

THE ANTISEPTIC
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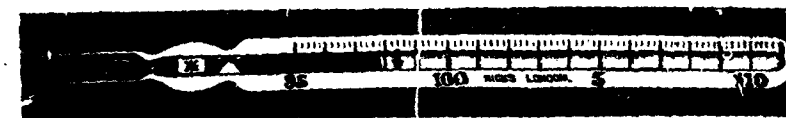
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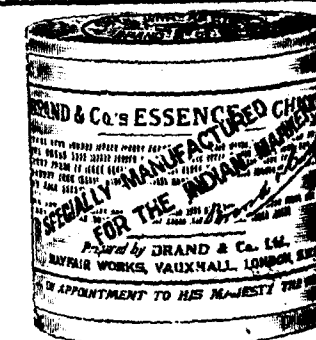
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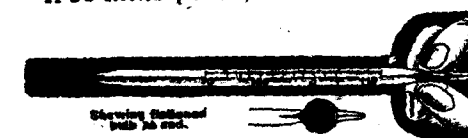
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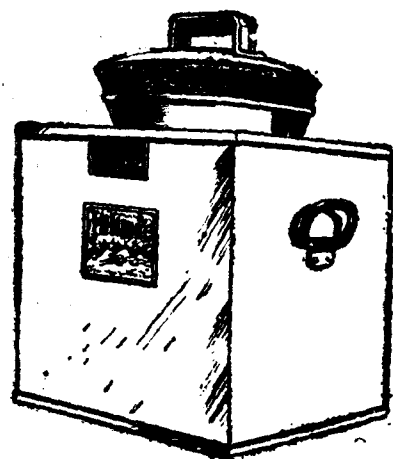
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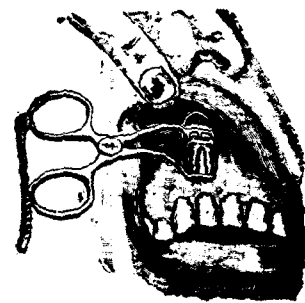
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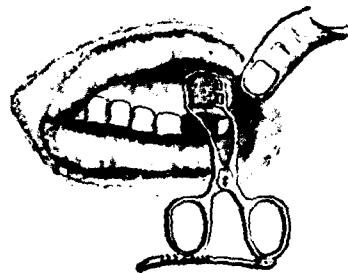
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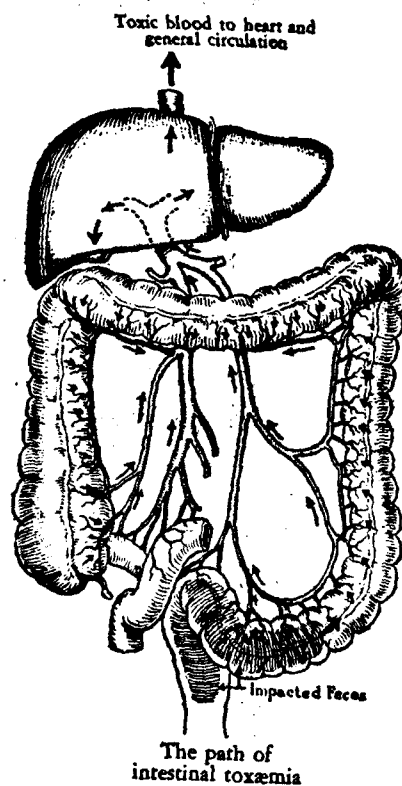
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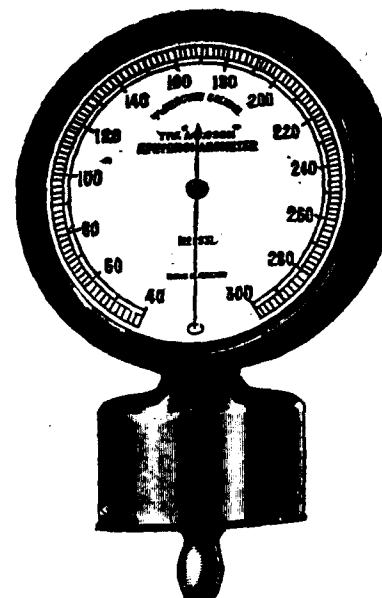
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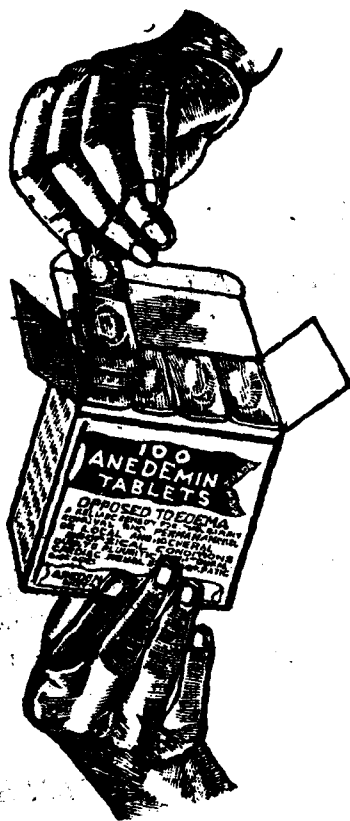
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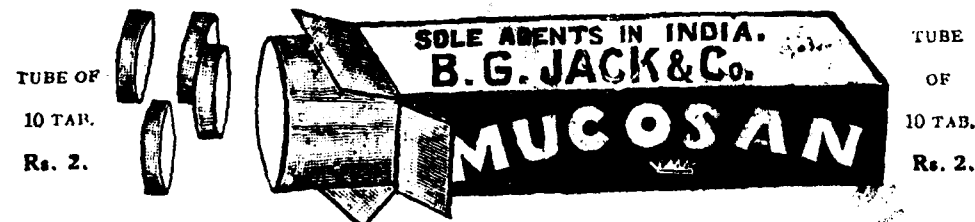
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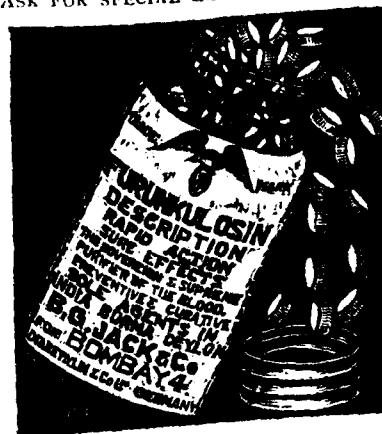


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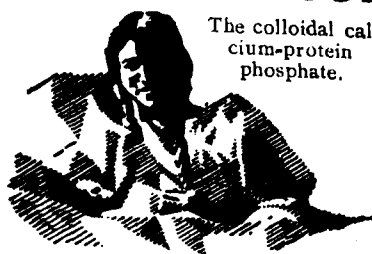
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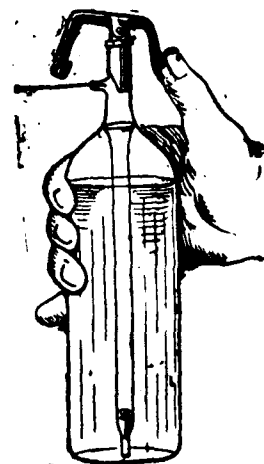
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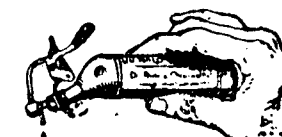
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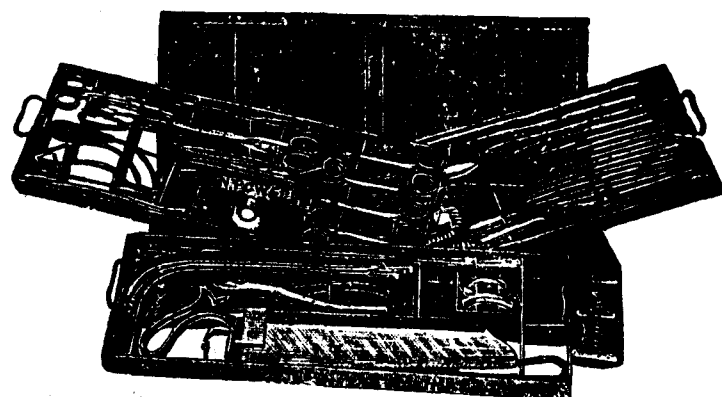
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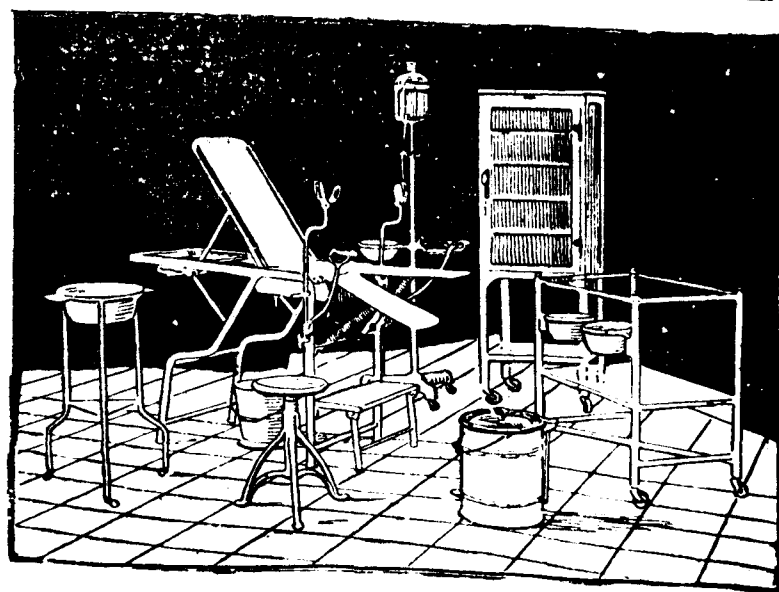
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Vol. 26]

APRIL, 1929

[No. 4

THE ANTISEPTIC THROUGH QUARTER OF A CENTURY

BY

THE HON'BLE U. RAMA RAU

Twenty-five years have rolled by since the *Antiseptic* was launched and it is extremely gratifying to find that this tiny vessel built by the conjoint efforts of the late lamented Dr. T. M. Nair and my humble self, has with the help and guidance of Providence, been able to steer clear of all shoals and sandbanks of time and anchor safely in the haven of its "SILVER JUBILEE" to-day. I hasten to seize this memorable opportunity and beg to offer my hearty congratulations and thanksgiving, to that gallant and devoted crew—the Editorial, Printing and Publishing staff—who have held charge of the ship during these long and arduous years and also pay my sincere respects and warm tribute to its numerous clientele—the contributors, subscribers and advertisers,—who have patronized it and borne with illimitable patience and endurance all its defects and drawbacks and shared, with unflinching loyalty and sympathy, its trials and tribulations.

THE GENESIS OF THE ANTISEPTIC

Human memories are proverbially short and a quarter of a century is indeed too long a period for one to remember all the events in the life-history of the *Antiseptic*. It will therefore be necessary to refresh the memories of its old subscribers and to acquaint its new friends with its past activities and if I venture, on this happy occasion, to give a resume of the origin and achievements of the *Antiseptic*, inflicting a personal note here and there which is inevitable, I hope I shall not be accused of immodesty. The Medical Profession in India was even at the

commencement of the twentieth century in a nebulous state and had not occupied that position of prominence and influence, which properly belonged to it in every civilised country. It might be that the India of that day was not advanced enough to recognize the true place of scientific medicine in its social system. But the British rulers of India were civilized enough in all conscience and if they were slow to appreciate the claims of the Medical services, there was evidently 'something rotten in the State of Denmark'. The members of the Indian Medical service—the highest Medical service under the Government of India—were recruited in England after a competitive Examination. Unlike the candidates for the Civil Service or the Police Service who were all raw men just out from the British Universities, the candidates competing for the I. M. S. had not only a sound general education but also had undergone a five years' course of Medical education and obtained a recognised registerable Medical qualification, for which they must have spent each at least £ 1000 more on his education than a candidate for the I.C.S. And yet, there was a vast difference between the pay and prospects of the two, when they came out to India. It had been said that the members of the I.M.S. had the opportunity of earning money over and above their pay by private practice. True. But, only a few and those residing in Presidency towns ever got the chance of making any appreciable income from private practice. When the I.M.S. man complained that he was poorly paid, he was told he could make that up by private practice. When he murmured that his frequent transfers from place to place interfered with his prospects of building up a private practice, he was told he was not in India for making money but only to meet the exigencies of service. While on Civil employ, the I.M.S. man had to play second fiddle to even a junior member of the I.C.S. and when on Military duty, he was completely overshadowed by his colleagues of the combatant branch of the service.

Coming down to the next rung of the official medical ladder—the Assistant Surgeons, they were found to be in an even more deplorable condition than their official superiors—the members of the I.M.S. The Assistant Surgeon, always a graduate in Medicine, started life on a grand salary of Rs. 100 a month. He had to hang on for a number of years as temporary Assistant Surgeon before he could get on to the permanent establishment. He had not only to work as a maid of all work in some hospital or other but was also liable like a general servant, to be sent away at a month's notice. The pay and prospects of the Assistant Surgeons were exceedingly poor when compared to those who entered the other branches of the Government service, Revenue or Judicial.

Thirdly, there was the apothecary genus and they had all the grievances of the Assistant Surgeons—and a great deal more. But, thank God, this class has since been wiped out, as the first step towards the elimination of the "Caste System" in Medical service in India.

Lastly, there was that large class of Medical Subordinates commonly called the Hospital Assistant. He started life on a magnificent salary of Rs. 25 a month. A Medical man who had undergone 3 or 4 years Medical training and who was very often put in charge of small hospitals and dispensaries, who was made to conduct Medico-Legal Post-mortem Examinations, and upon whose evidence probably human beings were hanged, was paid the glorious sum of £ 20 a year. If his starting salary was so great, the maximum that he could rise to, was still more prodigious. Rs. 55 a month after 35 years' service was something like the remuneration of a petty shop assistant rather than that of a qualified medical man. He was worse off than even the newly created Certificated Sanitary Inspector of 3 months incubation or the Plague Inspector of 16 days training who was sent out to do battle against infectious diseases in general and plague in particular and who was paid Rs. 40 plus Rs. 30 allowance per mensem. In his crusade against infection, the C.S.I. (for so was he then styled, though not in the remotest way connected with the Order of the Star of India) came in contact with the poor Hospital Assistant and even held sway over him. Such was the depressing condition in which the Hospital Assistant was placed at the time.

Coming to those medical men, who were not employed in any of the Government medical services, either the higher or the subordinate, their case was the most pitiable of all. They depended entirely on private medical practice for their livelihood and they had to carry on this against what may be called "State Aided Competition." It was really hard for a private medical practitioner to compete with medical men subsidized by Government. But still, heavy as his handicap was, the private medical practitioner had accepted the situation cheerfully. But unfortunately, the sympathy of his professional colleagues in the Government Service was not with him. "How dare you exist?" was the 'un-asked question' of the Government Medical man to the Private Practitioner. The Indian officialdom gradually developed and built round it a rigid and exclusive caste system. Though, of all the official classes, the medical officials are among the most sympathetic, they were not altogether free from personal differences and professional jealousies. This naturally caused a rupture between the two wings of the profession—the Official Medical class and the Independent Medical men. Such a state of affairs however ought

not to be allowed to continue long. In the interest of both the profession and the public, a rapprochement was necessary and even desirable. A meeting of the Independent Medical men in Madras was convened to consider the situation and it was resolved to start a monthly medical Journal, which would be a medium not only to plead the cause and promote the interests of the medical profession—official and non-official alike—and thus bring them closer together but also for recording of scientific facts and discussion of scientific principles. Medical Journals in India were then few and far between. The Indian Medical Gazette and the Indian Medical Record both of Calcutta served the needs of the Medical men in the north of India. The south of the Peninsula had no medical Journal to boast of and the majority of the Medical Profession in this part of the country were in blissful ignorance of what was taking place in the outside Medical world. A Medical Journal to cater to the needs of the Medical Profession in South India was thus a great desideratum. The resolution of the Independent Medical Profession was on record almost as a pious wish for sometime and none ventured to give it a practical shape. Though young and inexperienced and had just started life as a Private Practitioner in Madras, I had the hardihood to undertake this uphill task, heedless of its prospects and unmindful of its success. I came forward to finance the scheme, provided Dr. T. M. Nair consented to edit the Journal. I had great faith in his abilities, literary as well as professional. He had just then returned from England and had up-to-date knowledge of the healing art. He had also fully imbibed the great democratic spirit of the west and could be counted upon as a fearless advocate of the profession.

Dr. Nair was ready and was willing to work even at some sacrifice and the first voyage of "**The Antiseptic**" commenced in May 1904. It was named "**Antiseptic**" after the great and epoch-making discovery of "**Antiseptic Surgery**" by Lord Lister. This in brief is the genesis of the **Antiseptic**. The aims of the **Antiseptic** were summed up in the following words in its first number:—

'To bring the Medical profession in India to its legitimate place in the forefront of all learned professions will require the united efforts of all its members, official and non-official, European and Indian. The parliament of man and the federation of world is still a poetic dream but it rests with the Medical Profession in India and in Great Britain too, whether the idea of a united Medical Profession in India, a general Medical Council for India and a Medical Registration Act for India should remain a dream

indefinitely or brought within the range of practical politics within the next few years.

How far has this dream been realised and whether the **Antiseptic** has justified its existence these years, it is not for me to say but for its readers to judge. I shall therefore narrate some of the activities of the **Antiseptic** to show if it had kept up to its ideal all along and deserved well of the sympathy and support of its readers.

VACCINATION AND MADRAS MUNICIPALITY

The first thing that attracted the notice of the **Antiseptic** soon after its birth was the method by which vaccination was being performed within the Municipal limits of Madras. And thereby hangs many a tragic tale. A student of the Madras Christian College died of tetanus nearly twenty days after he had been vaccinated. It was stated that subsequent to the vaccination the student felt some pain, to relieve which he used some home remedies in addition to the treatment he had undergone at the Municipal Vaccine Depot. When his condition grew worse, he was taken to the General Hospital where he died. A post-mortem was held and tetanus was found to be the cause of death. After the death, the Jury returned a verdict of "death from Tetanus, brought about by the effects of Vaccination." But one of the officers of the General Hospital was of opinion that the cause of Tetanus in the case in question was not vaccination but the home remedies which were applied which consisted of burnt cowdung mixed with earth. And further the Medical Officer stated that the student died 20 days after Vaccination and as that was an exceptionally long incubation period for tetanus in a hot climate like that of Madras, it was highly improbable that vaccination was the cause of tetanus. While not disputing with those conclusions of the Medical Officer the **Antiseptic** contended that the dangers of vaccination in Madras always lay lurking somewhere in the dirty sleeves of the ill-paid lay vaccinators employed by the Municipality for the purpose. This is what the **Antiseptic** then observed on the subject:—

"We take this opportunity of recording our most emphatic protest against vaccination by non-medical men. Vaccination is a small surgical operation which is done by means of a cutting or a pointed instrument. To entrust such an operation to the unskilled hands of a layman is an exceedingly dangerous and unwise act. And what sort of men are chosen to perform this delicate operation? Men who have very little education and who are satisfied with a pay of Rs. 7 to begin with. One can easily guess the state of cleanliness of the apparel which this budding

operator who earns Rs. 7 a month can afford to wear. His coat sleeves offer a standing invitation to every conceivable kind of pathogenic organism to come and take up its permanent quarters without any fear of interference from its land-lord. The unqualified vaccinator armed with the scalpel or the needle is positively dangerous. Although the Vaccination Department is normally under the Health Officer of the Municipality, we understand that it is really managed by an official—we do not know his exact designation—who is not a Medical man. We are of opinion that every Vaccine Depot in Madras ought to be under the management of a Medical man of the standing and qualifications of an Assistant Surgeon. The Vaccinators under him ought to have at least the Hospital Assistant's qualifications. We are sure that the whole Medical Profession will join us in our protest against a system which would not be tolerated even for a single hour in any civilised country in the world."

Partly as a result of this protest and partly due to strenuous fighting inside the Municipal Council both by Dr. T. M. Nair and myself in the capacity of Municipal Commissioners, the Madras Municipality since appointed 12 Medical Registrars in charge of Vaccine Depots, with an Assistant Medical Officer of Health to supervise their work. This is no doubt a distinct improvement. The lay vaccinators however still continue but they are less dangerous now because of the instruction and training they have undergone in the theory and practice of Vaccination and the better emoluments they receive. Stringency of finance probably stands in the way of the Corporation making a further advance in this direction. The Madras Drainage and Water Works Schemes are two veritable white elephants which consume all its money now and after they have been completed, it is hoped more funds would be available for entirely reconstituting the Vaccination Department and replacing the existing lay staff with properly qualified Medical men.

QUACKERY IN INDIA AND THE ANTISEPTIC

Very early in the history of the **Antiseptic** was an earnest attempt made to put down quackery with a high hand. Instances had occurred where qualified Medical men mixed themselves up with quacks and began to administer quack medicines for their patients. The then situation was summed up in the **Antiseptic** in the following lines:—

But even in this benighted land to hastening ills a prey, where Doctors decay and quacks accumulate, we are certain that there are some Medical men at least who are not dead to all sense of professional honour and respectability to whom we may confidently appeal to make a

strong effort to rescue rational medicine in this country from the clutches of empiricism and quackery wherein it is fast getting entangled."

The **Antiseptic** was not opposed to qualified Doctors adding to the Medical and Scientific knowledge of the day by "dipping into the obscure works on Ayurvedic Medicine or by unravelling the mysteries of the Chinese system of Medicine." What the **Antiseptic** objected to was the practice of secret medicines by qualified practitioners by invoking the sacred sentiments of patriotism. The seed for the introduction of a medical Registration Act for India was first sown in the following observations made in the Editorial of July 1904:—

"As long as the Government of India declines to pass any effective legislative measure to limit the mischief that a quack can work, if not altogether to prevent it, the quack will flourish and nothing can be done by the Members of the Medical Profession except to give him a wide berth."

APPOINTMENT OF HOUSE PHYSICIANS AND HOUSE SURGEONS IN THE MADRAS GENERAL HOSPITAL

The Madras General Hospital is the biggest Hospital in the Presidency and it has a Medical College attached to it. It is therefore in the highest degree essential that the Medical staff of that Hospital, both the visiting as well as the Subordinate should be the most efficient that the Medical Establishment of this Presidency can supply. The visiting staff of the Hospital, then as now, were exclusively drawn from the ranks of the I.M.S. and there was no immediate prospect of this hard and fast rule being altered. But the more elastic subordinate staff was capable of considerable improvement. In order to make the General Hospital an efficient institution, the **Antiseptic** suggested the following reforms which I had better quote in its own words:—

"As a preliminary measure, the General Hospital as a penal station for old and dilapidated Apothecaries and Hospital Assistants, who have served in Mofussal stations for a decade or two and who for some fault or other were sent up to "do duty" in the General Hospital must be abolished once for all. Then having secured a good Surgical Registrar, and a Medical Registrar and Senior House Surgeon and Senior House Physician, the remaining House Surgeons and House Physicians ought to be thrown open to the best graduates who passed out of the Medical College. The system of Hony. House Officers went wrong in this poor country. Therefore it would be necessary to pay these men at the same rate as an ordinary Assistant Surgeon. They ought to be entertained for one year. If before the end of that period, they secured a footing in the permanent Medical Establish-

ment, well and good. If not, they are better equipped at the end of their one year's training to earn their living by the practice of their profession than they were when they passed out of the Medical College. In this way, the General Hospital will have the advantage of the services of the best Medical Graduates of the Madras University of each year and the Medical Establishment of this Presidency and the country at large will profit by the services of a number of Medical men who have had the advantage of a practical post-graduate training as House Surgeons and House Physicians."

