomy operations," by James MacPheal, Bamdah.

The location of Bamdah Mission Hospital is in the Maughye District; the hospital is operated by the United Free Church of Scotland and is called a Jungle Hospital. The largest town or village is Bamdah, which has a population of four hundred. The hospital was begun in 1900, and an operating room was built in 1903.

In the first year 34 capsulotomy operations for senile cataract were performed; in 1921 the number had risen to 1,440.

The article states that 90 per cent of the patients are farmers, that 95 per cent of them are illiterate, and that sometimes as many as 50 of them are operated upon in this jungle clinic in one day.

Free operations are rarely performed at the Jungle Hospital, but if every patient would pay one rupee (33 cents in American money) that sum could pay expenses. The patients furnish the food, which is very cheap, and their friends are their nurses and attend to their wants. The cost of private rooms ranges from two annas, or four cents, to ten annas or twenty cents a day.

MacPheal states that he operated upon 100 patients by the Smith method without having seen Smith or any of his pupils operate, and inasmuch as Smith stated that one must be instructed by him, MacPheal gave up the intracapsular operation. He states, however, "there is much good to be said about the Smith operation."

A paper by W. A. Fisher and H. T. Holland (*Eye, Ear, Nose and Throat Monthly*, January, 1925) was read before the Chicago Ophthalmological Society on Nov. 17, 1924, reporting the results of 1,455 cataract operations performed in Dr. Holland's clinic in Shikarpur in six weeks, from Jan. 1 to Feb. 15, 1924. Dr. Holland stated that I was responsible for 868 of the operations, and that the largest number of cataracts operated upon in one of these days was 114, and on the following day 85. He also stated that all of the 199 eyes were operated upon by me.

This is not only the largest number of cataract operations performed by me in two succeeding days in the Holland clinic, but the largest number recorded in literature in any clinic.

In Dr. Holland's paper he refers to Dr. Parker's paper presented to the American Medical Association in 1921 reporting 1,421 cataract operations, and quotes Parker as being unable to give visual results in 152 of them, and that it would be much more definite to tabulate the results surgically, irrespective of the visual results obtained.

If visual results are impossible in large numbers in the United States where illiteracy is not found, how can operators in India, where illiteracy is as high in some places as 90 per cent, be expected to furnish visual results?

Illiterate or educated, as the case may be, good results can be expected after an uncomplicated intracapsular operation, when the cornea is clear, the fundus normal, and the healing process free from inflammation.

Drs. Barraquer, Benedict, Davis, Elschnig, Fisher, Gailey, Gradle, Greene, Knapp, Lancaster, McReynolds, Parker, Pratt, Safer, and many others have reported visual results, but when good visual results are obtained it only proves that the credit should be given to the operator rather than the method of operating.

For ten years before going to India, I operated by the classical capsulotomy method; then followed four seasons in India, where I was privileged to operate upon more than 2,000 eyes by the Smith intracapsular method.

I visited Col. Smith in 1913, and for 15 years thereafter, in an active operative clinic and in private practice, the Smith intracapsular method was selected; after this for 10 years the fascinating method of Barraquer and the blunt capsule forceps were used.

The key to the whole operative subject is, in my opinion, ambidexterity. "Ambidexterity has no meaning in eye surgery for there is no advantage to be gained by it." (Quotations from Smith's book, "Treatment of Cataract," 1928, page 81.)

Smith, Holland, and others who have had much experience, do not claim to be ambidexterous but use their best hand for the incision and delivery of the lens.

Intracapsular operators, using the suction, or Barraquer, method, or the blunt forceps, require a higher degree of ambidexterity than those using the Smith method, because in operating by the Barraquer or forceps method, pressure must be made with one hand and traction with the other.

The Smith operation is performed by making the incision on the right eye with the right hand, while standing behind the patient's head, and on the left eye with the right hand, standing on his left side, cutting up, if one is right handed, and just the reverse, if one is left handed. The cataract is removed by pressure, using one's best hand.

Beginners, there is no excuse for any doctor to class himself as a novice in cataract surgery, because operating upon the eyes of 100 six-week-old kittens (two hundred cataracts—Fisher's "Senile Cataract," Ed. 3, 1937) will give him a good practical technique and he may then expect to be rewarded by good results. A similar technique could not be obtained by observing others for an extended period, and after that experience performing a few operations.

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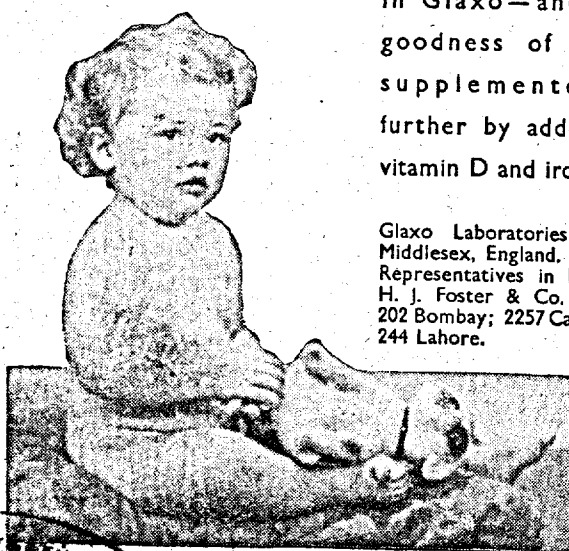
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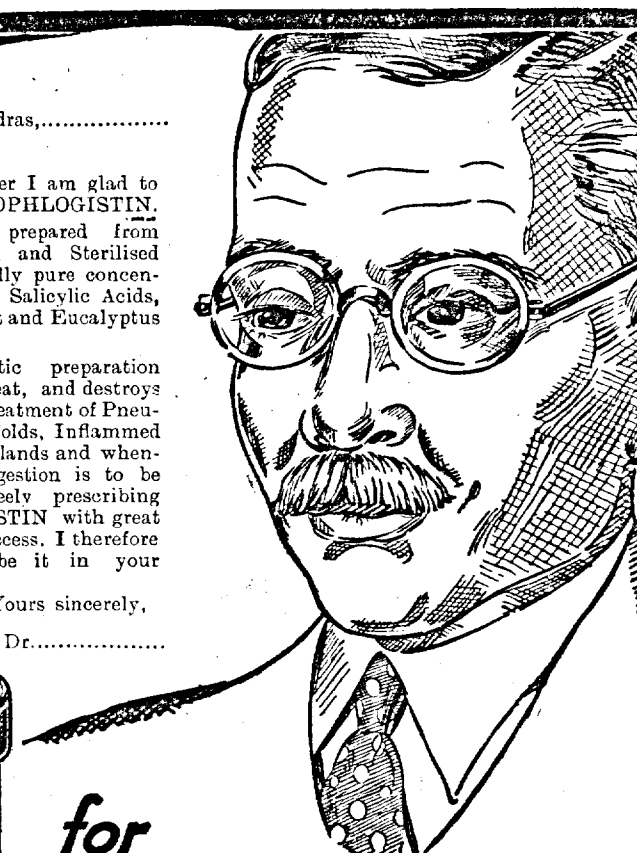
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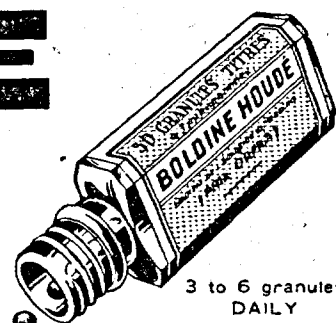
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