Thus the nucleus for the appointment of House Physicians and House Surgeons in the Madras General Hospital was formed and the **Antiseptic** may well congratulate itself now on the complete success of this scheme which it had hinted at nearly twenty five years ago.

THE RE-ORGANISATION OF THE SUBORDINATE MEDICAL DEPARTMENT IN THE MADRAS PRESIDENCY

The sympathies of the **Antiseptic** were and still are, always on the side of the poor, hard-worked, ill-paid medical subordinates. When in November 1904 a scheme for the re-organisation of the Subordinate Medical Establishment was launched by the Government, the **Antiseptic** ranged itself on the side of the subordinate staff and commented on the utter inadequacy of the scheme. The scheme contemplated the change of designation of Civil Apothecaries into Civil Assistant Surgeons, by which 36 Civil Apothecaries who had University qualifications were transferred into Civil Assistant Surgeons. The **Antiseptic** pleaded for no differentiation but for a complete transformation of the entire lot. The **Antiseptic** further objected to constant transfers of Medical men. This has become a deep-rooted evil and continues even unto the present day. The journal observed:—

"There ought to be fewer occasions for the transfer of Medical men than for that of Officers of any other Department. The more a Medical man is left undisturbed in a locality, the more opportunities he has of knowing the people of that locality intimately and the greater the knowledge of a Medical man of the people among whom he lives, the greater the benefit to the community at large. Constant transfers of Medical men are not only a cause of public inconvenience but also of unnecessary public expense.....The only way in which abuses can be checked and justice done to Subordinate Medical men is to have all their transfers and postings published in the *Fort St. George Gazette*, even though they are not made Gazetted Officers."

The **Antiseptic** also recommended the grant of Presidency allowance to Assistant Surgeons. No doubt they were getting a small charge allowance but,

"considering the amount of hard work they do, the difficulty of their obtaining any appreciable amount of private practice, on account of unfair competition in the Presidency town and considering also the fact that living in Madras town is far more expensive than living in the Mofussal stations, it would only be an act of pure justice to grant them a small Presidency allowance in addition to their charge allowance."

The question of reckoning pension to Temporary Civil Assistant Surgeons who had been confirmed under the scheme was also discussed and it was suggested that all of them should be awarded pensions for their service commencing from the date of appointment as temporary Civil Assistant Surgeons. The Hospital Assistant class was unfortunately left untouched by this re-organisation and the **Antiseptic** lost no time in dinning into the ears of the authorities, the extreme need for the amelioration of their lot. As a result of constant agitation, there was not only a change effected in their designation, i. e. from Hospital assistants to Sub-assistant surgeons but there was also a substantial increase in their initial and maximum salaries. In 1912, the revision of pay of the Civil Assistant Surgeons, on a liberal scale was also urged and although they had not got all that they asked for, yet some decided advance was made in respect of their pay, prospects and pensions.

PLAGUE IN MADRAS

It was in the year 1897 that Bubonic Plague first made its appearance in Bombay and from there spread to nearly every large town in India. Although Madras is one of the largest and dirtiest of Indian towns and freely connected by a good service of trains with populous plague infected places like Bombay, Bangalore and Bellary, it had so far escaped from the ravages of this fell disease. But suddenly in March 1905, a case of plague was discovered at a small village named Kuppam near Tondiarpet, the northern most part of Madras. The outbreak at Kuppam was definitely traced to the Cooly Emigration Depot. For a longtime past, Madras had been shipping cooly emigrants to Mauritius, Natal and some other British colonies. These coolies were recruited from different parts of the Presidency and were brought to Madras and then shipped to their destination. In the heart of Madras, there was not only a Central Emigration Depot but there were also scattered through the town, various small recruiting depots. There could not be a better medium for the spreading of

plague and other epidemic diseases than these low class emigrants brought together from various parts of the country plague infected or otherwise. The **Antiseptic** made a vigorous protest against the location of those depots inside the City and was of opinion that if ever Madras should become plague infected, the responsibility for all the human lives that might be lost from that disease must rest with the authorities concerned with this emigration traffic. In November 1900, there was a virulent outbreak of cholera in the city, which was traced again to the Emigration Depot. In the course of a leading article that month the **Antiseptic** pointed out the desirability of removing these Emigration Depots outside the Municipal limits say to Avadi, a village 8 miles off from Madras, and, in order to overcome legal difficulties, by a notification to include Avadi, within the limits of the port of Madras, for the purposes of the Indian Emigration Act. It was quite an opportune step that the Government of Madras ordered all the Emigration Depots to be shifted to Avadi and thus the fear of plague, cholera or any other infectious disease through this medium has been averted.

ABUSE OF HOSPITALS IN MADRAS

Hospitals exist for the relief of the sick poor. People who can afford to pay for the services of Medical men and nurses have no more right to the use of Hospitals. Disregard of these axiomatic truths lead to what are called Hospital abuses. Hospitals in India are Government Institutions as a rule, maintained out of the tax-payer's money. The abuse that the **Antiseptic** complained of, at least so far as the Hospitals in Madras were concerned, was that these Government Institutions were utilized not only as free hospitals but also as Nursing homes where well-to-do people were received and treated on payment of certain fees. The Madras Government had fixed a graduated scale of fees to be levied from well-to-do people who were admitted into these hospitals as in-patients. These fees were, as the boarding house-keepers would express it "inclusive." For a daily fee of Rs. 16, a millionaire might go into a Madras Hospital and undergo a major operation, have himself attended twice or more a day by a competent Surgeon and get the best nursing, food, accommodation and medicines available in Madras. That was very satisfactory so far as the patient was concerned. But there were others concerned in the bargain. There was the Surgeon for instance. They were paid as Hospital Surgeons for their services to the sick poor who came to the Hospital for medical relief. Outside Hospital hours they were entitled to practise their profession for profit. And it was the very class of people from whom they expected to

receive fees for private medical treatment that the Government were admitting into the Hospitals as paying patients, compelling the Medical staff of the Hospital to attend on them for nothing. That was unfair to the Hospital Surgeons and Physicians. It was even more so to the growing class of Private Practitioners. The Government with enormous resources at their command build and equip large Hospitals out of public revenues and appoint efficient physicians and surgeons paid out of the public revenues as well as to the staff of these hospitals and begin to compete with private Medical Practitioners and private Nursing Homes under the most unfair terms. It was only within the last few years that private Medical Practitioners had come into existence. And now, the Government had converted all their big Hospitals into Nursing Homes for "paying guests", with a printed tariff hanging in the corridor reminding one of a Continental Hotel rather than of a Hospital. In spite of vigorous protests both by the public and the profession, the evil still continues. It has even assumed serious proportions. The Medical Officers in the Hospitals understood what they should do under the circumstances. They have introduced what is called the "chit system" by which they transfer all their "private patients" into "paying patients" and admit them into the Hospital. So, they are not pecuniarily worse off now, than before. Only the Private Medical Practitioners are hard hit and private enterprise is killed by State competition. This is a very grave and important issue over which the Independent Medical Profession must keep up a sustained fight, if they should like to be spared from either ruin or extinction.

MEDICAL MEN AND THE ABKARI DEPARTMENT OF GOVERNMENT

The sale of cocaine in Madras was subjected to stringent rules and regulations framed under an enactment made by the Government of India on the subject just about this time, July 1906. The immediate cause of the legislation was the terrible increase in cocaine-eating in many parts of India, especially, in Calcutta. The object of the legislation would appear to be praiseworthy to a casual observer. But to any one who knows the conditions under which opium and alcohol are sold in India, this particular legislation would appear to be grand-motherly. The regulations framed under this law prohibited the sale by any Chemist in Madras of a solution of cocaine of a higher strength than 5 grains to the ounce *even with a duly qualified Doctor's prescription*. Five grains to the ounce makes a 1 per cent solution and every medical man knows that a solution of that strength is useless in the majority

of cases where cocaine has to be used. In order to obtain local anæsthesia in operations in various parts of the body especially in nose and throat, solutions of cocaine varying in strength from 5 to 10% which means solutions containing from 25 to 50 grains per ounce, would be necessary. According to the rules, no Chemist was allowed to sell such a solution to any patient even if supported by a Doctor's prescription. Doctors could not keep a supply of cocaine unless he was a licensed Chemist. The only alternative left was that Doctors must purchase cocaine at their cost and use it on their patients without charging them for it which was not possible, though it might be philanthropic. Thus the medical man was heavily handicapped by these rules, which, "are the result of poverty of thought in the officials who are responsible for them."

The **Antiseptic** made an emphatic protest against these undue and unnecessary restrictions on one of the most important accessories in the practice of modern surgery. This had the desired result. The Madras Government excused themselves by saying that these regulations never originated from them but from the Bombay Government and that the Board of Revenue was engaged in re-casting these regulations. The new regulations framed by the Board of Revenue permitted all Medical Practitioners who possessed registerable Medical qualifications in Great Britain and the Colonies, who were Medical Graduates of any of the Indian Universities, and Apothecaries and Hospital Assistants who were not Medical graduates but were in Government employ to use Cocaine of sufficient strength on taking out a license. But Apothecaries and Hospital Assistants who were not Government servants could not prescribe cocaine at all, without the prescription being countersigned by the Dist. Medical Officer. The **Antiseptic** again entered into a protest against these restrictions and the unjust differentiation between Medical Subordinates in Government employ and those out of it.

Some good appeared to have come out of this protest. From June 1907 till April 1910, Hospital Assistants in private practice in Madras were prescribing cocaine, and such of them as had dispensaries could sell cocaine under license. Evidently, the proposals of the Board of Revenue which manifested such invidious distinction between medical men in Government employ and the same class of men in private practice, were suspended for some time by the Government. But, all of a sudden, from April 1910, the Abkari Department had commenced to enforce the rules framed by the Board of Revenue rather rigidly, so much so that, hospital assistants in private practice were prevented from prescribing cocaine or selling it. The hospital assistants in Madras

held a protest meeting and passed resolutions. The **Antiseptic** advised those hospital assistants who were intending to go to England then, to wait a deputation on Lord Morely, the then Secretary of State and impress on him the manner in which his intentions to form and foster the growth of an independent medical profession in India had been translated into action by the powers-that-be. What transpired subsequently is hidden from our view. To day the fact remains that medical men of all ranks whether in Government employ, or practising independently are able to prescribe cocaine, opium and other intoxicating drugs and sell them under a license. But the rigidity of the rules and the manner of enforcing them are such as are calculated to lower the prestige of the profession and hinder the prospects of a speedy cure among the patients. Medical men ought to be altogether exempted from the operation of these rules and two years ago, as a member of the Council of State, I moved a resolution in the council on the subject of restrictions on medical men regarding prescription and sale of opium preparations, and the spokesman of Government while sympathising with the medical profession regretted his inability to do anything beyond asking the Provincial Governments to, as far as possible, relax the rules and help the profession in their endeavours to alleviate the lot of the suffering humanity. I do not know if the Madras Government whose Abkari rules are more rigid and stringent than those prevailing in other provinces, will ever think of revising their rules in favour of the medical profession and if they do, that will be a red-letter day in the annals of the Independent Medical Profession in this Presidency. But the question is, will they do it? Echo answers, will they?

MEDICAL MEN IN PUBLIC LIFE

What is called public life is a comparatively new phenomenon in India. It is a later day development. In ancient India, on occasions when the balance of advantages could not be determined or when grave issues were raised, the Hindu rulers were wont to consult their subjects often in a body, but never by means of any well established machinery for ascertaining the popular will. The democratic principle of which we hear so much now, was not unknown to the ancient Aryans who introduced and cultivated the arts of civilized life. But the conditions then were entirely different. India was a self-contained continent which had no permanent connection with the outside world. The hurly-burly of modern civilisation was unknown. Indian humanity moved on in a placid stream without the currents and cross currents and back-eddies which make navigation difficult. But the

decadence of the ancient civilization and the rise and progress of the West have established a new order of things. The enterprise and dawning of the Western nations have transformed life altogether. In these days no intelligent man can afford to stand aloof as a passing on-looker without detriment to his own interests and to the interests of the country. In no civilised country in the world, least of all in England, are specialists and experts confined in watertight compartments without any direct touch with the life outside. Certain duties of enlightened citizenship are common to all, which must be undertaken and performed according as one's opportunities allow. Here in India, no educated man, whatever his profession in life, can confine his activities to his own limited sphere without doing serious injustice to his less fortunate countrymen; and what is more men drawn in different walks of life and accustomed to look at life and manifestations from different points of view, when they work in concert render public life healthier, public opinion more responsible, better informed and less liable to err.

In India, there is not a leisured class of educated men independent and capable enough to keep public spirit constantly alive. Agriculture, trade and similar professions have yet to draw the educated class in numbers large enough to make their services available for the common activities of life. A large percentage of the men turned out by the Indian Universities are absorbed by the public services. Most of our prominent public men have been members of the legal profession. The only learned profession, other than the legal, which can supply recruits in increasing numbers, to the ranks of public life is the Medical Profession. But the call to public duty, from among the members of the Independent Medical Profession had not had that ready response which was expected of it. Therefore it was that the **Antiseptic** exhorted the members of the Medical Profession so early as 1908 to join the ranks of public life in larger numbers and contribute their own quota to the public weal. The need for more medical men in Municipalities, District Boards and Legislative Councils will be more keenly felt now than two decades ago. A medical man becoming a Minister of Medicine and Public Health in a Province, will be the greatest blessing to the people. We touched on this aspect of the question in a recent article in the **Antiseptic** under the heading "Medical Men as Ministers" and it is hoped that Medical men all over India will not let slip the unique opportunity afforded them under the reformed constitution and keep aloof from public life and public activities. What we want to impress on our readers is that absorbing, noble and sacred as the duties of the Medical profession are, they should also

be, if possible, equally keenly alive to the duties and responsibilities of healthy citizenship. It may interest the readers of the **Antiseptic** to know that both Dr. T. M. Nair and myself followed its precepts. Dr. T. M. Nair its late Editor served both as Municipal Commissioner of the Madras Municipality and a Member of the Madras Legislative Council for 9 years nearly. I have also served in both the above capacities for a period of 11 years and now as a member of the Council of State for full three years.

SANITATION IN BRITISH INDIA

Sanitation is a subject on which little or no thought had been bestowed in this country for a pretty long time. What with the indifference of the people on the one hand, and, want of funds on the part of the Government on the other, nothing had been done in India with regard to the improvement of its sanitation commensurate with the importance of the subject. No doubt a department of sanitation was long in existence to look after the sanitary needs of the country as they arose but it was ill-equipped. The Government of India were not slow to acknowledge their failure to provide sufficient funds in the past for the sanitary improvement of India. For the first time in the history of the Government of India, in 1908 a sum of 30 lakhs was set apart as an annually recurring amount for the improvement of public health with special reference to the prevention of plague. In making the announcement, the Hon'ble Mr. Baker, the then Financial Member used words of hopes. He admitted "hitherto comparatively little has been done in this direction and it is sometimes made a reproach against us that no organized effort has been made to improve the Sanitary conditions in which the people live. The continued prevalence of plague and the special measures which have been concerted to combat it, have brought this question into exceptional prominence. In these measures, there is reason to hope for the co-operation of the people in a degree which has not previously attained; and notwithstanding the present pressing need for economy, we believe that it will be politic to give a tangible proof of our sympathy in the form of some special assistance from Imperial funds. Apart from expenditure of this nature which will not, we trust, be of a permanent character, there is room for almost unlimited outlay of the most beneficial description in reforming the Sanitary arrangement of the larger towns. The necessity for financial assistance to enable these to achieve a Sanitary standard less primitive than at present prevails has been pressed upon us by more than one of the Local Governments."

The **Antiseptic** always took a keen and lively interest in sanitary reforms. The first and foremost reform which the **Antiseptic** suggested, was the separation of the Sanitary from the Medical Department. Though there was a separate Sanitary Commissioner for each Province, Medical and Sanitary duties in the districts were centred in one and the same individual, the Dt. Medl., and Sany., Officer, who almost always happened to be an I.M.S. officer. Secondly, the Dt. Health Officers must be recruited from the Medical Profession who have gone through a special course in Public Health and obtained a diploma. Thirdly, there should be a small laboratory attached to each Dt. Health Office, in charge of a Bacteriological asst. for examination and analysis of blood, sputum, water, etc. Lastly, the designation of the Sany. Commissioner should be altered to Director of Public Health, who should have two or three Asst. Directors of Public Health under him. The Sanitary Dept., was reorganized lately on the above lines and it is a source of satisfaction to find that there is a permanent Health Cadre now, to look after the welfare of the people in each district.

MEDICAL EDUCATION IN INDIA

It is a well-known fact that the Aryans of Ancient India showed their skill and genius in all the departments of Medicine, and, although the vicissitudes of foreign conquest and a number of other factors interfered to break the continuity and turn the side of progress back, records still exist in plenty to demonstrate that the Hindus of old possessed a good knowledge of the human frame, of the ills that the flesh is heir to, and the methods to be adopted to remove them. But with the advance of modern scientific knowledge, in medicine and surgery, the old order of things had necessarily to change giving place to new. Various had been the attempts made to improve and systematise medical education in India on western lines. In the early days of the last century, schools on a small scale were established in a few of the important cities to teach medicine and surgery. Since the establishment of the Indian Universities, Medical Colleges were started in the older provinces and affiliated to the Universities. From the various Medical Colleges in India qualified Medical men were turned out. Side by side with the development and growth of Medical education had risen and grown that splendid scheme of public Medical relief by means of hospitals and dispensaries. But, with all these improvements, Medical education in India must be branded as a failure. Medicine is a progressive science. New discoveries and new methods of dealing with old complaints are being constantly brought to light. Specialisation is a feature of

the age, and in Medicine, it is as necessary as it is in any other branch of human activity. It is one of the superstitions of the day that a member of the I.C.S. may be appointed to any place under the Government, Judicial or Executive, general or political. Similarly it seems to be held that a member of the I.M.S. even the latest addition to it, is presumed to possess all the qualifications necessary to enable him to occupy any chair in a Medical College. A square man in a round hole is the rule and not the exception. Consequently the quality of the education and the nature of the training have practically remained stationary, though the numbers have increased. This is what the **Antiseptic** commented on this point as early as May 1908:—

“If the progress of Medical Education is to be stimulated and maintained, the system of recruitment of Professors should be thoroughly revised. Specialists and Medical men of experience and distinguished talents should alone be appointed as Professors in Medical Colleges. In the United Kingdom this practice has long been in existence with results uniformly satisfactory. What is good for the good of the United Kingdom and deemed necessary to the advancement of the Science of Medicine in that land is even more necessary in India where the conditions are different, with which the Specialist alone can deal. But if the system of recruitment of professors in India is to be modified at all, the first step to be taken in that direction is to make the Medical College independent of the Indian Medical Service. Higher appointments in the Professorial Staff of a Medical College are now almost the sole monopoly of the Members of the I.M.S. If the system should improve, and if the teaching should be up-to-date and efficient, there ought to be no monopoly. Appointments in the Medical Colleges should be thrown open to the Medical profession at large. Select the best and the most qualified men wherever they are found and appoint them. Members of the I.M.S. may have as much claim to places in the Professorial staff of a Medical College, as other Medical men elsewhere. The test of selection must be distinguished merits, special qualifications and long experience. If this principle is followed and other modifications made with respect to practical work, medical education in India will improve steadily and rapidly.”

But the Head of the Medical Department who is always an I.M.S. officer is the greatest handicap to the progress of Medical Education in this country. In 1914, before the Public Service Commission, the Surgeon-General with the Government of Madras deposed that he could not permit any outsider to hold any of the Professorships in the Medical College or any Independent Medical Practitioner in this country to hold Honorary appointments because these concessions would diminish the attractiveness of the I. M. S.

If even in the year of grace 1929, the I. M. S. men still persist as Professors in Medical Colleges, it is because the angle of vision on the part of the Government of India remains unchanged and their interests are identical with the interests of the Indian Medical Service.

THE FIRST MEDICAL CONGRESS AT BOMBAY

It was in the beginning of 1909, that the first Medical Congress was held in Bombay under the enlightened direction and guidance of His Excellency Sir George Clarke, the then Governor of Bombay. In Europe, the Medical Profession is well organised and influential and can well undertake the duties and responsibilities of arranging for the holding of periodical Medical Congresses. It has gone further and a well organized International Medical Congress which meets periodically in some one or other of the Great European Cities is a conspicuous feature of Medical organisation in Europe. But in India, things are different. The large majority of Medical men are Government servants and are naturally unwilling to move without government initiative. Matters medical had in consequence stood still in this languid East till the wisdom and sagacity of H. E. Sir George Clarke brought a Medical Congress into existence. The Medical profession in the whole of India was represented at the Congress. The Editor of the *Antiseptic* was sent by the Madras Government as their representative. I represented the *Antiseptic* at the Congress. The papers read and the discussions held were learned and lively. The pathological museum and the lantern slide demonstrations were very interesting and instructive. We were able to obtain at considerable trouble copies of important papers read at the Congress by eminent Medical men and had them published in the *Antiseptic* for the benefit of its readers.

THE MEDICAL PROFESSION AND THE MINTO-MORLEY REFORMS

The old Legislative Councils in India inaugurated in 1892 had only a dash of representative element here and there. In 1909, the Minto-Morley Reforms gave India enlarged councils provided more on an elective basis. Under the new scheme a number of seats were thrown open for the representation of what were called "Professional classes." The Lawyers and Doctors constituted mainly the professional classes in India. But in a common electorate the lawyers would surely swamp the Doctors: past experience had shown that there was not a single medical man in the Madras Legislative Council ever since that Council

was constituted after the Indian Council Bill introduced by Lord Cross. Not even the Surgeon-General—the head of the Medical Department, was a member of the Legislative Council since its inception in 1892, although the Director of Public Instruction and the Inspector-General of Registration had almost always been members of the Council. It might be that the Surgeon-General would be one among the 19 officials who would be nominated by the Government under the new scheme. But that was in no way flattering to the profession. In addition to the Surgeon-General having been included among the nineteen non-official members the *Antiseptic* urged that at least one seat out of the 7 non-official seats to be filled by nomination might be set apart for a Member of the Independent Medical Profession, whose usefulness to the community at large and whose right to be heard on public questions which were the subject of legislation, were unquestionable.

INDIAN STUDENTS AT LONDON HOSPITALS

About this time, September 1910, there was an agitation set up in the London Press to prohibit large numbers of Indian students from gaining admission into the London Schools and Hospitals, mainly on the score of their color. This distinction was more and more manifest in Guy's Hospital and Bartholomew's Hospital than in Middlesex or St. Mary's Hospital in London, while the provinces of England, Scotland and Ireland had entirely escaped from the attack of this new 'Colorphobia.' The *Antiseptic*, while protesting vehemently on this unexpected development, advised the students to go to Edinburgh, if London Hospital gates should be closed against them. Our Editor, Dr. T. M. Nair, while on a trip to England at the time, took considerable pains to interview Sir William Turner, the then Principal of the Edinburgh University and obtain an assurance from him that in that University there would be no distinctions of caste, creed or colour and that all students would be treated alike, provided they behaved like gentlemen. This was really magnanimous on the part of our Editor to have done. Here was a heart full of sympathy with the Indian Medical students abroad!

THE ANTISEPTIC IN THE DOCK

In February 1911, there appeared a leading article in the *Antiseptic* under the caption 'Psychopathia Sexualis in a Mahatma.—A Clinical Study' which brought the Editor, the Publisher and Printer of the Journal under the clutches of the Criminal Law. The facts of the case are briefly these. In the Theosophical Society at Adayar, near Madras, there was an

individual—who shall remain nameless for the present—who taught the young Indian students committed to his care the habit of self-abuse. He had had a bad record already in America and the **Antiseptic** had come in possession of all the documents connected with it. There was besides a candid confession on the part of the individual himself to his chief at Adayar, admitting his guilt and this became public property. Thereupon the **Antiseptic** narrated all the circumstances of the case in its above mentioned issue and invoked the aid of the Medical profession in Madras to mitigate as far as it lay in their power the evil effects of such instruction. This provoked the wrath of the Head of the Society who launched a criminal prosecution in the George Town Presidency Magistrate's Court, against this Journal, for defamation. As was expected, after a prolonged trial, the **Antiseptic** came out unscathed, having been discharged. The **Antiseptic** had thus risen in the estimation of the Medical profession and the lay public alike in India, as a bold, fearless and just critic of individuals,—however high-placed they might be in society and prominent in public life,—who had deviated from the path of righteousness.

THE MADRAS MEDICAL REGISTRATION ACT OF 1914

An act to regulate the qualifications of Practitioners in Medicine and Surgery was passed in Great Britain on the 2nd August 1858. But India could not boast, even after 50 years since the Government of India came directly under the Crown, of a Medical Legislation with a view to protect the Indian subjects of King Emperor from the wiles and dangers of quackery. The Hakeems and Vaidyas did not profess to be anything more than what they were. They possessed some knowledge of the Unani and Ayurvedic systems of Medicine and confined their practice to the teachings of these systems. They were comparatively harmless. But the Medical men with a smattering of knowledge of the European system of medicine, with no qualifications and little experience, armed not with the "Syrup of Squills and the Calomel pills" of the old-fashioned practitioners, but with "digitalin and aconitine and the hypodermic syringe" was even more dangerous to society than these Hakeems and Vaidyans. The manufacture of such dangerous practitioners were on the increase. In Calcutta, self-constituted bodies, granting diplomas and licenses to practise medicine which were imitations of those bestowed by English Colleges and Indian Universities, had come largely into existence. It was therefore necessary that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners. And the **Antiseptic** therefore,

suggested that "A Medical Act for India on the lines of the British Act, but with such modifications as were necessary to adapt it to Indian requirements were urgently called for."

Lord Morley's despatch on Medical Reforms about the beginning of 1910, has brought this matter within range of practical politics. His Lordship was anxious to encourage the development of an Independent medical profession in India and he thought that a medical Registration Act was the first step towards this end and accordingly, in March 1912, a Medical Registration Bill was first introduced in the Bombay Legislative Council. The Bombay Medical Association, however, seemed to possess some vague notions about it. They wanted to exclude from the operation of the Act, military Assistant Surgeons and the Hospital Assistant class. If they were not entitled to find places in the Medical Register, then they must be declared as unqualified. If they were unqualified they ought not to be allowed to practise; at all events, they ought not to be employed by the State. Then in that case, the work of the Medical Departments in India would practically come to a stand still. This anomalous position was brought to the notice of the Bombay Association through the **Antiseptic**. Better counsels prevailing, this contention was dropped and the Bombay Medical Registration Bill was passed into law. The administration of the Act was placed in a Council of thirteen of whom 6 were to be nominated by Government. A non-official amendment by Sir P. M. Mehta to reduce the number from six to four proved abortive. The **Antiseptic** protested against this measure on the score that the Medical Council, official-ridden as it was, might not prove itself to be an impartial tribunal, but in vain. In February 1913, a Bill for the Registration of Medical Practitioners was introduced in the Madras Legislative Council—not by the Government—but by Dr. T. M. Nair the esteemed Editor of the **Antiseptic**. Dr. Nair who was a member of the Madras Legislative Council then, may as well be called, the father of the Medical Registration Act in Madras. He proposed a Council of 12 members and a President all of whom should be registered under the Medical Registration Act. The Council was to be recruited thus:—

President:—1. To be nominated by H. E. the Governor in Council.

Members:—1. To be elected by the Medical Faculty of the Senate.

1. To be elected by the College Council of the Medical College.

2. To be elected by the Registered Practitioners who are also registered under the Medical Act 1848.
2. To be elected by the medical graduates of the Univeristy of Madras who are registered.
2. To be elected by other Registered Practitioners.
4. To be nominated by the Government.

This, Dr. Nair thought, would be 'a fairly representative and safe Medical Council'. But the Bill underwent considerable modifications in the Select Committee stage. The constitution of the Council was substantially altered. Its strength was increased from 13 to 15 of whom 8 should be nominated by the Government including the President. Seven should come through the electoral door. Thus an official majority was maintained, though it was said to be a bare majority. This 'official majority' infection was certainly imported from Bombay—the fountain-head of all infectious diseases, plague for example. Dr. T. M. Nair, though a member of the Select Committee had to submit meekly to this provision lest his pet Bill should be thrown out altogether, which would surely have been, without Government backing-up. The Bill was passed into law in 1914. Thus the dream of a Medical Registration Act was partially realized, and that after a strenuous agitation for 10 years. I say partially, because it is only a provincial measure and a General Medical Council for All-India is yet to see the dawn of day.

THE GREAT WAR AND THE ANTISEPTIC

The Great European War commenced in 1914 and the **Antiseptic** played no less conspicuous a part in connection with War measures adopted in India at the time. It not only exhorted the medical profession more particularly the Independent Medical Profession to join the ranks of the Army Medical service in larger numbers to render medical and surgical help to the sick, wounded and the disabled but also, recorded in its columns, the valuable progress made in medicine and surgery—more especially in War surgery—during this trying period in the history of the world. Dr. T. M. Nair, the Editor of the **Antiseptic**, himself set an example by volunteering his services to the Government and he was sent out, with the 'Hospital Ship', as one of its Medical officers. I myself in my own humble way organized Ambulance classes in Madras and trained a large army of 'First Aiders', many of whom were sent out to Mesopotamia, for Ambulance work. The **Antiseptic** paid a well-merited tribute to

the medical profession, when it wrote in a leading article in its issue of August 1916 thus:—

"We are proud to think that the Profession in India has done its share of the work nobly. It is true that the demand for medical men from India, has not been so great as the demand for Doctors from England. That is not our fault. We medical men in India must console ourselves with the thought They also serve who only stand and wait. We are especially glad of the part played by medical men in the humbler ranks of the profession in Madras. We have often had to receive visits from Sub-Assistant Surgeons or Assistant Surgeons either on their way to join military duty at the front or returning on short leave."

When most of the I. M. S. men have been withdrawn from Civil duty for field service, the Civil Assistant Surgeons displayed considerable tact and talent in running the Civil Medical Department of Government in the various provinces in their capacity as officiating District Medical officers and thus established their claim to be permanently posted to District charge in larger numbers.

THE DEMISE OF DR. T. M. NAIR

A terrible calamity now overtook the **ANTISEPTIC**. Its Editor Dr. T. M. Nair breathed his last in London on 17th July 1919, whither he had gone to give evidence before the Joint Parliamentary Committee in connection with the Montague-Chelmsford Reforms. His death was due to complications of diabetes, Bright's disease, gangrene of the leg and heart-failure. Alas! he has created a void that could not be filled in the Indian Medical world. The **Antiseptic** has suffered an irreparable loss. This Journal owed its birth, infancy, youth and its present place among the medical monthlies in the country to the unbending will, unflinching energy and conspicuous ability of its late lamented Editor Dr. T. M. Nair. In his death the country has lost an eminent surgeon, a great politician, a finished speaker, a facile writer and a leader and champion of the oppressed and depressed. May his soul rest in eternal peace!

MY ROLE AS EDITOR

After the death of Dr. T. M. Nair, the mantle has fallen on me and I had to succeed to the Editorial Chair. For a busy General Practitioner like me, the editing and management of a Journal must indeed be a stupendous task amounting almost to a physical impossibility. I had no doubt the experience of 15 years in Journalistic line and had imbibed the spirit and policy of the late Editor to an extent which could not be expected of a

new comer. During this time the Journal had also expanded considerably in circulation and influence. A certain amount of decentralization was therefore necessary. This gave the occasion for the entertainment of Sub-Editors. I owe a deep debt of gratitude to Dr. U. Venkat Rau, Dr. G. Raman Pillai, Dr. U. L. Narayana Rau, Dr. P. Rama Rau, Dr. P. S. Krishnamachari and Dr. P. Gururajachar, who as Sub-Editors had contributed not a little to the success of the Journal. I am also indebted to Mr. S. Tiruvenkatachari, Sub-Editor, for his able and intelligent handling of the medico-political problems in the **Antiseptic**, arising out of the Montague-Chelmsford Reforms and his bold and fearless advocacy of the cause of the Medical Profession in India. In 1924, my son Dr. U. Krishna Rau joined me as Associate Editor, which was a source of great relief and strength to me. The management has all along been in the hands of Mr. P. Raghavandra Rau, whose indefatigable energy, organizing capacity, business acumen and above all unimpeachable character have brought **The Antiseptic** to the prominence which it now holds in the Medical business circle in India and abroad, and I shall be failing in my duty if I do not record here my appreciation of his services. I have striven hard, during all these years, to maintain the policy and the prestige of the Journal and God willing, I shall strive to do likewise in the future—as long as I continue in my Office as Editor of the **Antiseptic**.

THE ANTISEPTIC AND THE MINISTRY OF MEDICINE AND PUBLIC HEALTH

The Montague-Chelmsford reforms came into force in 1921 and the Medical Department in each province came thereafter under the control of a Minister, responsible to the Legislature. The first act of the Minister in charge of Medical Portfolio in Madras, which merited the severest condemnation at our hands, was his acquiescence in the policy of retrenchment, pursued by the Government of India at the time. Many of the Assistant-Surgeons and Sub-Assistant Surgeons were ruthlessly sent away from service and the 'Inchcape axe' was really playing havoc in the subordinate Medical Department. The **Antiseptic** held that the time had not arrived for State Medical aid to be withdrawn, and retrenchment in the Medical Department ought not to have been permitted at all. The **Antiseptic** also chalked out a few of the most desirable and pressing medical reforms for the earnest and serious consideration of the ministry. First, the Indianization of Medical services. Secondly, improvement in the Medical

Educational system in this Presidency. Thirdly, the abolition of the so-called caste-system in the Medical Profession. Fourthly, the extensive appointment of Honorary Physicians and Surgeons in independent charge of State Hospitals. Fifthly, the administration of Hospitals to be entrusted to a Committee of Medical and Non-Medical men and not to be left in the hands of an official medical man alone, as at present. Sixthly, the training of Indian women for the nursing profession. Seventhly, the creation of a non-official Medical Advisory Board to advise the Minister and eighthly and lastly, the reform of the present Provincial Medical Councils, by doing away with nominations altogether. **The Antiseptic** was always an unsparing critic of the Ministry whenever there were lapses. In its issue of April 1924, we reviewed the work of the first Panagal Ministry, so far as it related to the Medical and Public Health Administration in the following terms:—

"The Ministry had been in existence for full three years. All the while, their minds had been engrossed with party politics, with squabbles for power, with the distribution of the loaves and fishes of office so that they could hardly find time for reconstruction work. We do not accuse them for their failure in the past. But if the same old lethargy should still continue, the Ministry should be prepared to shoulder the full share of responsibility. We wait for a declaration of the future policy of the Hon'ble the Minister in charge of Medicine and Public Health with regard to the Administration of these two Departments."

THE ADVENT OF 'THE HEALTH'

The Antiseptic is intended solely for 'the enlightenment of the Medical Profession. The medical profession, in their dealings with the lay public, have a hard time in convincing them of the benefits of fresh air, pure water, nutritious food, good exercise, sound sleep and a host of other things which are indispensable not only to cure them of their maladies but also to prevent them from contracting fresh ailments. The lay public consequently require to be educated too in matters of Health and Hygiene, if the Medical Profession should claim absolute success in their career. Therefore, I deemed it necessary to set afloat the 'Health' in English in 1923 and in the principal Vernaculars of South India viz., Tamil, Telugu and Canarese in the succeeding years. **The Health** is a monthly Journal written in an easy-flowing, non-technical style and priced cheap, within the means of even the poorest of the population. I hope the Medical Profession will take some interest in it and contribute articles to it,

purely on health topics and thus promote the welfare of the public.

APPOINTMENTS OF HONORARY PHYSICIANS AND SURGEONS IN MADRAS HOSPITALS

The appointment of Honorary Physicians and Surgeons in Madras Hospitals is a very old and vexed question. During the early part of the twentieth century, the Independent Medical Profession in Madras had not practically come into being. Therefore it was, that the **Antiseptic** had suggested in 1906 that it would not pay for the few Private Practitioners in Madras to serve in State Hospitals as Honorary Physicians and Surgeons. As time went on, and as the Independent Medical Profession began to assert itself both in strength and popularity, a suggestion was thrown out to the Madras Government to give the Honorary scheme a trial. This was in 1910. Perhaps, as a poor show of response to this demand, two men were appointed, one to the Royapuram and the other to the Royapettah Hospital. It will be interesting to know how half-heartedly these two men were utilised. One of them Dr. G. Raman Pillai M. B. Ch. B., was put in charge of three or four beds in the Royapuram Hospital and was given no facilities to do any appreciable work. He got disgusted with the apathy of the authorities and resigned his job. The other Dr. Jesudasan (F.R.C.S.) was in charge of a Surgical ward and operation theatre in the Royapettah Hospital and did really good work, but for some reason or other, his term came to an abrupt close. This was how the system of Honorary Physicians and Surgeons was first tried and given up as a failure. In 1920, the **Antiseptic** again set the ball in motion and stated:

"We have been granted a reformed Government in which we will have a greater share in the Government of the country. Medical Administration is among the transferred subjects, which will be in charge of an Indian Minister. If we should effect any improvement at all in that Department, it is necessary that we should first economise the expenditure on account of that Department and appropriate the savings for the various sanitary reforms that are urgently called for. So far as we can see, the only way in which economy can be enforced is by the substitution of the honorary workers for the large stipendiary agency. A beginning can be made in the Presidency Hospitals. The Honorary Physicians and Surgeons thus entertained should also be appointed as lecturers in the Medical College in the subjects in which they have specialized and be entitled to the usual teaching allowance, because the students pay for the teaching which they receive. Such a system will not only economise the present huge expenditure on medical

administration, but also give a great impetus to the healthy development of the Independent Medical Profession in this country—a consummation so devoutly wished for by Lord Morley that eminent ex-Secretary of State for India.

This was followed by a persistent agitation made by me in the Legislative Council in Madras, to which I was elected by the General Constituency of Madras in 1921 under the reformed constitution and also by Dr. C. B. Rama Row and others. The result of it was that in 1923, as promised by the Hon'ble the Minister for Local Self-Government, the Surgeon-General with the Government of Madras had appointed Dr. Raghubir Singh Thakore, a private practitioner of Coonoor as Honorary Surgeon of the Lawley Hospital but the Civil Surgeon of the Hospital refused to entertain his services on the ground that there was not sufficient additional work for a man. At the same time, applications were invited for supernumerary Honorary Physicians and Surgeons in the various state Hospitals in the Presidency Town of Madras. While welcoming the resuscitation of this old scheme, the **Antiseptic** observed that in as much as these Honorary men were not to be given independent charge of these Hospitals but were meant to serve as aids and auxiliaries to the existing Physicians and Surgeons the scheme was bound to fail once again.

In a leading article in the **Antiseptic** of September '23 we wrote:—

In order to make the scheme a success, it is highly imperative that these Honorary Physicians and Surgeons should be made independent of these officers. They must be given special wards, special charge and invested with all the controlling powers of the superior officers of the Hospitals. They must at the same time be permitted to choose their own assistants to work with them (of course, Honorary men), so that they may have sufficient training and may in course of time succeed to their ranks. Unless and until the whole question is viewed, with an open mind and an unbiassed heart, with a disposition to sacrifice and part with power, no good will result and all the talk of Indianization of services, formation of Independent Medical Profession and the like is but a delusion and a snare. There was every reason for the failure of the scheme at its first inception, for the iron band of bureaucracy was there to stifle it but there can be none now, especially when it has been resuscitated and blessed with the golden touch of democracy unless it be that miraculous touch can produce no genuine gold but only something gilded. It is hoped that the Hon'ble the Minister will not allow himself to be dragged on by the nose-string of officialdom but will rise equal to the occasion and

see that he translates his words into action, real and substantial- not ephemeral."

But the **Antiseptic** was unheeded and the Government appointed 8 Honorary Medical Officers according to their own whims and fancies, in the six Hospitals in the city viz., the Royapettah Hospital, the Tuberculosis Hospital, the Women and Children Hospital, the General Hospital, the Ophthalmic Hospital, and the Royapuram Hospital. The report of the Surgeon-General with the Government of Madras, anent the work of the Honorary Physicians and Surgeons in the Madras Hospitals submitted four years hence in 1927, was most disquieting and disappointing. His condemnation of the whole scheme which was not unexpected was based on the following grounds:—(1) that the appointments were unpopular (2) that they were not conducive to the welfare of the patients (3) that there was no economy in administration to Government, as the employment of Honorary Staff had not permitted any retrenchment in permanent staff (4) that the teaching capacity of the Indian Medicoes was low. We have refuted these arguments in our Editorial of May 1927 and have established beyond a shadow of doubt that, if the scheme, if worked in a spirit of loyalty, zeal, earnestness and disinterestedness would prove an unqualified success. As to subsequent developments, we must only wait and see.

THE LEE COMMISSION AND THE MEDICAL SERVICES

While the 'Inchcape Committee' came out earlier with retrenchment as their watchword, especially in the subordinate ranks of the various services in India, the Lee Commission was ushered in later with a view to recommend special boons and privileges to the superior services. The Commission made the following recommendations with regard to the Medical Service, some of which were drastic and some were in consonance with the views already expressed in the **Antiseptic**. They were:—

(1) Proposal that the Medical needs of both the British and Indian armies in India should be provided for the future, by the Royal Army Medical Corps (India), which should absorb the Indian Medical Service.

(2) Constituting a Civil Medical Service in each province

(3) Recognition of the principle 'white patient, white Doctor'

(4) Suggestion to group districts in the various provinces and to post an European Doctor to a station in each group within easy reach of all parts of the particular group.

(5) Government i.e. the Indian tax-payer to foot the bill on account of expenses incurred in transit, i.e. whether the European Doctor in the group goes to a patient or the patient to the Doctor.

We have reviewed in extenso, the proposals of the European I. M. S. Officers and the recommendations of the Lee Commission, in the **Antiseptic** of February and July 1924 and we do not wish to cover the same ground once again here. Suffice it to say that the abolition of the I. M. S. and the constitution of a separate Civil Medical Cadre for each province which are of vital importance to the growth of Independent Medical Profession in India, and which we strongly pleaded for, were the only two recommendations which had been brushed aside by the Government of India and the Secretary of State. This is an eloquent testimony of the absolute worthlessness of the reforms and the utter helplessness of the Ministry under the Diarchic dispensation.

MEDICAL INSPECTION OF SCHOOLS AND COLLEGES

For the first time in March 1906, the attention of the authorities had been drawn to the bad eye-sight of Madras students and to the prevalence of Trachoma among them. The University Act had invested the Senate with power to look into the question of College buildings and hygiene. Some of the Madras Colleges were badly ventilated, over-crowded and dark. Bad lighting and over-crowding in School rooms are the first evils to be removed in combating the spread of Trachoma. On this subject the **Antiseptic** remarked

"Periodical examination of the eye-sight of school children and College students is an absolute necessity. Otherwise in course of time we may have a generation of blind graduates in Madras. A certain well-known Doctor who was in charge of the Government Ophthalmic Hospital used to say good humouredly to some of the students 'by the time you become a B. A., your eyes will become B.A.D'. That remark is perfectly true."

In England it was the Education Bill of 1907, which imposed the Medical inspection of all children in English public Elementary Schools. Acting on this, the Government of India circularised the Provincial Governments on the subject. The **Antiseptic** in its Editorial of June 1913, drew pointed attention to the manner in which Medical inspection of schools ought to be conducted in India. Nothing tangible however came out of this until Sir. A. P. Patro, Minister of Education in Madras, came out with his scheme of Medical inspection of schools in 1924. It was really courteous on the part of the Educational Minister to have recognized the existence of the

Antiseptic and called for its opinion. The **Antiseptic** in its issue of October, 1924, pointed out the following defects in the scheme:—

1. That the Director of Public Health and not the Surgeon-General should be the authority to supervise and control the scheme of Medical Inspection of schools.

2. Specialists should be appointed to diagnose and treat children's diseases which are of a peculiar nature and which the Civil Assistant Surgeon or Sub-Assistant Surgeon is not competent to handle. The school Doctor must be a bit of a Dentist, a Nose and Throat Expert, and an Eye Surgeon.

3. School doctors should have a special course of training in all the above branches and should constitute a special cadre, independently of the ordinary Medical line.

4. Diseased children examined and ousted from schools are left to their own fates and the Government wash off all further responsibility in respect of such children. Simply to discover a defect and call the parent's attention to it will accomplish little. Special School Clinics should be established and the cases treated there and followed up subsequently.

5. Levy of a small fee on each boy proposed by the scheme is objectionable.

6. The Sanitary condition of the schools themselves is unsatisfactory. The question of housing school children in sanitary dwellings must first be tackled before any attempt is made to improve their lot mentally and physically.

7. More Maternity and Child Welfare centres should be instituted especially in rural parts as it is a condition precedent to the success of the scheme.

Sir Patro's scheme was a half-hearted measure and a mere apology for medical inspection. A further reform is therefore urgently called for and unless the parents, school authorities, Medical profession and the Government act in concert, no good will result.

THE ABOLITION OF THE L.M.S.

When the University of Madras first began to examine Medical students and confer degrees on the successful candidates, they devised two degrees, the M.B. and the L.M.S. The period of training, course of instruction and syllabus for examination were all identical but the distinction between the two came in only with regard to the percentage of marks obtained at the University Examination. Those who got 50% and over were all M.B.s.

and those who obtained 40% were grouped under L.M.S. A M.D. degree was established later on. Both the M.D. and M.B., degrees were registerable qualifications in England, while the L.M.S. was not. But a license granted as a University degree is an anomaly. On this point, the **Antiseptic** observed so early as February 1913 as follows:—

"We want two classes of Medical men, the University graduate and the Government Diplomat. We would retain the Doctors and Bachelor's degrees for University graduate in Medicine and make the L.M.S. a diploma to be granted by Government Examination. With improved teaching and greater facilities for work, the men who go up for the Sub-Assistant Surgeon-Examination ought to be able to pass and secure the Government Diploma of L.M.S. The term Sub-Assistant Surgeon flavours of red-tape. We are for its abolition and with it an elevation of that class which bears that designation at present."

The **Antiseptic** let slip no opportunity in pursuing its agitation for the abolition of the L.M.S. In December 1919 the **Antiseptic** wrote again in the following strain:—

"Turning to the L.M.S. degree which is now conferred on those M.B. students whose marks are below the minimum prescribed for the M.B. degree, we find there is absolutely no justification for the continuance of this so-called half-way qualification. Whatever might be the benevolent motives underlying the institution of this degree, the fact remains that a multiplicity of standards and qualification is a stumbling block in the orderly progress of Medical education, and we therefore strongly protest against the continuance of this degree any longer, as such a degree exists in no other province of India. We wish some of the elected members of the Senate move in the matter."

It was left for Doctor Gurusami Mudaliar in 1925 after 12 years of persistent agitation in the **Antiseptic**, to move for the abolition of the L.M.S. in the Academic Council of the newly constituted Madras University and have it successfully carried out. An age-long sore in the Madras Medical Educational curriculum has thus been healed up.

THE RURAL MEDICAL PRACTITIONERS

In the year 1925 the Rural Medical Practitioner's scheme was promulgated by the Panagal Ministry. The woeful lack of scientific medical aid in rural parts and the growing 'unemployment' and consequent distress among medical men have led to the launching of this scheme. Under this, the Medical Practitioners are given a monthly subsidy and some money for medicines etc., They have to go and set up practice in rural parts. They have to treat the

necessitous poor 'free' and receive fees from the rich. They have been placed under the control of Local-Boards. As has been the fate of every other scheme brought forward by the Panagal Ministry, failure is writ large on this scheme as well. The rural dispensaries are unpopular, because the Taluq Boards unnecessarily interfere in their management and set up rival dispensaries close to the rural dispensaries, which are full-free institutions, and not half-free as the latter are. The Rural Dispensaries are unworkable because the subsidy allowed to the Practitioners is too low and too much encumbered with expenses in the shape of house rent, services and supplies to be really remunerative. Income from Private Practice is practically nil and every patient claims poverty and a single paying patient is hard to find. Further, the rural Practitioners have formidable foes to compete with and contend against, in the persons of the still-flourishing Hakeems or Vaidyans in village parts. Thus they remain the same old 'unemployed, half-starved' Practitioners. The *Antiseptic* in its leader of November 1928 brought home to the Ministry the sad plight of this class of Practitioners and sought its timely intervention. Its result, time alone can tell.

THE PROPOSED ABOLITION OF THE L.M.P. COURSE

Our 'old friend' the Hospital Assistant has undergone various transformations during the past quarter of a century. His designation was altered to Sub-Assistant Surgeon some time ago and now in consonance with the views of the *Antiseptic*, he has been allowed to decorate his name with the letters L.M.P., at the end. So far, he has had 'all the credit but none of the spoil.' The L.M.Ps. constitute the Cinderella of the Medical Profession. Though there had been some additions to their pay off and on, they are still incommensurate with the work, risk and responsibility involved. Besides, the L.M.Ps. suffer under grave disabilities. They are branded as possessing inferior qualifications. They cannot pursue post-graduate study, without undergoing a further course of one year and passing an Examination in any of the British Universities, which will entitle them to find a place in the British Medical Register. Even in the proposed 'All-India Medical Council,' they are denied a place. In the *Antiseptic* of October 1927, we have suggested, for the last time, the abolition of the L.M.P. course on three grounds, viz. Firstly, The L.M.Ps. are not wanted for service anywhere and in private practice too, they are nowhere as better qualified Medical graduates are available at a much less cost now and competition is also keener. Secondly, their abolition will do away altogether with the present invidious 'caste system' in the Medical Profession, which was deeply de-

plored by successive Surgeon-Generals with the Government of Madras. Thirdly, the Indigenous School of Medicine, recently opened by the Government, will produce a much cheaper agency for service in rural parts, and the L.M.P. may henceforth conveniently exit. But the Provincial Governments appear to be unyielding and adamant on the question of the abolition of the L.M.P. course. The future of the L.M.Ps. is thus in the laps of Gods.

A GENERAL MEDICAL COUNCIL FOR ALL-INDIA

This is one of the oldest dreams of the *Antiseptic* which is now in course of realization and this is how it has come to pass. In 1926, I was elected as a member of the "Council of State." About that time, there was a regular tussle between the General Medical Council of Great Britain and the Indian Universities. The former refused to recognise the medical qualifications of the Calcutta University, while the qualifications of other Universities such as Bombay, Madras, etc., were recognized only temporarily for a year. Either this was the outcome of a deliberate move on the part of the British Medical Council of Great Britain to shut out Indians from pursuing post-graduate study in England and thus retard the progress of Indianization of Medical Services or the result of actual deterioration of the capacity of the teaching staff or the intellect of the student population in the various Medical Colleges in India, it is too much for me to prophesy. But I was convinced that the only panacea for this evil lay in the establishment of a General Medical Council for All-India, to which must be transferred the entire control of Medical Education in this country. My friend the late Dr. K. G. Lohokare, M.L.A., of Poona, of revered memory, also held a similar view. We both put our heads together and prepared a draft Bill for introduction simultaneously in the Legislative Assembly and the Council of State. My Bill which was introduced in the Council of State in February 1926 had a more hopeful career than the one introduced by Dr. Lohokare in the Assembly. The Bill was circulated, from the Council of State, for eliciting public opinion thereon. A mass of opinions good, bad and indifferent was collected. Meanwhile the cruel hand of 'Death' had snatched away from the world, Dr. Lohokare, the sponsor of the Bill in the Assembly and in him the Medical profession in India had lost a sincere friend and a stern fighter of their cause. The main objections to the Bill, adduced in the Council of State, by the Hon'ble Member of the Government of India in charge of Public Health portfolio, were: (1) that the Sub-Assistant Surgeon class ought not to find a place in the All-India Register and (2) that such of those Allopathic Doctors as are practising the Indigenous systems of medicine should also be

excluded from the pale of the Council. I met the Hon'ble Member half way and agreed to give up the Indigenous Practitioners but protested against the exclusion of Sub-Assistant Surgeons. That was enough ground for the Government of India to defeat my Bill in the other two stages, if I had only proceeded further with it. But Sir Mohammad Habibulla, the Government Member, than whom no more ardent well-wisher and sincere sympathizer of the Medical Profession in India exists at the present day, was not for smiting a fatal blow on my Bill. He proposed to recast the Bill in the light of the opinions received and introduce it as a Government measure in which case there was a greater chance of success and dissuaded me from moving further in the matter. Half a loaf is better than no bread, and however halting and imperfect the Government Bill might be, I thought it best not to discard it. So I agreed to his proposal. The Government Bill will, I am sure, be introduced and passed into law before the end of 1929. The day is not far off when a General Medical Council for All-India will be constituted and that day will mark the beginning of a new era in the history of Medicine in India as tending to the democratization of Medical Education in this country.

CALCUTTA CONGRESS AND THE MEDICAL FRATERNITY

Before I deal with this subject, let me recall here the aims and objects of the **Antiseptic**, formulated five and twenty years ago. "The parliament of man and the federation of the world is still a poetic dream but it rests with the Medical Profession in India and in Great Britain too, whether the idea of a United Medical Profession in India, a General Medical Council for India and a Medical Registration Act for India should remain a dream indefinitely or brought within the range of practical politics within the next few years." Now for the achievements of the **Antiseptic** at the end of 25 years. A provincial Medical Registration Act has already come into being and a General Medical Council for All-India is in embryo and will be begotten in the next few months. With regard to the unity among the Medical men in India, I consider, its foundations have been well and truly laid when the 7th Congress of the Far Eastern Association of Tropical Medicine met in Calcutta in December, 1927. There at the Congress was demonstrated a feeling of fraternity and brotherhood—a feeling which cherished and fostered the high ideal of the emancipation of the human race, be it white or black, brown or yellow, from the scourge of disease and pangs of death. There were assembled, in that Congress, representatives of the Medical Profession from Japan, Egypt, England, from the League of

Nations at Geneva and from far off America. There, the Medical Profession in India—officials and non-officials—rubbed their shoulders together and manifested a spirit of true love and cordiality. This feeling of brotherhood was even more intensely manifest at Madras when the foreign Delegates stayed here for a few days during their Southern Tour. The Medical men of Madras entertained them at a dinner at the Banqueting Hall, Government House and the honour of presiding over this pleasant function devolved on me. I think it was an honour done to the **Antiseptic** and the Independent Medical Profession in Madras. In the course of my address, I made the following exhortation to that distinguished assemblage, which is also my appeal to-day on behalf of the **Antiseptic** to the Medical Profession in India and abroad, on this occasion of its Silver Jubilee:—

"I must exhort and beg of you all to develop this feeling of brotherhood among Medical men, and casting away all racial and geographical prejudices and passions, work for the common interest of the suffering humanity, to be hailed by them as Gods among men by bringing health out of disease and life out of death."

There yet remains that poetic dream to be realized—the Parliament of man and the Federation of the world—but this is in the hands of Providence, for, despite the pact for the outlawry of War and the attempt to recognize the right of every nation in the world 'to live and let live,' there is still 'the white man's burden,' standing as a stumbling block in the way of the speedy realization of that high ideal.

CONCLUSION

It now remains for the **Antiseptic** to thank all its readers and its large clientele for the generous support and encouragement it has received at their hands, which have contributed not a little to its success. The **Antiseptic**, the **Health**, and its three Vernacular editions, **Arogya Deepika** (Tamil), **Arogya Chandrika** (Canarese) and **Arogya Prakasika** (Telugu) form, as it were, a flotilla which has been launched for the benefit of the Medical Profession and the lay public and which, it is hoped, will sail for many more years to come, in the deep waters of disease and carry humanity safe through and land them in the region of health, wealth and longevity. It is for the Medical Profession and the lay public at large to avail themselves in larger numbers of the services of this little fleet, intended to combat disease and premature decay among mankind. I have

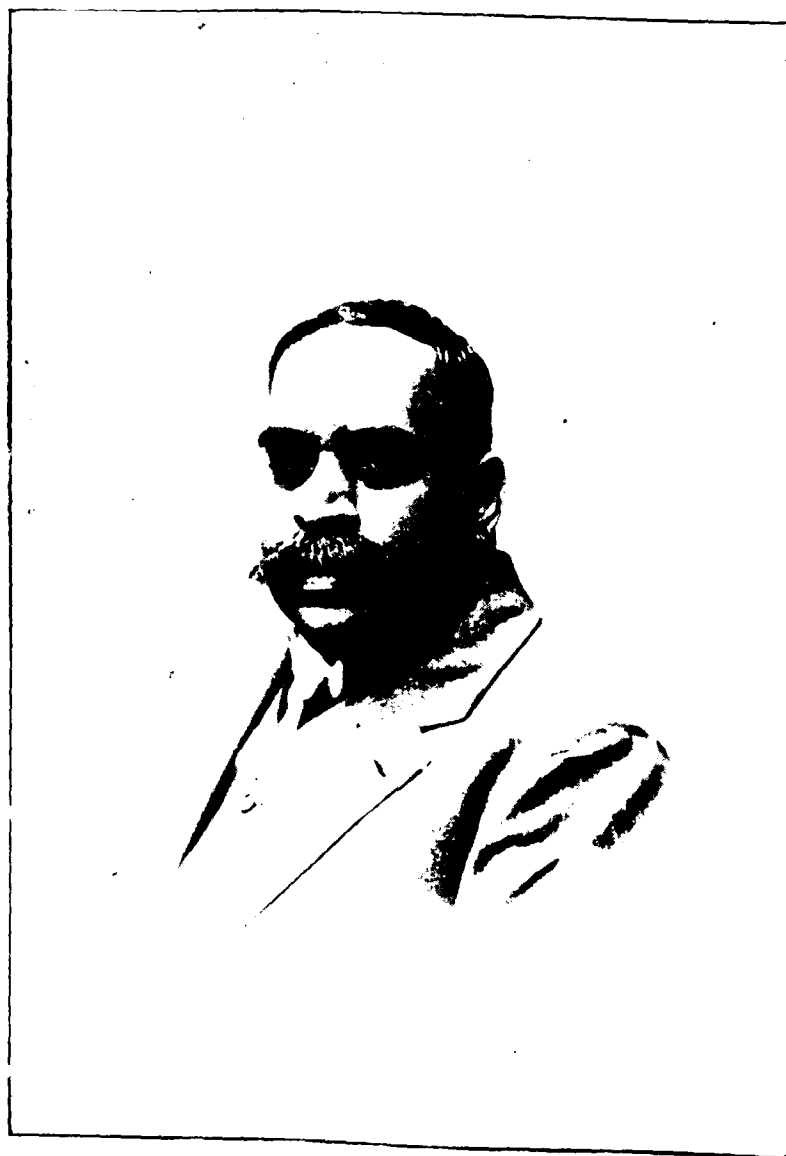
grown grey in the service of this campaign and I have thought it necessary therefore to call in the aid of my son. I hope he will have the same sympathy and support extended to him as to me. His culture will, I am confident, stand him in good stead and his training in the traditions of the **Antiseptic** will ensure the continuity of the purpose and policy of the Journal. I pray to the Almighty to shower His unbounded blessings on the **Antiseptic** and bestow it with long life and prolonged service of usefulness.

The Antiseptic Silver Jubilee issue.



Dr. T. M. Nair M. D. (Edin.)

*Late Editor, The 'Antiseptic', Serving in the
'Hospital Ship' Madras, during the
Great War.*



The Late Dr. T. M. Nair, M.D. (Edin.)

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THE LATE DR. T. M. NAIR, M. D. (Edin.)
HIS LIFE-SKETCH AND REMINISCENCES.

BY

S. TIRUVENKATACHARI

Editorial Department 'The Antiseptic.'

It is with mingled feelings of joy and sorrow that I have to pen this brief life-sketch and a few reminiscences of the late lamented Dr. T. M. Nair—the first esteemed Editor of the **Antiseptic**. Joy, because, by a strange coincidence of circumstances, quite unexpected and undreamt of, it has come to my lot, after a lapse of ten years, to write this memoir, in the **Antiseptic** of one, with whom I sat for many a day, for a decade and a half nearly, and listened to his numerous and humorous after-dinner discourses. Sorrow, at the thought that he was not destined to live long to reap the fruits of his labours both in the political field and in his professional line. It was just before his fatal voyage to England in 1919, that I approached him with a request to write his autobiography but his regrettable reply foreshadowed his future fate. 'Not till I die', was his ready and witty response, not knowing that his end was so near. His majestic personality and his powerful pen are, alas! missing on this joyous occasion of the **Silver Jubilee** of the **Antiseptic**, but I am sure his eager and immortal soul is in our midst now, enjoying this pleasant function, unseen and unnoticed. Peace be unto his soul!

Dr. NAIR'S BIRTH AND BOYHOOD

The late Dr. Tharwat Madhavan Nair was born at Palghat, a flourishing town in the picturesque district of Malabar, situated in the West coast of India, in the year 1867, and was the youngest son of the children of his parents. Little is known of his boyhood except that he possessed a precocious brain, immense martial propensities and a masterly will. He had his early education in the Government High School at Palghat and while still in the V Form, he went up for the Matriculation Examination, a concession that was readily allowed in those hazy days, and came out successful. He then repaired to Madras and joined the Presidency College but did not complete his Arts Course. He entered the Madras Medical College thereafter for the pursuit of his professional studies. Here his martial quality exhibited itself to such

a pitch that he fell out with his professors and earned their odium. He did not succeed at the Final Examination and a temporary set-back was thus given to his career in life. In 1889, he proceeded to Europe with a firm resolve to return with distinction in his professional attainments and here he succeeded. Even in the Edinburgh University where he studied for the M.B., Ch.B., his martial spirit was so much in evidence that he was known there, by the nickname of 'the fighting McNair.' He obtained his degree in 1894 and not content with this, he joined the Throat and Ear Hospital at Brighton, specialized himself in those diseases and earned his M.D., degree in 1896 and worked as a House Surgeon in that Hospital for sometime. He also went to Paris to study Bacteriology there.

Dr. NAIR AS A MEDICAL PRACTITIONER

It was in the year 1897 that he returned to Madras and started practice as a specialist in Throat, Nose and Ear diseases. As a Practitioner in this line, his talents and attainments were unsurpassed. He stinted neither money nor pains in keeping himself up-to-date in the advancing Science of Medicine and Surgery. He had a roaring practice and had consultations alike from the city and the distant mofussil, from the Indian and European Doctors. In a big 'will' suit in Ceylon, he was engaged as the Medical adviser to Mr. Earldley Norton who conducted the defence, in which he distinguished himself, as an expert of no mean ability and as an authority on Diabetes.

Dr. NAIR AS AN AUTHOR AND A JOURNALIST

This was reflected later in his authorship of a treatise on 'Diabetes.' His command of the English language was of a rare order and his book was much appreciated not only for the wealth of knowledge but also for the elegance of its style. But Dr. Nair figured more prominently as a Journalist than as an author. His connection with the *Antiseptic*, as its first Editor since its very inception in 1904 up to the time of his demise, is too well-known to need recapitulation. The Medical Profession in India owes him a deep debt of gratitude and the Independent Medical Profession in Southern India, especially, has attained its present pre-eminence mostly, if not mainly, through his efforts. Though medicoes generally can by no means be said to be immune from professional jealousies, yet Dr. Nair was very popular among all grades and classes of Practitioners. As a lay Journalist, he was equally great. He was for sometime the Editor of the old '*Madras Standard*' and it is no exaggeration when I say that the 'Standard' office in Popham's Broadway, Madras, used to be daily besieged by hordes of anxious readers. As the Editor of "*The*

Justice" in his later days, he showed conspicuous ability and level-headedness. The *Justice*, though a Non-Brahmin organ, was then in the hands of almost every Brahmin, and was heartily read by him and never was there any cause for complaint in point of manners, language or dignity.

Dr. NAIR AS A MUNICIPAL COMMISSIONER

It was his activities in the Madras Corporation that had brought Dr. Nair name and fame. He firmly believed that the foundations of politics could be well and truly laid only on the floor of the Municipal and Local bodies. He had no regard for politicians who never had a practical training in civic and parochial politics. The greatest statesmen in England, he used to say, had their first grinding in politics in Corporations and Local bodies. Dr. Nair first sought entrance into the Madras Corporation as an elected Commissioner—now called a Councillor—in 1904 and served it for 10 years till he resigned in 1914 under very unhappy circumstances of which I shall deal later. It will take volumes to write about his doings in the Corporation but space forbids me to do so. Suffice it to say that, Dr. Nair was the Sun (the English equivalent of the Vernacular word Na-a-ir) that had dried up the moisture of jobbery and favouritism in the Madras Corporation. The *Revenue Department* was the first to attract his attention. He strongly pleaded for the appointment of a Special Officer by the Government to overhaul that Department. This was soon after effected by Mr. T. Raghaviah. The *Health Department's* turn came next and he himself set to work for its regeneration. His scheme for the separation of conservancy from sanitation was a masterpiece and approved of by the Government in toto. But he never spared the Executive when unqualified and incompetent men came to be appointed for the newly created posts, under the re-organization schemes. He voted for the Departmental system of conservancy as against the contract system then prevalent for a long time and thus broke the 'ring' of the contractors, who tried to monopolize the conservancy contract, by dictating impossible terms and quoting exorbitant rates. The mismanagement of the Departmental Conservancy Depots later on, led to a thorough investigation by himself, unaided, of the methods of their working and a close scrutiny of their accounts. He found that the Superintendents in charge had a large stock of cotton-seeds, which were paid for in grain, not in coin and for which no accounts were maintained. He observed in his valuable report of nearly 50 pages of printed matter as follows:—"The days of barter are over and we have under the British Government an established system of currency and when

any public official accounts for the money he spent in cotton-seeds in grain instead of in any coin current in the country, he establishes his claim to be admitted as an inmate of either the Lunatic Asylum or the Jail." He pressed for the criminal prosecution of the Departmental Depot Superintendents and when the Standing Committee obtained legal opinion against their prosecution, he sought for and secured at his own expense the opinion of the then Advocate General, the late Sir V. Bhashyam Iyengar, in support of their prosecution. But the will of the majority in the Council prevailed and the employees were let off with a mere dismissal. *This shows of what stern and selfless stuff Dr. Nair was made of.* Dr. Nair's contributions to the New Drainage and Water Works schemes so vital to the rate-payers of Madras, then in process of evolution were eminently practical. An interesting episode is worthy of mention here. In connection with a tender for pumping plant, he had his speech written out and read before the Council, to which objection was taken by the President Mr. Lloyd, I.C.S., as it was against his usual practice of delivering extempore speeches. This matter was reported to the Government, where the conduct of two officials of the Corporation was called into question, as having been responsible for this inspired written speech. Dr. Nair came to know of this, personally interviewed His Excellency Sir Arthur Lawley, the then Governor of Madras and got the letter withdrawn with due apologies. When shortly after, the Tondiarpet Drainage Scheme prepared by the Special Engineer, Mr. Madeley, came up for discussion, he was ready with his extempore criticism on it, and with the requisite contour maps and drawings prepared by himself. He exhibited them at the meeting, spoke extempore and made the audience spell-bound for two hours. *His versatile genius was in evidence on that occasion and he proved himself to be as good an expert in Engineering as in Medicine—a rare combination.* One instance of his vindicating the rights and privileges of his colleagues in the Municipal Council should not be passed unnoticed here. When Mr. MacMichael, I.C.S., was the acting President of the Corporation, he ruled out of order, certain resolutions, which he said, were encroaching on his rights, as the Executive head of the Municipality. Dr. Nair was one of those Commissioners whose resolutions were thus summarily disposed of. But he was not the man to bow down and submit meekly to the President's ruling. The next day he moved the High Court, Madras, under the Specific Relief Act, and prayed for the restoration of his resolution in the agenda. The late Mr. (afterwards Justice) T. V. Seshagiri Aiyar was his lawyer and the President was represented by the late Mr. (afterwards Justice) V. Krishna-

swami Iyer and subsequently by Sir P. S. Sivaswami Iyer. The hearing did not however come off and the suit was eventually withdrawn, as the Corporation under the advice of Sir P. S. Sivaswami Iyer passed another resolution, restoring all the ruled-out resolutions for disposal according to their merits. *Here was a man of action, not a man of words, nor of mere threats.*

DR. NAIR AS A LEGISLATOR

Dr. Nair served as a Member of the Madras Legislative Council only for a single term and that as a nominated member. His Medical Registration Act was the boon he gave to the Medical Profession in the Southern Presidency. As a member of the Factory Labour Commission he did yeoman service to the cause of Labour. The salutary Factory Reforms now in force have been based on his able dissenting minute. In recognition of his meritorious public services, he was awarded the Kaisar-i-Hind medal I Class in 1912. When I questioned him whether he did not deserve a Knighthood, he said he would like to remain a plain Dr. Nair. After the expiry of his first term, he attempted to get elected twice to the Legislative Council through the Madras Corporation but unfortunately failed, not for want of support but by force of circumstances. On the last of these occasions, he withdrew in favour of the late Sir P. Theagaraya Chettiar, on the distinct understanding that the latter would see him elected to one of the two seats in the old Imperial Legislative Council. He was accordingly nominated by Sir Pitty himself and the other candidates were Nawab Syed Mohamed and Messrs. N. Subba Rau and C. Vijayaraghavachariar. The voters were the members of the Madras Legislative Council itself. Although Dr. Nair was assured of solid 14 votes—not by oral promises merely but by telegrams and letters—much to his dismay, he got only four votes. Sir Pitty Theagaraya Chettiar who nominated him on paper failed to propose him formally on the day of election. After the nominations of the other three candidates were duly proposed and seconded, there was a pause, a hush and a profound silence for a few minutes in the Council Chamber and the fourth candidate Dr. Nair was found to have been left in the lurch. Up rose Mr. Orr of Messrs. P. Orr & Sons, stared at Sir Pitty who had never lifted his head, saw the danger ahead and at once proposed the name of Dr. Nair, which was duly seconded by Mr. Richmond. The result of the Election was that Nawab Syed Mohamed and Mr. N. Subba Rau were declared duly elected. Besides the mover and the seconder, the Zemindar of Doddappaikanur, his old patient and an European planter, who had already promised him one of his two votes, were

the other two who supported him. This was how his failure in that election was brought about.

THE GREAT WRONG AND THE TURNING POINT

Here was the turning point in the history of Dr. Nair. No doubt a great wrong had been committed, a grave political blunder had been perpetrated, which set back the clock of political progress in India by several years. But, by whom? That is the question now, that is the riddle to be solved. As soon as Dr. Nair was appraised of the result of the election by his trusted non-Brahmin comrade, who watched the proceedings on his behalf, in the Council Chamber, he grew indignant and there was nothing unnatural about it. But then Dr. Nair was persuaded to believe that two Indian Judges of the High Court were the wire-pullers behind the screen, one of whom being a Brahmin and the other a non-Brahmin, and further was he told that there was a deep-rooted plot among Mylapore Brahmins to nip in the bud the Non-Brahmin Political ascendancy in Madras, which was sure to come about by his elevation to the Imperial Council. At that time, there were two schools of politics in Madras, the Mylapore school and the Egmore School. The Brahmin Lawyers of Mylapore belong to the former group and all of them were Congressmen of the moderate type and the latter consisted of heterogeneous elements of liberal persuasion among whom Dr. Nair was the most forward and promising. There was a third school besides, the Adayar school—alias the Home Rule school which was at one time a purely religious institution and which later was transformed into a potent political power, that lent its weight to the Mylapore school, to bring about the downfall of the Egmore School, in other words the downfall of Dr. Nair. That was the argument adduced by Dr. Nair's trusted Non-Brahmin comrade to convince him at the psychological moment of the existence of a deep Brahmin plot to overthrow Non-Brahmin supremacy in Madras. But to a dispassionate observer it must be clear that the whole thing was more the result of political jealousies and personal ambitions than of communal bias. There were leading Non-Brahmins in the Mylapore Camp also who arrayed against Dr. Nair in this election battle, and there were also many leading Brahmins who supported Dr. T. M. Nair through thick and thin, in all his political activities. How then did the communal bias find its way here? The fact is Dr. Nair was getting more prominent in the political field. He was sure to be a thorn in the way of other politicians in Madras of the Congress persuasion, coming to power, under the Minto-Morley Reforms, if Dr. Nair should suddenly be lifted to the top-most rung of the political ladder. He must therefore be crushed at any cost and a

combination of forces, the Brahmins, the Non-Brahmins, the Civil Service men, the Liberals, the Home Rulers and the Congressmen were all at work to bring about this end. But Dr. Nair was unable to perceive this. The first impression created in his mind by his trusted friend continued to remain to the end of his life. He at once resigned his Municipal Commissionership and wrote a leading article in *'The Madras Standard'* in which he made the following tragic pronouncement, which struck at the very root of all political progress in India, and that was "I want to stand on a different platform from those who, by a statutory enactment have been dubbed honourables." This was the genesis of the great Non-Brahmin movement and the turning point in Dr. Nair's political life.

Dr. NAIR AND THE NON-BRAHMIN MOVEMENT

The Non-Brahmin movement is a matter of recent history and it is needless for me to dilate on it at any considerable length. Suffice it to say that old foes met each other in new robes, as friends, and blessed by the bureaucracy, inaugurated this Non-Brahmin movement. The *'Justice'* paper was started under the able Editorship of Dr. Nair, to voice forth the claims and grievances of the Non-Brahmins. When the Montague-Chelmsford reforms were being hatched, the Non-Brahmins claimed reservation of seats and other privileges for fear of Brahmin domination. But the polls subsequently belied their fears and anxieties. The grand awakening and the political consciousness created among the Non-Brahmin masses of India generally, as a result of this movement, are indeed happy auguries for the future of the country. Dr. Nair died in the thick of the fight, in trying to redeem the Non-Brahmin masses from age-long social tyranny and rouse them to political activity. He went to England to give evidence before the Joint Parliamentary Committee, to use his personal influence there, if need be, and obtain from the Government certain concessions for the Non-Brahmins in the Reformed Constitution and in this he succeeded. But he was not destined to reap the fruits of his labours. Particularly in the case of Dr. Nair, it looked as if the Lord's commandment, 'Do your duty without looking to the fruits thereof', was made sadly and sternly applicable. He had all the credit but none of the spoil. He should have been the prominent participator in the Jubilee celebration of the **Antisep-**tic to day of which he was the Editor for 15 years, but alas! he had not lived long enough to take part. He should have been the first elected President of the Madras Corporation where he laboured for 10 years but fate had ordained otherwise and by his abrupt resignation and subsequent total abstention from all

Municipal activity, he had lost that chance. He should have been the first Chief Minister under the Dyarchic Government, but death had snatched him away earlier from the world. He died of diabetes on the 17th July 1919, in England, the land of his adoption, which he loved as fervently, as he did the land of his birth. He was a man of genial and jovial disposition, who loved truth and hated sycophancy. He was free from the tie of marriage and the bond of family. He lived a lonely, happy and contented life and died a great, loveable and honourable man.

THE BITTER CUP AND THE PRESENT POLITICAL OUTLOOK

The political history of India at the present day is drifting from bad to worse. The cleavage between the Brahmin and the Non-Brahmin is getting wider and wider while the Hindu-Moslem tension is causing the gravest anxiety. We have tasted enough of this bitter cup of communal dissensions for full ten years, which have retarded all social, political and economic progress in the land. The time has arrived to cry halt. In the midst of the arid desert of political factions and communal jealousies, we have discovered in the Nehru Report, the oasis we have longed for. All parties and communities of India have met at that oasis now, though through different routes, and exchanged greetings. Our next and immediate move must be to conjointly cross the desert, still ahead of us, to reach our destination. To do so, two things are essential. The first is 'to forget and forgive' and the other is 'to give and take.' If these two essentials are fulfilled, there will be complete harmony in the land and the political salvation of India, as an equal partner in the British Commonwealth, will be a thing of reality in the near future. Let no personal, party or communal consideration outweigh public interests and let all of us with one voice and one mind march cheerily along, as the children of United India, to reach the desired goal. "The Parliament of man and the Federation of the world" which was the political dream of Dr. Nair, will then be more easy of realization, bringing in their train peace, goodwill, happiness and prosperity on earth.



Hon'ble U. Rama Rau K.I.H.

*Editor, The Antiseptic, as Superintendent
St. John Ambulance Brigade Overseas, Madras Dt.*

The "Antiseptic", Silver Jubilee Issue.



Hon'ble Dr. U. Rama Rau,
Editor,
The Antiseptic.

MY GOOD OLD FRIEND-THE HON. Dr. U. RAMA RAU

BY

Dr. S. A. JEGARAYA MUDALIAR

Assistant Surgeon (Retd.) St. Antony's Cottage, Coimbatore

As one of the oldest friends of the 'Antiseptic', I have been asked to contribute an article to that Journal, befitting the happy occasion of its 'Silver Jubilee' and I gladly do so. Luckily, the choice of subject was left to me to decide, otherwise, I should have been heavily handicapped. A professional article from my pen is out of question, as I have neither the time to write nor the necessary books to consult, posted as I am and have always been, to a remote mofussil station where such facilities and advantages are absent. But write something, I must, and the thought happily ran to my old friend and class-mate, the Hon'ble Dr. U. Rama Rau himself, the present Editor of the 'Antiseptic', than a short sketch of whose life and activities, no more fit theme for my article, can be imagined. His is a life worthy of study and emulation and worthy of record on this momentous occasion. My intimate knowledge of him and of his career from his College days to the present moment is my sole credential for venturing on this subject. I hope the Medical profession in India will profit by his example and will be stimulated to a life of unceasing activity and unostentatious work.

Dr. U. RAMA RAU'S EARLY HISTORY

Hon'ble Rao Sahib Dr. U. Rama Rau, was born at Udipi, a small town in South Kanara, on the 17th September 1874, of a humble and respectable parentage. He belongs to the Shivalli Madhwa Brahmin community noted for their learning and piety. He was educated at the Madras Christian College and thereafter at the Medical College, where he completed his professional course in 1899. As a student, he was hard-working and industrious. He was the winner of many prizes and medals and his career, as judged from his school life was full of hope, full of promise.

Dr. U. RAMA RAU AS A MEDICAL PRACTITIONER

After leaving the College he set up private practice in Madras. For a Medical man in those days, a Government job was in no way tempting nor the chances of building up a large fortune as an Independent Medical Practitioner, any the greater, owing to the killing competition with the State-aided Doctors on

the one hand and the still flourishing Ayurvedic and Unani Physicians on the other. Slowly and steadily, however, he built up a remunerative practice, became very popular among his patients and earned the enviable distinction of being called the poor man's Doctor. His kindness, tact, gentle manners and jovial disposition were the key-notes to his success and popularity. Dr. C. B. Rama Rau used to characterize him as a perpetual moving machine, while Drs. Clarence Smith and Nair always requisitioned his services to assist them in their Surgical operations. His popularity among Medical men is evidenced by the fact that he was successively returned to the Medical Council, since its inauguration in 1914 by his class of medicoes. He is now the elected Vice-President of the Council, which shows the esteem and regard he is held in, by the Medical Profession in Madras, of all grades and ranks, official and non-official. When the delegates of the Far Eastern Association of Tropical medicine came on their Southern Tour, he had the unique distinction of presiding over the dinner given to them by the medicoes of this Presidency and in this way his greatness as a Medical Practitioner duly acknowledged.

Dr. U. RAMA RAU AS THE FOUNDER AND EDITOR OF THE ANTISEPTIC

Dr. Rama Rau is well-known as the founder of the **Antiseptic**, which has completed 25 years of its existence and whose "**Silver Jubilee**" is being celebrated now. The **Antiseptic** is perhaps the only Medical organ in Southern India to-day, which has contributed largely to the advancement of scientific knowledge among Medical men in this part of the country. The **Antiseptic** has besides earned an All-India and an International fame and under the able guidance of its first Editor the late Dr. T. M. Nair and its present Editors The Hon'ble Dr. U. Rama Rau and Dr. U. Krishna Rau, M.B.B.S. his son, it has been recognized as one of the few potent and powerful Medical Journals in the land. It has espoused the cause of the subordinate Medical men in Government Service boldly and fearlessly and what little they have gained in their prerequisites and prospects were obtained solely through the instrumentality of the '**Antiseptic**'. May the Almighty shower His choicest blessings on the **Antiseptic** and its founders and Editors, the Hon'ble Dr. U. Rama Rau and Dr. U. Krishna Rau, on this auspicious occasion of the **Silver Jubilee** of the **Antiseptic** and bless them with a long lease of life and many more years of unstinted service to humanity!

Dr. U. RAMA RAU AS A CORPORATION COMMISSIONER

Dr. Rama Rau has not forgotten his civic duty. His popularity in the city had easily won for him a seat in the Madras Corporation. He served as a Municipal Commissioner for 6 years and in collaboration with his colleague Dr. T. M. Nair was responsible for the cleansing of the Augean Stables in the Corporation. But his solid work among his constituents in educating them through leaflets and pamphlets of their civic rights and privileges is a clear indication of his sense of duty and humanitarian bent of mind. His 'Guide to Rate-payers,' published every month in English and Tamil and distributed free to the rate-payers was very much appreciated. His lectures on Temperance, First Aid and Health topics through lantern slides prepared at considerable expense, were the effective means of health propaganda which he had adopted for the benefit of the citizens of Madras.

Dr. U. RAMA RAU AS AN AMBULANCE WORKER

During the Great War, Dr. Rama Rau organized Ambulance classes, trained about thousands of people and sent them to the Eastern front for service. He published 'First Aid in Accidents' in all the four languages, English, Tamil, Telugu and Canarese, the sale proceeds of which were handed over to the War Funds. In recognition of his meritorious services during the War he was awarded the title of 'Rao Sahib' and later on he got a Kaiser-i-Hind medal. He was made the Divisional Superintendent of the St. John Ambulance Corps Overseas Madras District and was decorated recently with a Silver Donat Badge of the Order of St. John of Jerusalem, the highest distinction to a non-christian in the gift of His Majesty the King-Emperor.

Dr. U. RAMA RAU AS A HEALTH JOURNALIST AND PROPAGANDIST

Dr. Rau is no less ardent and no less enthusiastic in his desire to save humanity from the ravages of preventible diseases and he has, apart from his Health Propaganda work above alluded to, started the publication of Health Journals in English, Tamil, Telugu and Canarese which are gaining in popularity and approbation. Those Journals are the effective means of dispelling the darkness of colossal ignorance and age-long superstition among the uneducated masses and considerations of money, time, and trouble never weighed with him in the discharge of his self-imposed, self-less and self-sacrificing duty.

Dr. U. RAMA RAU AS A LEGISLATOR

When the Reform scheme was inaugurated, he stood for election to the Madras Legislative Council, for one of the four

seats allotted to the City of Madras and was returned with an overwhelming majority. He is a Congress man of the Swaraj persuasion and his service in the Council was marked by fearlessness and independence. He was instrumental in the inauguration of the Rural Medical Scheme, a scheme of far reaching importance to the inhabitants of the Rural parts. Indianization of services, the Medical Inspection of schools scheme, the reforming of the General Hospital and Medical Colleges and other cognate matters in which the Medical profession is deeply interested, had not escaped his attention. For a second term he was elected by his native Constituency of South Kanara. This time, through the Legislative Council, he got into the University of Madras as a Senator. As an Honorary Presidency Magistrate he still holds the scales of criminal justice even and is known for his firmness and impartiality. Even before the expiry of his term, he was nominated for a seat in the Council of State as a Congress Candidate. His good fortune never betrayed him and he came out successful even in this election. He has now reached the pinnacle of his glory in public life. As a member of the Council of State, he is responsible for the introduction of "the All-India Medical Council" Bill which has the chance of becoming a law, in the not distant future. His resolution regarding the removal of ban on Medical men in respect of opium preparations, is really praiseworthy. He has been nominated by the Government of India to serve on the Road Committee. Not a single non-official day passes without some resolution or other of his being discussed in that august body.

CONCLUSION

Such is the history of one who has dedicated his life, his knowledge and earnings for the public weal. The Hon'ble Rao Sahib Dr. U. Rama Rau has been the architect of his own fortune. He has lived long to see the **Silver Jubilee of the Antiseptic** celebrated within his life time. It is my sincere desire and earnest prayer that he should survive the Golden and Diamond Jubilees of the Journal and live the life of a Centinarian. May God bless him with long life, health and prosperity!

MESSAGE FROM CAPTAIN G. SRINIVASAMURTI, B.A., B.L., M.B., & C.M.

Adyar, Madras.

आन्तिसेप्टिक-पत्रिका-रजत (जूबिली)-महोत्सव- वैभव-मङ्गलाशासनम् .

श्रीगामः श्रितवन्सलस्स भगवान्कृष्णश्च कमान्तकः
पायान्नित्यशुभोदयैः पितृसुतौ श्रीरामकृष्णाह्वयौ ।
ताभ्यां चालित "माण्टिसेप्टिगिति" यत्पत्रं शुभं मासिकम्
तस्यायं रजतात्सवो भुवि सदानन्दाय बाभूयताम् ॥ १ ॥

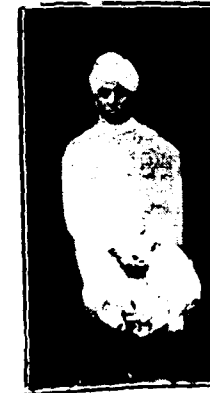
यनेयं शुभपत्रिका भुवि जनक्षेमाय संस्थापिता
भेषज्येऽपि च राज्यतन्त्रविषये यत्कीर्तिरुज्ज्वलते ।
सोऽयं वैद्यकुलाग्रणीर्विजयतां श्रीरामनामा चिरम्
साधुस्सद्विनुतश्च सर्वजनसुखैकबद्धादरः ॥ २ ॥

रजतमहोत्सवेस्मिस्तनुते प्रणयादिमां शुभाशंसाम् ।
जी. श्रीनिवासमूर्तिश्चिरमित्रं रामरायवयस्य ॥ ३ ॥

Translation of the above verses.

1. May Lord Sri Rama, who is kind to his devotees, and Bhagavan Sri Krishna, the slayer of Kamsa, protect by showering their blessings, on Dr. Rama Rau and Dr. Krishna Rautfather & son). The excellent monthly Journal named "Antiseptic" conducted by them celebrates to-day its Silver Jubilee and may it prosper in this world to the delight of all.

2. The Antiseptic was founded by Dr. Rama Rau for promoting the welfare of the people. The glory of



Dr. Rama Rau shines in all its splendour in the field of Medicine and in the domain of Politics. May our doctor, the foremost among the Medical Practitioners, be prosperous and ever-successful; he is praised by the virtuous and is ever zealous in working for the real welfare of all.

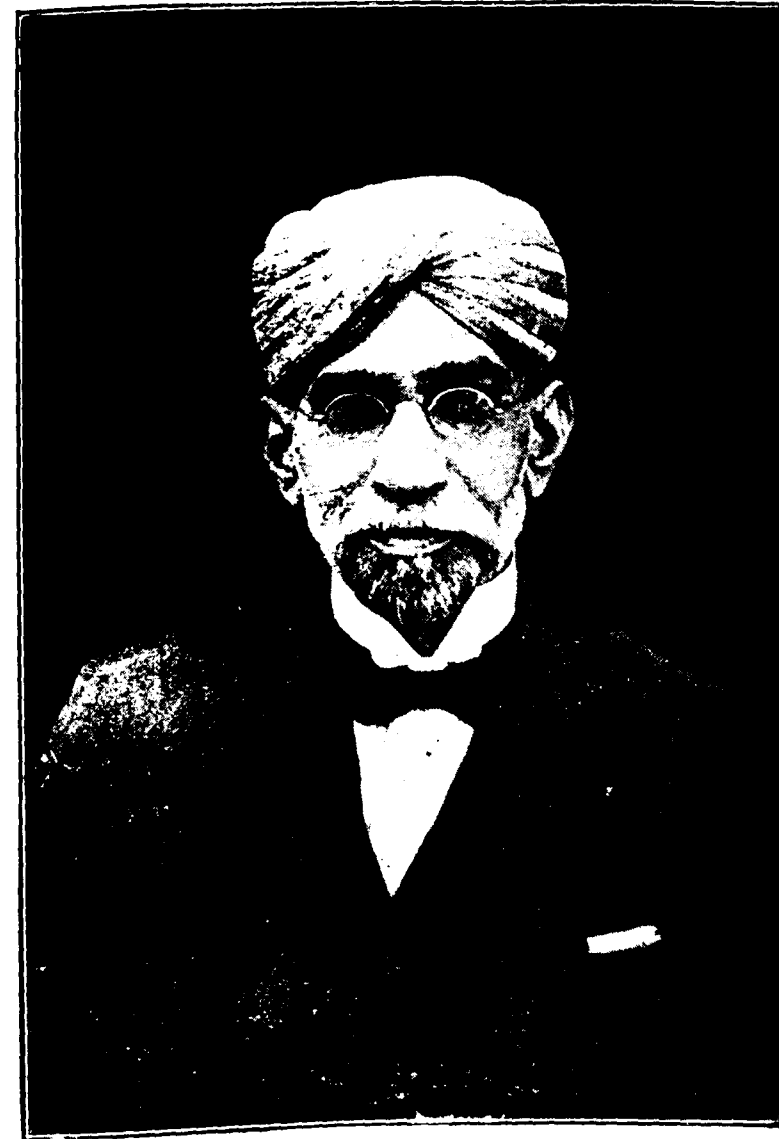
3. Dr. G. Srinivasa-murti, an old friend of Sriman Rama Rau, sends these greetings on the occasion of the Silver Jubilee to express his love and affection.

**Message from The Hon'ble Khan Bahadur Sir Mohamed
Habibullah Sahib Bahadur, K.C.S.I., K.C.I.E., Kt.**

I have read with interest an advance copy of the review of the history of "The Antiseptic" periodical to be published in its Silver Jubilee Issue. For this courtesy I am indebted to my old friend and colleague in the Council of State, the Hon'ble Dr. U. Rama Rau. "The Antiseptic" seems to have covered a wide ground and contended for many causes. Naturally, there would be room for difference of opinion on the cases which this publication has taken up. But there can be no difference of opinion regarding the desirability of the existence of periodical which strives to advance the knowledge of modern science of Medicine and Public Health, to advocate and uphold the highest traditions of the medical profession, and to promote harmonious co-operation between private medical practitioners and the Medical Services organised and maintained by Government. It is as a publication of this character that "The Antiseptic" seems to me - a layman - to serve a very useful purpose, and I wish it a future of greater usefulness and prosperous activity.

Md. Habibullah

The "Antiseptic," Silver Jubilee Issue.



**The Hon'ble
Khan Bahadur Sir Mohamed Habibullah Sahib Bahadur,
K.C.S.I., K.C.I.E., Kt.**

*Member of H. E. the Viceroy's Executive Council
in-charge of Health Portfolio.*

The Hon'ble Major General Thomas Henry Symons

C.S.I., O.B.E., K.H.S., I.M.S.

Director General, Indian Medical Service



NEW DELHI,
11th March, 1929.

DEAR DR. RAMA RAU

I write to congratulate you on the 25th anniversary of your medical publication and to wish it a continued success.

The publication fulfilled a want in South India when it was first launched upon the medical profession. It has however now spread far beyond its original sphere and is to be found in the hands of Medical Practitioners in other parts of India.

Yours sincerely,

T. H. Symons

MESSAGES OF CONGRATULATIONS

Dr. Th. Madsen

President of the Health Committee of the League of Nations, Copenhagen

My short visit to India in 1927 enabled me to form some idea of the complexity and difficulty of many of India's urgent public Health problems. I realised also that the solution of these problems calls for the whole-hearted co-operation of the Medical Profession of India as a whole. The service which the "Antiseptic" can render in this great task is very appreciable.

In your efforts to foster the well-being of the Medical profession in India and in the cause of the public health of your great country, I wish you every success.

Dr. James Burnet, M.A., M.D., F.R.C.P.

The Well-known Specialist in the Diseases of Children, and author of 'A Manual of Diseases of Children,' 'Diseases of the New Born,' etc., Edinburgh

I readily respond to your request for an article. I cannot, however, allow this occasion to pass without offering you my hearty congratulations on the completion of twenty-five years of successful work in connection with the "Antiseptic." I have watched its progress from the very first issue. It has steadily improved, until now it has taken a leading place in its country's Medical literature. I may be allowed to say that I have a special affection for India, and all that concerns your great country. When some years ago, I was the recipient of a certain honour it was an Indian's Telegram which was the first congratulatory message to reach me. I shall never forget that. I can claim, too, many natives of India and Ceylon among my students, and not a few of these have been awarded my class medal.

Allow me therefore, to offer you my warmest congratulations, and to express the hope that your Journal may continue to flourish and that all your efforts may be crowned with success. And may India be blessed with peace and prosperity!

Dr. J. P. Lockhart Mummery, B.A., B.C., F.R.C.S. London

I congratulate you on "The Antiseptic" reaching its Jubilee.

Sir Walter Fletcher, K.B.E.

Medical Research Council, London

Has asked me to acknowledge with thanks the receipt of your letter of the 24th October, informing him of the coming celebration of the Silver Jubilee of "The Antiseptic" on which he congratulates you. (Sd.) N. Suke.

Sir Donald MacAlister of Tarbert, B.T., K.C.B.

Principal and Vice-Chancellor, University of Glasgow

From the cradle of the Antiseptic surgery in the University of Glasgow, I have pleasure in sending you my congratulations on the attainment of the Silver Jubilee of "The Antiseptic" and my good wishes for its continued prosperity and yours.

Dr. A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S.

Clifton, Bristol

Allow me to send you my hearty congratulations on your continued success and that you have now passed the quarter of a century landmark. I well remember in the far off days when I used to contribute to your paper that you remarked how difficult medical journalism was in India. I am very glad that your efforts have been rewarded with such success.

Dr. Herbert French, C.B.E., M.A., M.D., (Oxon), F.R.C.P., London

Physician and Lecturer, Guy's Hospital.

I remember well contributing to the "Antiseptic" at its very beginning and congratulate you on its continued success.

Lt. Col. W. J. Niblock, I.M.S. (Retd.) Bournemouth

I assure you my very best wishes go with the "Antiseptic" and all connected with it. I believe it has served, and will serve a very useful purpose and hope that it will accomplish even more useful purposes in the future.

Prof: Grey Turner, M. S., F.R.C.S.

Newcastle-upon-Tyne

I wish you every success on the occasion of the Silver Jubilee of the "Antiseptic."

Dr. John H. Stokes, M.D.,

University of Pennsylvania, Philadelphia

I wish the Journal a prosperous future.

Dr. J. Spencer Sheill, F.R.C.P.I.

Dublin

It is with some feeling of pleasure that I, as one of the earliest contributors of original articles to the "Antiseptic" set pen to paper, this time to record a few words of appreciation of the work done by this Journal and the manner in which it has been done.

While it is quite impossible for me to recount all the phases of activity which Mr. Rama Rau and Dr. Nair have in the past 25 years passed through in their efforts to uphold the dignity of the Medical Profession in India in general, and in the Madras Presidency in particular through the agency of "The Antiseptic," one cannot let the auspicious occasion of its 25th year of existence pass without meed of praise for the success which has attended the upholding of the standard of the editorial work, not to mention the plucky and successful fight waged against unqualified practise, quackery, hospital abuse, dope drug traffic and the assistance it has rendered to the causes of Public Health, Medical Education and Medical Services.

In conclusion, I would like to offer to the Hon'ble Rama Rau and his colleagues my hearty congratulations, with a wish that they may see many more years of success so well deserved.

Dr. Carmelo Reyes,

University of the Philippines, College of Medicine, Manila, P. I.

With its accomplishments on behalf of Medical science and of the Medical Profession, particularly in India, The "Antiseptic" has more than justified its quarter of a century's existence. Hence the sincere hope that it may see many more of it in order to carry on the fight for the worthy cause which it has so steadfastly and bravely spoused from the beginning. True to its name, it has been an efficient antiseptic against many of the ills which hindered progress along Medical lines. The "Antiseptic" has laboured against great odds in the past; may its path be smoother in the future.

Dr. O. Deggeller,

The Hon. General Secretary, Far Eastern Association of Tropical Medicine, Weltevreden.

Hope your special number will be a success and offering you my best wishes with your Jubilee.

Col. S. L. Brug

Director, Du Laboratoire Medical Weltevreden, Netherlands, E. Indies.

I take this opportunity to congratulate you heartily on the Silver Jubilee, your Journal is about to celebrate, to offer you my

best wishes for its future and to express the hope that it may continue its successful and useful activities for a very long time.

Dr. YasKuno

Manchuria Medical College, Mukden

I wish to congratulate the Silver Jubilee of your "Antiseptic". Please accept my hearty congratulation for the event.

Surgeon-General J. W. D. Megaw, C.I.E. V.H.S. I.M.S.,

Surgeon-General with the Government of Madras

The Hon'ble Dr. U. Rama Rau and his collaborators deserve every encouragement in their efforts to raise the standards of Medical knowledge and the status of Medical practitioners in this Presidency. Many of the reforms which have been advocated in "The Antiseptic" have already been effected, and it is likely that the Journal will continue to be of great help to the Medical profession in the trying times which lie ahead.

Outspoken criticism on fair lines is of great value, especially when it is constructive and not destructive: even when Dr. Rama Rau's views do not coincide with our own we must always recognize his public spirit and honesty of purpose.

I wish success to Dr. Rama Rau and his son in their efforts to promote brotherhood among medical men and a knowledge of the laws of health among the lay public. Whenever efforts have been made to injure one class of the Medical profession for the benefit of another the result has always been to injure the interests of the medical profession and of the general public. If I interpret the aims of The "Antiseptic" rightly they are to promote the welfare of the medical profession and of the people of India.

Col. S. R. Christophers, I.M.S.

Director, Research Institute, Kasauli

I send my hearty congratulations.

Dr. E. Muir M.D., F.R.C.S.

School of Tropical Medicine and Hygiene, Calcutta

I write to express my good wishes. If your Journal lives up to the ideals expressed in the article you have sent me there is no fear for its future. It is a great pity that politics and racial and other prejudices are allowed to enter into scientific and especially into Medical work, and your firm stand against these is worthy of support from all right-thinking men. I wish you all success in the coming years.



Lt. Col. J. W. D. Megaw

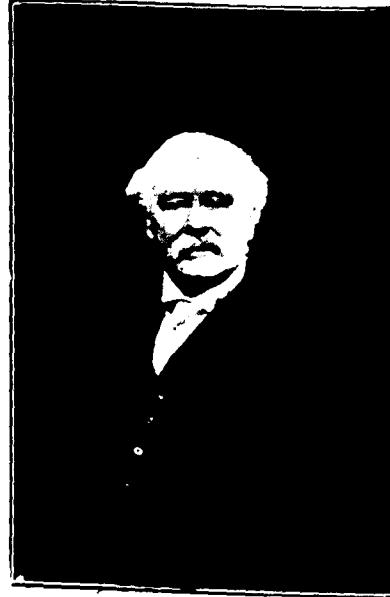
C.I.E., V.H.S., I.M.S.

*Surgeon-General with the
Government of Madras.*

Among our contributors.



Dr. G. Zachariah, M.R.C.S., L.R.C.P.,
Hon. Ophthalmic Surgeon, Govt.
Royapuram Hospital, Madras.



Dr. A. Winklerfried Williams,
Vice President, Dermatological section.
Royal Society of Medicine.
London.



Dr. Ekendranath Ghosh, M. Sc., M.D.,
Professor of Biology,
Medical College, Calcutta.



Dr. M. Srinivasa Rau, M.D. B. Sc. D.P.H.
Professor of Pharmacology &c.
Mysore University College of Medicine.

MESSAGES OF CONGRATULATIONS

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Col. J. Froilano de Mello, M.D. (Oporto) D.T.M. (Lisbon)
*Director General of Medical Services in Portuguese India, Professor
of Parasitology, Nova Goa.*

The work of Dr. Nair, carried on with such love and ability by my colleague Rama Rau, is before us, after 25 years, with all the characteristics of a gigantic struggle against all reverses, all obstacles and all hostilities which only the privileged few can overcome with the goal of human redemption in view, however distant.

To imbibe that ideal at the fountain of all inspirations, to pray for the blessing of God for the line of conduct to be followed in future, is the duty which devolves on the continuators of the work of Nair and Rama Rau.

Improve it, if possible; adapt it to the progress of modern life. However brilliant be the pages you add, you will never succeed in outshining its brilliancy. Your work of to-morrow will be, as sung in the song of the Vedas, the future aurora, a continuation of the light past auroras.

I venture to suggest to my colleagues who are practising in India, two suggestions, tending to support the ideals, which the "Antiseptic" has been working for. The first is that the medical education in India be made less exclusive and more cosmopolitan than it is at present, and with that end in view I recommend the "Antiseptic" to take upon its shoulders, the noble mission of fighting for a compulsory reading of Latin tongue, such as French, to be included in the preparatory studies of candidates to physicians in India so that the creative beauty of our thought in original, may not be lost in translation.

The second is that the rural clinicists that constitute the great class, the benefactor, par excellence, of suffering humanity moaning in their beds, be constituted in a homogeneous block to work for the elevation of their professional standard.

Indeed, the "Antiseptic" would then be to the medical class in India and the Orient what "Bruxelles Medical" was to the Latin World, a valuable service to the cause of medicine, the clarion-call of this innovation destined to give a new form to the ideal aimed by Dr. Nair and being aimed by his worthy successor Rama Rau.

Through the pages of the "Antiseptic" let me convey my humble message—a message of sympathy, to all my colleagues working in India, for the welfare of Humanity. Member of the great Medical family, I feel in your midst as though among mine

own, because no profession other than the medicine unites with the same link of Universal Brotherhood, all those who fight against Pain and Suffering of Humanity!

Lieut. Col. H. A. J. Gidney, M.L.A.,

Calcutta

I have frequently read the "Antiseptic" with absorbing interest and personal benefit. I congratulate you on the success of the paper and would like to add that India would be all the richer if a few more of her sons exhibited that spirit of independence, initiative and grit which have characterised your services not only to the profession but our common motherland. With my kind regards and with the best good luck.

The South Indian Medical Union, Madras

The occasion of the Silver Jubilee of the "Antiseptic" gives South Indian Medical Union a very welcome opportunity of congratulating its talented and versatile editor on the rare courage and persevering skill with which he has started and conducted the *Medical Journal of the Presidency*. To those who have watched its beginnings, its flourishing progress is as amazing as it is praiseworthy. The success of the "Antiseptic" is the success of the Independent Medical Profession. The late Dr. T. M. Nair, the early life-blood of the Journal, was a prince among the independent Medical profession and almost a pioneer; the Hon'ble Dr. U. Rama Rau is one of the well known among this group of Medical men: the former was a type of the specialist class, the latter belongs to the more numerous class of general practitioners. A venture that has been started and worked under such auspices has every right to be counted as a feather in the cap of the independent profession.

The "Antiseptic" has fought many battles and won a few. Those who plead public causes and engage in public fights hardly live to see the crowning success of their work. The "Antiseptic" has been a little more fortunate. It has seen a few of its thrusts go home, a few arches in the citadel of the enemy twisted out of place. Before Medical relief could be organised on a sensible basis, before Medical Education could be raised to the level obtaining in other countries, before the independent Medical profession could come to occupy its legitimate place in the body politic, there is much, a vast deal to be done. This work could be undertaken only by the members of the independent profession.

The Medical profession in India is at present in a very anomalous state. It has to be lifted out of the quagmire to enable it to occupy its proper position of prominence and influence. That

long-felt want, a General Medical Council for India, with powers and duties analogous to those of similar bodies in other countries has yet to come into existence. Municipal Public Health Laboratories where biological work could be obtained for a reasonable consideration have yet to be born. There is still no evidence of any principle which should guide the authorities in selecting men to fill professorships and lectureships of the various medical schools in the Presidency. The scheme of manning the larger state hospitals with honorary visiting staff has still to be realized. Continued efforts to put an end to the production of Medical Practitioners of an admittedly inferior standard have been fruitless. That vigorous noxious growth "state-aided competition" still remains to be killed. These are some of the immediate requirements of the profession in this country. To realise even a fraction of these, very strenuous work will be demanded; and in the march towards the goal, there is bound to be treading of many tender corns. To fight vested interests at every step is a formidable task. In this task, the independent profession feels heartened by the presence in its midst of a flourishing medical Journal and it rejoices in the belief that it could always count on the powerful voice and the mighty arm of the editor of the "Antiseptic".

In the great hope of finding the Journal taking its place more and more, in the coming years, as the authoritative voice of the independent medical profession, the *South Indian Medical Union* wishes the "Antiseptic" Godspeed on its useful and prosperous career.

Dr. T. Krishna Menon, M.B., L.R.C.P., M.R.C.S.

Secretary, The South Indian Medical Union, Madras

Allow me to offer you my congratulations on the prosperous career of your Journal. Having at one time of my life attempted the Journalistic venture myself, I can feel the difficulties in the field of 'professional' Journals. That the "Antiseptic" has been able to meet the demand and has maintained the tone is in itself a feather in the cap of its Editor.

Permit me, once more, to offer you most hearty greetings on the occasion of the Silver Jubilee and many wishes for a prosperous future.

Dr. Henry R. Hensman, M.R.C.S., L.R.C.P., M.P.C.

Superintendent, Government Mental Hospital, Madras

I offer you my hearty congratulations on the completion of the Silver Jubilee of the "Antiseptic" and to wish it continued success in the future, for I believe it is serving a very useful purpose in this country.

Rao Sahib Dr. T. S. Tirumurthi, B.A., M. B. C. M.

Professor, Medical College, Vizagapatam

I have very great pleasure in heartily congratulating "The Antiseptic" on its Silver Jubilee and its talented Editor, Rao Sahib Dr. U. Rama Rau, in having successfully managed to bring up this child of his to its adult stage of useful and vigorous manhood. While I am felicitating the Editor on the Silver Jubilee of his Journal, I also keenly look forward to the day, which is not far off, when I shall derive the additional pleasure of congratulating him on his Diamond Jubilee.

Dr. U. Rama Rau is one of the surviving medical luminaries of the previous generation of Medical Practitioners. It is, probably, not a mere matter of accident that his contemporaries who still survive, Dr. Vijiaraghavalu, M. B. and C. M., of Madras and Rao Bahadur Dr. C. B. Rama Rao, B.A., M.D., Retired Civil Surgeon, now retired from the profession and residing at Bangalore are both men who have taken like Dr. U. Rama Rao a great deal of interest in all public movements and social activities. The zeal and keenness in taking an active part for the health and welfare of the people around does probably conduce to the longevity of the patriotic and selfless workers, whose labours are directed to prolong the useful and healthy years of other men.

It is well known how Dr. U. Rama Rau played the part of a Lieutenant to the late lamented Dr. T. M. Nair in all his battles in the Madras Corporation on behalf of the people for fresh air, clean water and uncontaminated food and how successfully he discharged his duties when the Captaincy fell on him.

With the late Dr. T. M. Nair, he edited the Antiseptic for many years and had the good fortune of being in apprenticeship under a great man who was distinguished in his profession, in public and social activities, in Corporation and Municipal affairs and in politics. Dr. Nair was also an able speaker, a forcible writer, a good conversationalist and a scathing critic. It is not possible to think of the "Antiseptic" without recollecting him who gave it birth. How quickly and well Dr. U. Rama Rau assimilated the abilities of his Captain and intimate friend is a matter of common knowledge to all those who know the successful and dazzling professional and public career of the Rao Sahib.

His work in the local Legislative Council and in the Council of State, his propagandist activities in the prevention of diseases and for the preservation of health, his services in the cause of Medical Education and the Medical profession in general and especially, for the subordinate and Provincial Medical

Services, all these should have cost him immense labour, expense and loss financially, by having to leave his practice for many days at a stretch, but they have raised him to the pinnacle of glory, to the great esteem in which he is held by the members of my profession and to the affection of the public at large.

Rao Sahib Dr. U. Rama Rau like his two living contemporaries has been leading in all the movements to bring about a greater *esprit de corps* among the medical men. The Medicinal Library and Reading room was started but this institution did not survive for long. He took command of the Madras Branch of the Sub-Assistant Surgeons' Association many years ago and he is still its distinguished President. He is a prominent member of the Madras Medical Union.

As an Editor Dr. U. Rama Rau has always given of his best. His editorials were marked by a sense of proportion, his attacks were dignified, his comments fair and his criticisms above reproach. He has served the best interests of the profession nobly and well through the medium of his Journal. He has stood for abolishing the castes in the Medical Services, for elevating the dignity of the profession, for improving Medical Education, for extending medical relief, for giving other systems of Medicine a place under the Sun, for better health and less sickness, and for enlarging the field for Indianisation, without which all talk of raising the Indian Medical profession to the status of the Medical Profession in other progressive countries is a stunt to mislead the unwary.

May Rao Sahib Dr. U. Rama Rau and "The Antiseptic" live long and give us many many more years of their lead, light and learning!

Major Khaja Mohiddin, M. D.

*Offg. Director, Medical and Sanitary Dept. H. E. H. the
Nizam's Government, Hyderabad-Deccan*

I heartily congratulate the admirable "Antiseptic" on its Silver Jubilee and wish it every success and prolonged life of usefulness. It is impossible to do full justice to the important suggestions for bettering the position of Subordinate Medical Service, etc., and other informations published in it, from time to time. The Editors have spared no pains to produce this Journal which has proved highly invaluable to the Medical profession. I am glad to find that the "Antiseptic" has attained great reputation and wide popularity in the Medical circles of India.

Dr. H. B. Mylvaganam, F.R.C.S. (Eng).

*The Senior Surgeon and Sanitary Commissioner of Mysore
(Retired), Bangalore*

On the happy occasion of your celebrating the 'Silver Jubilee' of your popular Medical Journal, I should not fail to convey to you my hearty congratulations and to express my admiration for the noble and unselfish service you have been able to render to the South Indian public and the Medical Profession during these 25 years.

A Medical Journal of its standing and influence is indispensable for the Medical Profession in South India, not only to spread knowledge but also to safeguard the interests of the private Practitioners in Medicine.

May we hope that future years will be attended with much greater success than hitherto and that the Antiseptic will be widely circulated all over India.

Under the editorship of the Hon'ble U. Rama Rau, we have every confidence that it would increase in its popularity and usefulness.

Dr. M. Srinivasa Rau, M.D., B.Sc., D.P.H.,

*Professor of Pharmacology &c., Mysore University
College of Medicine, Bangalore City*

Let me offer my sincere congratulations to you and to your Associate Editor, on the completion of 25 years' existence of "The Antiseptic." In India, it is no small feat to conduct an independent Medical Journal and make it last for a full quarter of a century. I hope that you and your successors will carry on this labour of love and enable "The Antiseptic" to celebrate its Golden Jubilee in 1954.

It is a hazardous task to look ahead so far and contemplate the then condition of the Medical Profession. Judging from the past, it would be quite safe to say that the profession as a whole will command in an increased measure, the regard and respect of the public whom it is its constant aim to serve.

In the past and even at the present day, the attention of the profession as a whole, has been directed more to the curative side and far less to the preventive aspect of Medicine. The solitary exception consists in the measures taken to prevent the disease, Small-pox. Vaccination has come to occupy a special place in the work of the Public Health Department. The other preventible diseases have been tackled in a perfunctory manner and consequently the success attending upon the prevention of Small-pox,

has not been attained in the case of other diseases. A beginning has been made in the supervision of childhood, infancy, pre-natal care and maternal and infantile mortality. The State takes a very minor part in this important preventive work, which is entrusted to private agencies and Associations. Some Municipalities have taken this up and are carrying on educative propaganda. All these isolated efforts must be co-ordinated and organised under an expert and only then can any general improvement be expected in Public Health.

Medical Inspection of school children is also in a rudimentary stage and until school clinics are established on a large scale and the defects noted in the school children are rectified, it is hopeless to expect the growing generation of young men to be strong and healthy.

One of the saddest features of the present day school boys, is the wretched condition of the teeth. Formerly, the Indians were noted for the excellence of their teeth, but now dental decay and caries are rampant.

Strong and influential Medical Journals can undertake the presentation to the lay public, of the true facts concerned with preventive Medicine. Some lay newspapers devote some columns every week for the consideration of Medical subjects, but articles are apparently written by non-Medical people and contain numerous errors on even elementary points of Public Health.

It is within the power of "The Antiseptic" to take a prominent part in the diffusion of accurate knowledge on all matters concerned with Preventive Medicine.

The activities of "The Antiseptic" are multifarious, and I shall therefore confine myself to only one of them. It is an anomaly that at the present day there should be in India two branches of the profession, one supposed to be superior and the other inferior. There ought not to be this invidious distinction. Many of the L.M.Ps. should be given proper facilities to improve their qualifications by obtaining the Medical degrees of the Universities.* With the advance of knowledge and experience this anomaly of having two sets of practitioners should be put a stop to and there should be one uniform standard to which all persons aspiring to become doctors, must conform.

The lives of those in the rural parts, are quite as valuable as those who prefer to be in the urban areas. Why should the villagers be expected to rest satisfied with an admittedly inferior set of practitioners? The example of the sister profession of Law ought to encourage us to get rid of this iniquitous distinction as

early as possible. I trust that long before 1954, everybody rich or poor, urban or rural, will be able to obtain the services of Medical men who ought all to be on the same register as in other civilized countries. Towards the attainment of this goal, I trust that "The Antiseptic" will lend all its influence. It has already initiated an agitation in favour of this measure of reform and I hope that success will crown its future efforts.

In conclusion, I pray that "The Antiseptic" will have a continued career of prosperity and success.

Capt. S. K. Chaudhury, M.B.E., B.A., M.B.

(late I.M.S.) Chief Medical Officer, Benares State

It is a matter of gratification that the "Antiseptic" the only Medical Journal edited by Indians in Southern India has lived to attain twenty-five years of age. The story of its birth is interesting. A junior private practitioner started it as an experiment with the co-operation of a senior member of the profession as its editor and it was little thought at the time this Journal would become a strong organ of the Independent Medical Profession in course of time.

Any one interested in the advancement of the Medical Profession of this country is disappointed at the dearth of high grade medical Journals in spite of the fact that there is no scarcity of distinguished surgeons, physicians, gynaecologists and specialists in other branches of medicine. Let us frankly discuss the reasons. Is it due to the tradition of the indigenous systems unconsciously followed by the present generation of scientific men to keep their remedies secret? or is it due to a lack of a spirit of research? or is it due again to the want of habit of recording observations made from day to day? It is not a fact that qualified Medical Practitioners are anxious to make a close preserve of the knowledge and experience they gain in their daily practice. They readily discuss problems of mutual interests and impart to others what they learn. As regards the spirit of research it must be admitted there is a serious lack of it. Those who are busy practitioners complain of want of time, but they forget that in the West those who are on the top of the profession suffer from the same disadvantage and yet they are the foremost contributors to the Medical literature of their country. The secret of success lies in their practice of keeping records of case notes and observations made in the course of their daily practice. Few practitioners in India care to write up their case notes. This provides an answer to the question whether the failure of practitioners in this country to make contributions to Medical Literature is due to the lack of their habit of recording case notes.

Incidentally it may be mentioned that there is a great need of establishing Medical Associations in every chief town of India. These have an important bearing on the growth of medical literature besides the effect they have on the Profession as a whole. The influence of the British Medical Association throughout the empire is well known. It should be the aim of all Medical men and women, general practitioners and specialists alike, to form Associations and start Journals as their organs.

It is a good sign that one finds more contributions are made by Indian Practitioners to the columns of first grade Journals published under official auspices. These are mostly ambitious young men who are naturally desirous of having their writings read by a wide and progressive circle of readers whose attention these Journals claim. It should be the aim of these promising men to enrich the medical periodicals conducted by Indian Members of the profession by contributions from their pens. A time will soon come when the names of such periodicals will figure prominently in the bibliography furnished at the end of learned articles written by medical writers. It can be confidently hoped for the "Antiseptic" from the progress it has already made against odds that frequent references will be made to the articles appearing in its columns by writers of the future.

The effects produced by this medical Journal in its endeavours to ameliorate the condition of Indian members of the profession are far reaching and are not confined to Madras only. To the Legislature of this country, representatives of the Medical profession are seldom sent as its spokesmen. The services rendered by the editors of the Antiseptic in the Legislative Councils and those of one of them in the Council of State are unique in the sense that these have been the only persons who pleaded the cause of the independent profession of India. The tribute of praise that they deserve can be best expressed by saying that they have been the pioneers in this field and have so far fulfilled all that the profession expected of them.

Dr. M. G. Ramachandra Rau, M.B.C.M.

Chief Medical and Sanitary Officer, Pudukottah

Certain things, like certain men, are their own justification and are above praise. Assuredly it is both superfluous and presumptuous for any person to commend the "Antiseptic" to the notice of a public already so much beholden to it. It is now close over a quarter of a century of strenuous and sterling work and solid achievement, that the Antiseptic may look back upon with pardonable pride and satisfaction. In general policy a newspaper or magazine is the outward expression of that spirit which

animated its founder or editor, and the Antiseptic is no exception. Madras has been peculiarly fortunate in that it can number amongst its sons, two such earnest and dynamic personalities as the late Dr. T. M. Nair, the first Editor and the Honourable U. Rama Rau the present Editor of the Antiseptic. In the cause of the rightful claims of the members of the profession—whether these be public servants or private independent practitioners—being recognized by the Government and the body politic, in the thankless task of arousing the conscience of the Madras Corporation and other similar bodies to a sense of their duty in the matter of safeguarding public health in the city and at other populous stations, and in the advocacy of measures for providing progressive medical relief to the country at large and bringing the same within easy access of the poor in the remote rural areas, in all these humanitarian enterprises, our two medical knight-errants have many a time entered in the lists and undaunted, faced, fought and won stiffest contest against formidable adversaries. In the hands of these gallant champions, the Antiseptic has proved an invincible weapon to fight out the battles of suffering humanity. One of the two, the cruel hand of death has snatched away from us; may God bless the other with long life and prosperity and spare him to us who need him ever so much, for several more years to come.

Numberless are the achievements standing to the credit of the Antiseptic. Vaccination, Reorganization of the General Hospital and of the subordinate Medical Establishment, Sanitation, the question of broad-basing, improving and expanding Medical Education in the country, the dissemination amongst the people at large of elementary notions of sanitation and personal hygiene through popular Journals in the Vernaculars, the removal of internal friction and strife within the department and the abolition of the illogical distinction between the L.M.S. and the M.B. the creation of the Rural Medical Relief Agency, the promulgation of the idea of having a General Medical Council for India, the arranging of All-India Medical Conferences and of the Medical Fraternity from all over the world, these are a few of the subjects that have been engaging the attention of the "Antiseptic", and in the aggregate of the measure of success achieved severally in each, one may mark the monumental nature of the services rendered to the nation, with ungrudging devotion, by the Antiseptic. Only this much remains to be said, viz., the career of usefulness still before it is an endless Vista. The Antiseptic is and deserves to be *Immortal*. It is *Irresistable* and

Ever Progressive. Its motto is *Excelsior*. We say "Go on, We follow. God speed us both!"

Major J. N. Barucha, I. M. S.

Superintendent, Royapuram Medical School, Madras.

The Antiseptic was started with definite aims, such as, maintaining the high prestige of the Medical Profession in this country, to bring about a fraternity among the Medical Profession in India and abroad, and to get a General Medical Council for India. The activities of the Journal during these 25 years have achieved nearly all these objects, and a General Medical Council for India is in sight. You have consistently battled for the uplift of the Medical community, in the columns of your valuable Journal, in Municipal Councils and in the halls of the Legislative Council and the Council of State with a large amount of success. The status of the subordinate and Provincial Medical services has been considerably improved and the members of the Madras Medical Services are filling up responsible administrative and Specialist appointments. The tone and ethics of the independent Medical Profession, have undergone a change and the competition in practice, between the private practitioner and the service man is healthy, and successful members of the independent profession are being taken as honorary doctors in State Hospitals. I congratulate you on the success you have achieved and I wish you a long life—a life full of vigour and public activity—and happiness on the eve of the Silver Jubilee of "The Antiseptic," the pioneer Medical Journal of this Province.

M. Ramaswami Pillai,

Civil Assistant Surgeon, Tiruvallur.

As an old classmate and one of the earliest contributors to the 'Antiseptic,' I offer you my heartfelt congratulations on the completion of the 25th year of the life of the Journal. I am sure this private enterprise has still many decades of usefulness and prosperity before it.

Among our classmates of the old L. M. P. Section of the Madras Medical College during 1896-99, two subsequently took British degrees and are now College professors, one of them teaching in his own *alma mater*. Four have obtained promotions to the Provincial Service. But you are that the brilliant star-private practitioner, public worker, Journalist and politician combined. You have done wonderful uphill pioneer work in several fields and have shown the public in Madras and elsewhere that given fair play untrammelled by 'Caste distinction,' members of our class

are capable of doing any work in the Medical world and in other spheres as well.

Dr. B. G. Vad. M.D.,

Sir J. J. Hospital, Bombay

The credit for the "Antiseptic" attaining its Silver Jubilee is due to Hon'ble Dr. U. Rama Rau and his Colleagues. My congratulations and my best wishes for a prosperous and useful future to the "Antiseptic".

Dr. B. Thungamma, F. R. C. S.

Ishwari Memorial Hospital, Benares City

I am indeed very happy to know that the well-known paper of your father is seeing its Silver Jubilee. With the advent of years it is growing fresher and younger. I wish the paper an everlasting life.

S. Kanthimathinathan, L. M. P.

Sivakasi.

I am very much pleased to learn your "Antiseptic" is to celebrate its Silver Jubilee after a long unstinted service with a world-wide reputation. It has established in the Madras Presidency, nay, even in the whole of India a name which any editor could be proud of by its progressive and realistic ideals, ever expanding humanitarian service and its exposition of enviable contributions from men of reputed intellect. By its bold policy of vindicating justice against odds and its fight for righteousness it has endeared itself in the minds of all medical men. I wish you, Dear Editor, every success in your attempt to celebrate the Silver Jubilee.

Dr. R.K. Paul, M. Sc., M.B.

Lecturer in Physiology, K. E. H. Medical School, Indore

I congratulate you on the success with which you have managed "The Antiseptic" for the last twenty-five years. I wish your Jubilee number a grand success.

Dr. Ashutosh Roy, L.M.S.

Hazaribagh

I congratulate you and your respected father for the excellence of the Journal.

Dr. Kartic Chunder Dutt,

Somra, B. A. K. Ry., (Bengal).

I hope that by God's Grace 'The Antiseptic' will shine brighter and brighter and will be reckoned as a living force in the Medical world under your wise Editorship.

Dr. A. Winkerfried Williams,

*Late Dermatologist to the Royal Sussex County Hospital,
Vice President, Dermatological Section,
Royal Society of Medicine.*

London.

My sincerest congratulations to the Editors of the "Antiseptic" on its 25th birthday. May the valuable work of the "Antiseptic" be continued for many more anniversaries.

Dr. C. M. Mani,

Mundakayam.

Apart from the multifarious activities of the "Antiseptic"—Consolidation and unification of the Independent Medical profession, fighting for the claims and privileges of the Medical profession, as a whole, not disregarding the lowest grade of it—the Sub-assistant Surgeons as a class—what I appreciate most about the journal is the practical side of it. My experience with the Journal is not long, but still, among the Medical journals which I have got down and I have read from other sources, I find the "Antiseptic" to be very practical. As for those who are in cities where there are a number of practitioners, one can meet another man in the profession and can consult with him. But to him, whose lot is cast in the mufasil, where it is not possible to have the smell of a qualified medical man, unless he walks miles and miles, it is to him, that the "Antiseptic" is most useful. The worth of a Journal depends on the worth of its Editors and Proprietors. And thus in their connection the owners of the Journal are to be congratulated for the efficient manner in which they have conducted the Journal, and I believe they will spare no pains to conduct the Journal in a still more efficient manner in the future.

The Deccan Medical Journal,

Hyderabad, Dn.

We congratulate "The Antiseptic" on the occasion of the celebration of its Silver Jubilee. This monthly journal of Medical Science started by the late Dr. Nair and its present editor Dr. U. Rama Rao has been very successful in its objects during the past twenty five years of its existence. We are sure it will continue to keep up its traditions under the able editorship of Dr. Rama Rao. We wish it all success in the future.

The Medical College Magazine,

Vizagapatam

We rush to congratulate the "Antiseptic" on the completion of its interesting and, perhaps, exemplary career in the world of Medical Journalism and on the celebration of its SILVER JUBILEE

in the coming April. The Medical profession in India, it must have been recognized by now every one connected with the profession is perhaps, the last recognized of all professions by the ruling authorities. In the early years of this century the Medical profession could not recognise its own existence much less feel the importance of its recognition and united action for its own advancement. In fact the profession and its interests were in a nebulous state. It was under these circumstances that the Journal was started with late Dr. T. M. Nair as its first Editor with the aid and help of Dr. U. Rama Rau, who is now filling deservedly the position of the Editor of this Journal. We confidently assert that through the influence and guidance of this pioneer Medical Journal that the Medical Profession first became conscious of its own consciousness. This Journal formed the nucleus round which we now see the well-formed *Esprit de Corps* of medical men. One feature of this valuable Journal is that it does not confine itself to the treatment of mere medical subjects. It has been and is playing an important part in the avenue of practical politics directed towards the advancement of medical science in general and of medical institutions and the interests of the members of the medical profession in particular. In fact, in our Presidency at least, it has become an organ of expression of the grievances of all persons connected with the Medical Profession. In every page of the Journal one can easily see the conspicuous abilities of the Editors and their assistants who deserve our gratitude for their enthusiasm and earnestness in steering the "Antiseptic" through its arduous course. After many trials and tribulations this important Journal has now attained its prime youth and we heartily wish that hereafter this ambitious youth will attain to manhood and every one of his ideals and aspirations in but a short time be accomplished facts.

The University College Hospital Magazine, London

The University College Hospital Magazine (London) sends greetings to the "Antiseptic" on the occasion of its Silver Jubilee, and congratulations of a quarter of a century of fine achievement against great odds. Your efforts to place the organization of the Medical profession in India on a sound basis and to establish a General Medical Council for All-India have our sincere sympathy.—*H. W. Benham, Editor.*

Among our contributors.



Dr. Frank Noronha, M.B., C.M., D.P.M.,
Superintendent,
Mental Hospital, Bangalore,



Dr. D. R. Dhar, M.B., D.T.M., M.R.C.P.,
195/1, B, Cornwallis Street,
Calcutta.



Dr. V. M. Kalkini, B.A., M.B., B.S., F.R.C.S.,
Principal & Professor of Surgery,
National Medical College Bombay.



Dr. D. Raghunatha Rau, D.T.M.,
Late Malaria Medical Officer, E.B.Ry.
I/c Leper Asylum Cuttack.



Dr. B. Thungamma, F.R.C.S.I. W.M.S.,
Iswari Memorial Hospital
Benares City.

Among our contributors.



Dr. K. M. Hiranandani C.M.S.,
L.C.P.S. (Bom.) C.R.X.I. (Baghdad)
P.G.M.R.E. (L'pool)
L.M. (Rotunda.)
R.M.P.G.M.C. (Lond., Dublin, India)
Hyderabad, Sindh.



Dr. Suresh Chandra Das Gupta,
Senior Surgeon, Bir Hospital,
Khatmandu, Nepal.



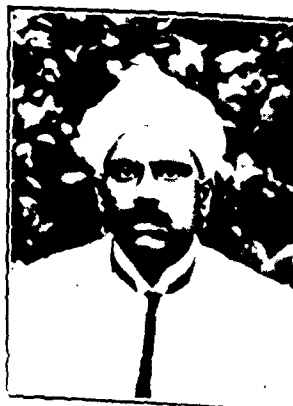
Dr. T. Purushotamadas Patel
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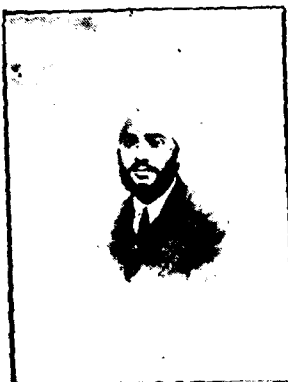
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Poonagalla Group Hospital,
Koslanda, Ceylon.



Dr. S. Subba Rau B.A., M.B.,
M.R.C.S.
Bangalore City.



Dr. M. G. Ramachandra Rau
M.B., & C.M.
Chief Medical & Sanitary Officer
Pudukotah State.



Dr. Kirpal Singh, L.S. M. F.,
Gujranwala,
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Dr. Kalligati Banerjee M.B.,
(Cal.) Suri P. O.
(Birbhum) Bengal

GREETINGS FROM THE PRESS

The Lancet

London

"The Antiseptic": *Silver Jubilee*. Twenty-five years ago the Antiseptic was started to meet the needs of the medical profession in South India for scientific medical information by Hon. U. Rama Rau and the late Dr. T. M. Nair. The former who is now the editor, has written the story of the Journal through a quarter of a century, and has sent us an advance proof of his essay which will appear in the Silver Jubilee issue of the Antiseptic in April next. The whole policy of the Journal need not be endorsed, while we approve its whole-hearted desire to promote medical reform in India, and the following quotation is a good example of the editor's practical outlook; "The medical profession in their dealings with the lay public, have a hard time in convincing them of the benefits of fresh air, pure water, nutritious food, good exercise, sound sleep and a host of other things which are indispensable not only to cure them of their maladies, but also to prevent them from contracting fresh ailments. The lay public consequently require to be educated too, in matters of health and hygiene if the medical profession should claim absolute success in their career."

In describing the activities of the Journal during the past 25 years the writer summarises the difficulties under which the I.M.S. worked at the commencement of the twentieth century and explains the position of the subordinate medical services and their need for reform, pointing out the various changes which the Antiseptic considered necessary and which in some cases it may congratulate itself on having successfully brought about. Efforts to put down quackery, to provide the better staffing of the Madras General Hospital, to secure the reorganization of the subordinate medical department of the Madras Presidency, and the subject of Hospital abuse were also matters in which the Antiseptic has been strenuously concerned, while it has exhorted members of the Medical profession to take a larger part in public life there being need for more medical men in Municipalities, District Boards, and Legislative Councils. "A medical man becoming a minister of medicine and public health in a province will be the greatest blessing to the people."

The Prescriber*Edinburgh*

The Antiseptic, a monthly Journal of medicine and surgery, founded in Madras in 1904, celebrates its 'Silver Jubilee' in April of this year. The aim of its founders, the Hon. U. Rama Rau and the late Dr. T. M. Nair, was to promote the idea of a united medical profession, a General Medical Council, and a Medical Registration Act for India, and to uphold the position of the subordinate medical services in that country. The present editor has written a review of the work of The Antiseptic during quarter of a century, an advance copy of which has been sent us. This is a most interesting document, recounting as it does not only the progress of the Journal itself but the evolution of contemporary medical history in India, and showing how in some measure at least the aims of the Journal have been accomplished. We cordially congratulate our contemporary on its attainment of the quarter century, and we wish it many years of usefulness in the future.—*Dr. Thomas Stephenson, D.Sc., F.R.S. (Edin). Editor.*

Journal of Anatomy*London*

My colleagues and I wish to offer you our congratulations on the occasion of the Silver Jubilee of your well-known Journal. The progress of Medicine depends more and more on Editors of the Medical Press. India is fortunate in having the services of "The Antiseptic."—*Dr. Arthur Keith, Acting Editor.*

The Journal of Laryngology and Otology*London*

I hope that your Journal will celebrate many more Jubilees in its splendid work for medicine and medical men in India.

With all good wishes.—*Dr. Walter Howarth, Editor.*

Tubercle*London*

The Editorial Board of "Tubercle" wish to congratulate the staff of your Journal on obtaining its 25th birthday, wishing them every prosperity in the future.

The British Journal of Tuberculosis*London*

As Editor of the "British Journal of Tuberculosis" and "British Journal of Inebriety" I am glad to have this opportunity of congratulating you on the achievements of your Journal. Let

me join with your friends in all parts of the world in a Message of Good Will and an expression of hope that you will be able to continue your valuable services to Medicine with ever increasing vigour and success. With very best wishes.—*Dr. T. N. Kelynack, J.P., M.D., M.L.C.P., Editor.*

Quarterly Journal of Medicine*Oxford*

The Editors at their meeting yesterday asked me to congratulate you on the fact that your Journal, The Antiseptic, is about to celebrate its Silver Jubilee. They note with interest the useful purpose your Journal has served throughout these years and trust that it may be increasingly so as years go on.—*The Secretary to the Editors.*

The Medical Press*London*

Twenty-five years ago The Antiseptic, so named in commemoration of Lord Lister's work, made its first appearance with the avowed object of bringing the medical profession in India to its legitimate place in the forefront of all the learned professions with the ultimate goal of an united medical profession in India, a General Medical Council for India, and a Medical Registration Act for India. From the published review of the policy of this Journal during the past twenty-five years, it appears that the editors have interested themselves particularly in pleading the cause and forwarding the interests of those independent medical practitioners who are not in Government service. In the matter of Medical Education, it stands for Medical Colleges independent of the Indian Medical Services, and for the staffing of those colleges with professors of experience chosen in consequence of their individual merit and distinction, without it being necessary as now that they should be members of the Indian Medical Service. A Provincial Medical Registration Act has already been passed by the Madras Legislative Council, and a General Medical Council for All-India is reported to be in the offing while it is claimed that at the Congress of Tropical Medicine held in Calcutta in 1927, a feeling of fraternity was manifested banishing from the minds of those assembled the racial prejudices which have hitherto barred the way to a full co-ordination of effort against disease. Towards these evidences of the progress of Medical affairs in India, 'The Antiseptic' has rendered valuable service, and though perhaps we do not see eye to eye in all directions with its present editors, we wish them success in their endeavours to improve the status of the independent Medical

practitioners in Madras and to promote the interests of the public in the matter of health.

Charing Cross Hospital Gazette

London

The **Antiseptic**, so-named after the discovery of Antiseptic Surgery by Lord Lister, has, like that great pioneer, had to champion the cause of progress in Medicine against great adversity, and in so doing this Journal has proved instrumental in effecting many reforms—such as are associated with the status of the medical man, asepsis in, and proper supervision of vaccination, isolation of infected emigrants, etc.,—not only in Madras but in wider India. We can but hope that it may have a continued prosperity, and that it may always have before it the high ideals that inspired the life of that great surgeon after whose discovery it is named.

Occupational Therapy and Rehabilitation

Catonsville, Maryland

For a Medical Journal a quarter of a century is a long life and you are to be congratulated upon carrying it through to that age. I hope that the adolescent years which come to it will be as full of promise and achievement as it has heretofore shown and that it will continue to be an influence for good not only to India but to the Medical world in general.—*Dr. William Rush Duntor, JR Editor.*

Canadian Medical Association Journal

Montreal

We send you hearty greetings and an expression of our sincere good wishes for the continued success of your Journal in the future. *Dr. A. G. Nicholls M.D., Associate-Editor.*

The Journal of the American Association for Medico-Physical Research

Kansas City, Mo.

The **Antiseptic** is one of the valued foreign exchanges coming to my desk. The American Association for Medico Physical Research represents the most advanced medical research in America and as Editor of the Journal of our Association and in behalf of our Association I congratulate The **Antiseptic** and its efficient management on the completion of twenty-five years of service in behalf of progressive medicine in India.

The advance copy of the article "The **Antiseptic** Through Quarter of a Century" truly states in a modest way what your Journal has been able to accomplish. Its straightforward policy under able editorship has made The **Antiseptic** a power for good in the Far East.

The writer has long been accustomed to meeting the opposition of reactionary official medicine, and can doubly appreciate the task of The **Antiseptic** and the added glory of its accomplishment. May you have many years of such distinguished service!—*Dr. E. M. Perdue, M.D., Editor.*

Indianapolis Medical Journal

New Jersey

Having been in charge of this Journal for only a short time, I can appreciate to some extent the problems you have had to overcome in establishing a Medical Journal, and the trials and tribulations you have had to meet in establishing your present prestige.

Let me extend to you our heartiest congratulations for your past efforts and accomplishments and our sincerest hopes that in the future you will do as much, or more, good for your people as your article "The **Antiseptic** Through Quarter of a Century" indicates, has already been done. We envy you your opportunity for service to your people and to your doctors.

We hope your Journal will continue to enjoy the prosperity and good-will that it now has and deserves in this year of your Silver Jubilee. May they increase above your fondest expectations!—*Dr. E. B. Haggard, B.S., M.D., Editor-in-Chief.*

The Medical Times

New York

Upon the happy occasion of the **Antiseptic's** Silver Jubilee, please accept our felicitations. May the future of your publication be even more helpful to medicine and medical men than it has been in the past.—*Dr. Arthur C. Jacobson, M.D., Editor.*

The Medico-Legal Journal

New York

May I congratulate you and through you, your magnificent medical publication, The **Antiseptic**, on the completion of its twenty-fifth year of scientific labors?

Having been a close reader of the **Antiseptic** for over fifteen years, I can fully appreciate the great work which it has

accomplished under your management in furthering the progress of scientific medicine in India.

Let me express my sincere wish that in another twenty-five years it may celebrate its Golden Jubilee under the same editorship, and if this is not possible at least under the editorship of those who will follow your able foot-steps.—*Dr. Alfred W. Herzog, Ph. B., A.M., M.D., Editor.*

American Medicine
New York

We have read "The Antiseptic" regularly in this office for a number of years past, with great interest and some profit. It has been a pleasure to watch your earnest and sincere work in the interests of modern medicine and therapeutics, and to read many of your timely informative and practical articles.

The review of your activity, through a quarter of a century, shows a record of which any medical Journal may well be proud.

The Editors and Publishers of American Medicine take pleasure in extending to The Antiseptic and its Editors and Publishers, their sincere felicitations on twenty-five years of successful existence, and express to you their best wishes for your continued prosperity and success.—*Dr. G. H. Waetjen, B.Sc. Literary Editor.*

Clinical Medicine and Surgery
North Chicago, Illinois

Permit me to offer my congratulations upon the Silver Anniversary of The Antiseptic. A study of the outline of the work which you have accomplished during the last twenty-five years indicates that you have no reason to be ashamed of the work which has been done and that the medical profession in India owes you a very positive debt of gratitude for what you have accomplished in their behalf.

Hoping that during the next twenty-five years The Antiseptic may take an even more useful and commanding place in the professional and social life of your country, and with all good wishes for your personal success and happiness.—*Dr. Geo B. Lake M.D., Managing Editor.*

The Journal of the Iowa State Medical Society
Des Moines Iowa, U.S.A.

It has been a source of great pleasure to your colleagues in America to watch the steady growth of 'The Antiseptic' in moulding Medical sentiment and advancing medical practice, not only in your country but also in those other countries in which your

Journal is so generously circulated. The attitude which your Journal has always maintained relative to medical education and hospital standardization is indeed commendable and I am sure you have done much towards advancing medical science and maintaining prestige for the medical profession.

Your progressive attitude in matters of public health, particularly in matters pertaining to sanitation and the control of plague have been among the outstanding achievements of the present decade.

We receive your Journal as a most welcome publication each month and will look forward in the future to a continuation of this program. May I, on behalf of our Journal and the constituent members of the state society, congratulate you on this Silver Jubilee of the Antiseptic's existence and wish for you the full measure of continued success for years to come.—*Dr. R. K. Simmons M.D., Editor.*

The John Hopkins Hospital
U. S. A.

On behalf of the editorial board of Medicine, I wish to extend to "The Antiseptic" congratulations on its twenty-fifth birthday and wishes for a most prosperous future.—*Dr. Alan. M. Chesney, Associate-Editor of Medicine.*

The Japan Medical World
Tokyo

Please allow "The Japan Medical World" to extend its most hearty congratulations on the completion of your Journal's twenty-five years of unremitting and successful effort to raise the standard of Medical efficiency in India.

Allow us also to express the wish that the same untiring devotion to India's special medical needs, the same unflinching zeal for medical progress, and the same unswerving spirit for the brotherhood of medical men, as have been shown in the last quarter of a century, may continue to be manifested in the next twenty-five years and afterwards.

The National Medical College Magazine
Bombay

It is a matter of great pride and pleasure to the Indian Medical world that "The Antiseptic" conducted solely by private Medical men is entering its 26th year of existence. We wish it a glorious future and a long life of usefulness and inspiration to similar enterprises in India.

THE ANTISEPTIC

The Grant Medical College Magazine

Bombay

Progress

With great pleasure I wish to appreciate the all-round five activities that the "Antiseptic" has carried on for the 25 years. I am especially impressed to see that it has not left a corner-stone unturned in advocating the uplift of the Medical profession. It will not be out of place to mention that the work it has done in respect to the medical education in general and the incessant labour it has spent over the future realisation of the great dream for a "General Medical Council for All-India," are the most encouraging and reassuring to notice. I have a fervent hope that the Antiseptic would keep the same aim in view as it did in the past in raising the status of the medical profession in India.

I congratulate the Journal on its attaining a marvellous success in its achievements. I wish, most heartily to convey, through this letter, my well-wishes to it on the happy occasion of its "Silver Jubilee."—*Dr. Y. G. Pandit, Editor.*

The Indian Dental Journal

Calcutta

Without a powerful professional press, no profession can hope to advance and progress. That the Independent Medical Profession of India has been able to come to the position it occupies to-day is mainly due to the impetus given to it by its professional Journals—one of the most important of which is "The Antiseptic" of Madras. It has for the past twenty-five years kept the flag of the independent medical practitioners of India flying and has shown conclusively what foresight, ability to think and to speak without fear or favour and a patriotic fervour to improve the Medical and Sanitary conditions of our motherland, can do. The record of work done by "The Antiseptic" will be evidenced by the very able article contributed by the Hon'ble U. Rama Rau in the present issue. We recommend a study of this informative article by every Medical man in India.

A professional Journal is like the eyes, ears and mouth of a profession. All these functions have been ably performed by the "Antiseptic" for the past twenty-five years and may it continue to do so, with increasing fervour and ability for many many years more to come is our fondest wish. We congratulate heartily the Editors and the Publishers on their task well and efficiently done. They are doing truly a phase of nation-building work which is often times unappreciated and underestimated and that is the greater reason why they are worthy of all our esteem and thankfulness.—*Dr. R. Ahmed, D.D.S., F.I.C.D., Editor.*

GOOD WISHES FROM OUR ADVERTISERS

The Denver Chemical Manufacturing Co.

New York

1904—only twenty-five years ago, but another era. Roentgen had only recently announced his discovery of the X-Ray; anti-diphtheritic serum and its life-saving boon had only recently become an important tool in the armamentarium of the physician; Radium was practically unknown; the Anopheles mosquito was found to be a factor in the etiology of malaria and we were still filled with wonder at the miracles performed with Pasteur's inoculation against hydrophobia.

Surely, a far off time but even then "The Antiseptic" had established itself as an authentic publication in the promulgation of medical lore throughout India. In the quarter of a century that has passed we have had the privilege of watching this Journal grow in interest and influence until now it is one of the leading medical publications of the world.

Looking back over the years we remember that certain of our physician friends in India first became interested in our product Antiphlogistine—through the pages of your Journal and as "The Antiseptic" has broadened its scope of usefulness in India, so has our preparation become popular until to-day it is probably the most extensively employed ethical medical product in your country.

Our records show that since the first contract was sent, a full page announcement has been used in every issue of your Journal and, we congratulate you upon having reached the quarter century mile post and extend to the editor and your colleagues best wishes from our entire organization with a firm hope that your Journal may continue to prosper and extend its fine influence for many years to come.

Messrs. D. J. Keymer & Co. Ltd.,

Advertising Agents, London

We should like to take this opportunity of congratulating you on the 25th anniversary, and trust that "The Antiseptic" will continue to make the same good progress in future that it has done in the past. Further, we hope that the Medical Profession and National Advertisers will realise the valuable work which the "Antiseptic" is doing in their interests.

Fellows Medical Manufacturing Co. Inc.*New York*

We wish to take this opportunity of congratulating you on the occasion of the 25th anniversary of your Journal, a place in whose advertising pages we have been pleased to occupy for so many years.

With every good wish for the continued success of your Journal.

Messrs. Martin & Harris, Ltd.,*Calcutta*

On behalf of our Principals, Messrs. Frederick Stearns & Co., we placed an advertisement in the very first issue of the "Antiseptic" and since that date not a single issue has been published without their advertisements.

At the present time the "Antiseptic" carries nine advertisements placed on behalf of manufacturers we represent, and these advertisements bring us a large number of communications from Medical Practitioners that amply demonstrate the high value of your publication as an advertising medium.

I have known the "Antiseptic" since its inception, and am decidedly of the opinion that, from the point of view of the advertiser, it is one of the best Journals of its kind in the East. On behalf of my firm, I take this opportunity of congratulating you, as the founder and Editor, of the "Antiseptic" and your son, as Associate Editor, for the meritorious services you have rendered for the cause of the Medical Profession in Southern India.



Mr. S. Tiruvkatachari
Sub-Editor, "The Antiseptic."



Mr. P. Raghavendra Rau
Manager, "The Antiseptic"



Dr. V. C. Sudarshanam,
Sub-Editor, "The Antiseptic"



Dr. V. Rangachary,
Advt. Department.



U. Krishna Rau, M.B.B.S.

Associate Editor,

The Antiseptic.

SILVER JUBILEE ISSUE.

The Antiseptic

ESTD., 1904

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OUR SILVER JUBILEE

On this auspicious occasion of the Silver Jubilee of the **Antiseptic**, we desire to express our sincere gratitude and profound thanks to those worthy contemporaries of ours in India and England, in far off America and the Phillippine Isles, in Japan and the 'Far East,' who have greeted us with their good wishes, and to those eminent members of the Medical Profession, in all parts of the world, who have cheered us up, with messages of congratulations, encouragement and hope. Our thanks and gratitude are no less due to those professional brethren of ours, who have readily and somewhat even lavishly responded to our invitation to send their valued contributions to the Jubilee number. Quite unexpectedly, we find the contributions too many to find a place in the Jubilee issue. Though we have increased the size of the Jubilee number to four times its usual dimension, we find space still wanting to publish all the contributions received. To further increase the size will only go to make the number unwieldy and diminish its value and importance as a reading material. We have, therefore, thought fit to publish those contributions for which we could provide no space in the Jubilee issue, in the succeeding ordinary issues. It is a matter of common knowledge that Science never gets stale and we are sure our readers will be equally benefitted by

such articles appearing in subsequent numbers. We trust our contributors will bear with us and condone our action. Once more thanking one and all connected with the Antiseptic and enlisting their future sympathy and support in the noble task we have set about, of promoting the welfare of humanity, we remain ever dutiful.

U. K. R.

OBITER DICTA

"It is our further will that, so far as may be, our subjects of whatever race or creed, be freely and impartially admitted to offices in our service, the duties of which they may be qualified, by their education, ability and integrity, duly to discharge."—The Proclamation of Queen Victoria.

* * *

"For posts in our own country, if we are not to be examined in our own country, I do not know what justice and equity are."—Gopal Krishna Gokhale.

* * *

"The royal road to peace is to do right at home, and banish sinister interests and class privileges from the Commonwealth."—Bosanquet.

* * *

"God has written a line of His thought over the cradle of every people. That is its special mission. It cannot be cancelled; it must be freely developed. Your country is the token of the mission which God has given you to fulfill in humanity. Humanity is a great army moving to the conquest of unknown lands against powerful and wary enemies. The peoples are different corps and divisions of that army. Each has a post entrusted to it. Do not abandon the banner which God has given you."—Mazzini.

* * *

If, in the wake of the great enterprise of the study of Tropical medicines, the examinations for the Indian Medical Service are held only in India, for the study of which candidates come here from the West and if the pharmacopæia of India be more Indian than at present, will that be an era in the history of medical science in India?—U. Rama Rau.

A SHORT HISTORY OF MODERN SURGERY

BY

SURESH CHANDRA DAS GUPTA, L.M.S.

Senior Surgeon, Nepal

The growth of Modern Scientific Surgery dates from the time of John Hunter, i.e., the middle of eighteenth century. He was the first to realize the "comprehensive knowledge of pathological processes", and now pathology with which bacteriology is intimately associated forms the basis of the science of Surgery.

I have read examples of advance in Surgery during the time of Sushrut, the greatest Ayurvedic Surgeon. He made extraordinary observations and showed great surgical skill and ingenuity not only in the treatment, but also in the nursing of patients. Clamp and cautery for piles, removal of dead foetus by evisceration, lateral lithotomy, treatment of fractures by splints and even enterorrhaphy were frequently practised.

In an operation of mammary abscess the surgeon was warned not to divide either the nipple or lacteal ducts. Heads of black ants were used in the form of organic substance as improved Michel's clips to keep in apposition the segments of intestines to be united. The ants were allowed to bite the parts, and when they did so, their heads were left in place and the bodies were severed.

Of course we have learnt much, but there is yet a good deal more to learn. "Science knows no boundary of race or nation." Europe and America had for centuries worked out a great evolution in the development of modern Surgery, but progress in medical science in India, Egypt and China was of a high order even when compared to that of the present age. Sushrut mentions three kinds of substances for the "temper" of cutting instruments, e.g., alkalies for cutting bones, water for muscles and oil for nerves and vessels, i.e., for fine dissection. It is now universally known that Hua Tu, China's greatest Surgeon, who lived 2000 years ago performed laparotomy with ease, removed diseased lengths of intestines and sutured sound portions without infection.

In the course of this short and limited space, it is not possible for me to do full justice either to the surgeons or to the vast magnitude of work done by them in the department of Surgery from the early period to that of the present day.

The main features of modern Surgery are the inventions of anæsthesia and antiseptics. Up to the 14th century, Surgeons occupied a much lower position in the social scale than did the physicians, and were merely a nomadic class who travelled from place to place undertaking operation. About this time operation was very little known; and we only come across with the name of John Arderne and a few others of little distinction. Operations were performed by administration of liquors, hemp or opium and sometimes even brutal force was applied to overcome the patients, and occasionally minstrels would chant their ditties to divert the patient's attention.

The most important epoch making discovery in the branch of Surgery was that of general and local anæsthesia. Nitrous oxide gas was made use of in surgical operation about 1842 A. D. by Crawford long after Humphry Davy had suggested it. Faraday was the first to recognize the anæsthetic properties of Ether in 1818; but Warren made use of it in Massachusetts Hospital in 1846. Chloroform was discovered by Soubeyran (1831) and Liebig in (1832), and Simpson of Edinburg used it in actual practice in 1847. As regards local anæsthesia cocaine was first isolated by Godeke about 1855; Anrep in 1878 investigated its anæsthetic properties by injection of a solution under the skin, and subsequently in 1884 Karl Koller showed that complete anæsthesia of the eye can be produced by the drug in the conjunctiva. Before this time, eye operations were performed under general anæsthesia. Alfred Einhorn in 1905 discovered Novocain which is much less harmful in its effects. Stovain was discovered by Fournier as the next local anæsthetic whose application in spinal anæsthesia was introduced by Corning in 1885 and Biers developed it. Sellhorn in 1905 devised para vertebral anæsthesia. Eiselsberg, Kocher, Reverdin, Berard, Schleich, Heinrich Braun, Han Hook, and Matas did masterly researches on this subject.

Intra-tracheal anæsthesia was introduced by Ehrenfried, Meltzer and Auer. Boyle's nitrous oxide, oxygen and ether outfit form suitable apparatuses for its administration, but Elsberg's instrument is the best for the purpose. McKesson recommends gas and oxygen anæsthesia for nose and throat therapy.

Rectal ætherization was originally suggested by Pirogoff in 1847, but it was not, until Gwathmey improved the method of application in 1914, that it became fit for use. He calls the new method "Oilether-anæsthesia" per rectum and uses olive oil 4 ounces with 2 ounces of ether.

In 1885 Halsted and Raymond introduced anæsthesia in the nerve distribution. Bier in 1908 devised, a very effective method of producing anæsthesia in contact with nerve substance by ligature method and he calls this process a "direct vein anæsthesia." Alme and Maurel produced anæsthesia by intra-arterial introduction of cocaine causing paralysis of muscles supplied by the artery (1890). Goyanes in 1909 reported practical application of arterial anæsthesia in an amputation.

Then comes antiseptics. Before Lister's time gangrene was too common a complication of operation. Greatly impressed by Pasteur's work and researches on fermentation, Lister realized that it was neither air nor dust but germs particularly in the air or dust that were responsible for sepsis; so he introduced in 1867 carbolic spray by means of steam atomizer to be used at the site of operation for keeping away the sepsis. Surgeons used unsterilized rubber aprons. The use of sterilized aprons, masks, rubber gloves, instruments with aseptic joints and metal handles were quite unknown. Gradually we had the introduction of aseptic surgery in the operation theatres. Antiseptic Surgery of Lister gave place for aseptic methods of the present age. Nothing was needed except fire and water, *i. e.* boiling, and subsequently high pressure dry sterilization. In the place of carbolic and perchloride solutions of the previous days we came to use iodine, alcohol solution of picric acid, brilliantine blue and green and so on.

Now, I shall deal with the gradual evolution of our present day surgery with reference to (i) the renowned surgeons who contributed and still contribute greatly to the progress of this particular branch of Medical science, (ii) the introduction of important and interesting operations of surgery and also (iii) the inventions and discoveries of new medicines, surgical instruments and appliances and so on.

So far as I have gathered from various works on Surgery at my disposal, I find that there were three Surgeons worthy of mention—who did a good deal of work, namely John Arderne, Roger Bacon and Robert Grossteste in the 14th century. In England, the 14th Century showed a very remarkable advance in medical and surgical science. I do not find the name of any reputable surgeon in the 15th Century worthy of mention. In the 16th Century we come across with the name of Zacarelle (1549). In the 17th Century Malpighi (1609), Shoval (1635) and Pim-permelle (1658) flourished. Malpighi was the first to remove the spleen of a dog. In the 18th Century Littre, Arnaud, Gouthræ, Lambert, Paget, John Hunter, Ramdohr, Park, Abernethy and many other less distinguished Surgeons were born.

The 19th Century marks the dawn of modern Surgery. Surgery made progress by leaps and bounds, and the number of surgeons who contributed to its upheaval were too numerous to mention.

Surgery is the only branch of medical science which has developed much and which has yet a glaring future. We are now in a position to attempt *any operation in any part of the body* for example abdomen, head and even heart.

In Surgery we have specialities of 20 kinds:—Anæsthesia, General Surgery, Abdominal Surgery, Surgery of Chest, Brain, Rectum, Ear, Nose and Throat, genito-urinary Surgery, plastic and æsthetic surgery, Orthopædic Surgery, Surgery of Eye, Gynæcology, Obstetrics, Dental surgery, treatment of Medical cases by Surgery, X'ray, Radium, diathermy and so on.

In *general surgery* operations such as amputations, excisions of goitre, upper and lower jaw, tongue and ribs, enucleation of glands, removal of tumours, opening of sinuses and abscess and also operations for Hernia, Hydrocele, Elephantiasis and so on, are too common.

Goitre is said to have been removed by Abdul Kassim in the 10th Century, but, introduction of the systematic operation was introduced by De Quervain; and the investigations of Reverdin and Kocher are worthy of mention.

Bier had devised a series of special instruments for induction of artificial hyperæmia in the treatment of inflammatory diseases.

The operation for elephantiasis of scrotum was first introduced by Col. McLeod in India. Hydroceles were treated previously by iodine injections, but later on in 1889 Von Bergmann and Col. Pratt devised invagination and excision of the sac.

Pimperella was first to excise the tongue in 1658. In England, Gouthree first removed a tongue for cancer in 1756, and Barker improved the method in 1883. In this connection the name of Chassaignac, Inglis, Czerny and Kocher are worthy of mention.

In the previous century, lymphatic glands were not so much taken into consideration in connection with malignant growths, while at present an accurate knowledge of the lymphatic system is essential and extirpation of both superficial and deep layers of glands are done. To Mikulicz is due the credit of first demonstrating the principle. Gant, in case of the cancer of rectum, amputates the bowels with cautery; and some do with a diathermy knife. Handley has dealt elaborately with this subject on "Lymphatic surgery" in Carson's Modern Surgery.

Carrel's method of irrigating septic wounds and cavities with Dakin solution is an efficient treatment of the present age.

Astly Cooper's name is still widely known for his classical description of the dislocation of the hip joint and for his scientific classifications (1809).

Even in the early 20th century, massage was done too late: Immobilisation of the parts was the only treatment of fractures. Chaminniere in 1889 and later Mennell (1911) emphasized the importance of an early massage.

Open method treatment of even simple fractures are now advocated by some surgeons and wiring and plating are occasionally done. By means of careful surgery of Lane's "non-touch-technique" the risk of sepsis can be avoided. Operative treatment of fractures by Sherman's plate or Putti-Putti's steel band are usually done. But the modern idea is to use absorbable material such as beef bone, ivory or Kangaroo tendon.

Agnew devised for the first time extension upon a double inclined plane. McIntyre's splint is a very good and adjustable one. Hodgen's suspension splint is a comfortable pattern. Thomas and Robert Jones have invented scientific splints. Sayre and Wyelp's weight bearing and support splints are suitable for long standing cases. Codivilla and Stenimann recommend extension directly to the bones instead of adhesive plaster applied to the skin.

Plaster of Paris bandage is very suitable for fracture of long bones being applied between the joints.

Amputations: In connection with amputations—we must mention the names of Dural, Guyon, Teale, Macewen, Hey-Velpeau, Lisfrank, Adam, Farabeuf, Guerin, Chopart, Pirogoff, Kocher, Roux, Syme, König and Putti. The latest developments in amputation are osteoplastic graft and cine mato-plastic process as devised by Vanghetti Gritti, and Bier and improved by Veedane.

Hernia: Amongst others the names of Kocher, Charles Ball Bassini, Banks, Halsted and McEwen are worthy of mention. Wood was one of the real pioneers for the radical cure for Hernia. McGavin introduced silver wire of filigress for recurring hernia.

ABDOMINAL SURGERY

Appendicitis: McBurney's point is a valuable guide for the diagnosis; Jacobson, Treves, Lockwood, Ballee, Corner Tabby, Turner, Kelly, Mynler, and Morris made valuable contributions on the technique of operation.

Spleen: Zacarely in 1549 was the first to remove a human spleen. In 1885 Kuckler also removed a spleen: Spencerwell did

one in 1865, Pean in 1886, and his was the first case that was cured.

Gastrotomy was performed as early as 1635 by Shoval. *Gastrostomy* was suggested by Egebert and done by Sedillot (1895) and then by Forstes, Cross Curling, Bryant but in each case death occurred and Sydney Hones made a successful operation in 1874.

Gastrectomy was first done by Pean in 1879 and then by Billroth in 1881. In 1897 stomach was excised for cancer by Schlatter: and was followed by Hartmann, Moynihan, Barker, Mayo Robson and Morrison. Kocher had his own modifications. The procedure of operation for gastro-jejunostomy was first devised by Wolfier (1881), and Mickntitz, Sonnenberg, Hartmann, Murphy Page, Barker, Robson, Moynihan were his followers. Ramdohr was the first to unite successfully the bowel by suture after complete division in 1780. Murphy devised his famous button in 1895.

Operation on Pancreas was done by Halsted in 1901, and much was added to our knowledge by the researches of Bassel, Hagon, Peters, Hahn, Ninni, Ochsner and so on.

Colotomy was first performed by Littre in 1710 and in England by Freer and Bing in 1821 and they were followed by Hilton and Bryant. Reeves worked out many improvements on the operation.

Lane devised short circuit ilio-sigmodostomy for intestinal stasis. In chronic constipation either right semi Colectomy or a complete Colectomy was recommended by Pauchet, Mummery, Makins, Yeomen, Morrison, Moynihan and others.

Intestinal excision was advocated by Maissoneuve. To Van Hecker we owe the suggestions in 1812; Salzer also made improvements in the technique in 1891.

In Cholecystotomy Cholecystectomy and duodenocholodechotomy Bobbs (1868) Morrison, Sims (1878), Kocher, McBurney, Hans Kehr, Lawson Tait, Mayo Robson, Mayo and Moynihan were the pioneers for their technique and researches.

CHEST

Operations on heart were deliberately performed by Meltzer Carrel and Tuffer. Gray has removed a bullet from the cavity of the right ventricle. Delorme's operation for adhesions in the valves with dilatation is worthy of mention.

Sir Charles Ballance tells us that heart should be "treated as one of the ordinary tissues of the body."

Pneumotomey was performed by Gluck as early as 1882.

The operation for radical cure of aneurysm is based on arteriorrhaphy by Matas (1913) the so called ideal operation of aneurysm by circular angeorrhaphy devised by Goyanes and Lexer is the best method.

CRANIAL, SPINAL AND NEURAL SURGERY

A successful case of trephine was done by Macewen in 1885—as beginning of the new era in Brain surgery. He was followed by Schlesinger (1898). C. Mayo, Ballance, Thriesch, Murphy, Carl Beck, Rawling and Cushing made great improvements in the cranial surgery. Much credit is due to Oppenheim for his researches in neuro surgery. Rawling devised the plan of introducing a fascial graft from the thigh in order to check hæmorrhage from cerebral sinus. He also introduced osteo-plastic resection and trephining *en bloc*. De Martel performed craniectomy for cerebral tumours. Removal of Gasserian ganglion was devised by Horsley in 1891 and subsequently by Krasise in 1893 and also J. Hutchinson.

Injection of alcohol into the Gasserian ganglion through foramen ovale was devised by Ostwalt and Schloesser for facial neuralgia.

Bogojawlensky removed the pituitary body in 1912 and was followed by Mc Arthur, Halsted and West. Albees made a spinal graft to fit into the sides of the spinous process for fixation in spinal caries.

Posterior Rhizotomy—i.e., division of posterior spinal root by Dana and Abbe in 1888 and Bennel in 1889. The technique was fully developed by Foerster and Kuttner in 1911. It is done for relief of severe pain following nerve injury. Gastric crisis etc., so also the division of anterior lateral tracts were done by Spiller and Martin, and also subsequently by Bier, Elsberg and others.

SURGERY OF RECTUM

Piles were used to be removed by ligature with horse hair and fistul-in-ano also slit open by passing a ligature of horse hair through the canal; even the technique of clamp and cautery operation was fully known in India from time immemorial. The complete operation of piles by Whitehead (1882) has fallen into discredit. Injection treatment of piles by Morley, and others are so far known only palliative and the cure does not last more than 2 or 3 years, but may be recommended for old and debilitated persons. Recently Blanchard has made great improvements of the technique, and his treatment is much more lasting.

Operation of the prolapse of rectum as devised by Lochart Mummery are not so useful. Kraske introduced sacral proctectomy in 1885, and in this connection the names of Czerny

Heinecke, Koeker, Henton, Ball, Quem and Gant must be mentioned.

SURGERY OF EAR, NOSE AND THROAT

Richard's radical operation upon cochlea and semicircular canals are worthy of mention.

The deviation of the septum of nose are now-a-days very frequently done with success.

Tonsils were used to be removed by sharp-edged guillotine or scissors, but now the operation is done with Ballenger and Shuder's guillotine—the dull blade of which is useful not only in removing it in capsule but also in preventing hæmorrhage.

GENITO-URINARY SURGERY

We owe the Cystoscope to Nitze and Leiter, who discovered it in 1877 and now it has been an indispensable parts of the armamentarium of every urologist. Catheterization of ureters was first done by Hames Brown in 1893; and the capacity of each Kidney can be accurately determined by an improved instrument combined with ureteral catheters.

A moveable kidney was first fixed by Hahn in 1881 by sewing the capsule. He was followed by Bassini in 1882. Rosenberger in 1885 suspended it by abdominal route.

Litheotrite with vesical evacuator was devised by Bigelow in 1878. Keegon was the first to demonstrate the fallacy of impossibility of crushing stones in Children.

To John Simon we owe the transplantation of ureters into the rectum—for ectopia vesicæ. The credit is due, for further improvements, to Peters (1901). Forder did the same operation in 1898 by fixing the ureter into the intestines in a valve like manner. Mayal transplanted ureter and trigone of the bladder into the sigmoid flexure.

Suprapubic cystotomy is only useful for spetial cases—e.g. very large or very hard stones, suppurative cystitis associated with stone, large prostate and also encysted stone or of presence of the stone in the diverticulum of the bladder; otherwise lithalopexy is the operation of choice.

Pearce Gould, Openshard, McGill of Leeds are pioneers in the operation of suprapubic prostatectomy; other surgeons do the operation by the perineal route.

As regards urethrotomy the names of Syme, Wheel house Teal and Cox should always be remembered.

The amputation of the entire penis was devised by Thiersch in 1869 and Pears Gould did the operation in 1882 and till now the operation is called by his name.

Epispadiasis Epishadins and hypeospadias were devised by Van Hook, Mayo, Cantwell, Stilles, Peters Thiersch and Duplays.

Nephro-lithotomy was first performed by Henry Morris in 1889. Much credit is due to Sir John Thomson-Walker for his original researches on genito urinary surgery.

PLASTIC SURGERY

The various methods of Skin-grafting are too numerous to mention.

1. Berry, Owen and Laue's operation for Cleft palate and the improvement of the technique by Davis-Colbys requires mention. Volkmann has devised the operation of rhino-plasty.

Methods of tendon-suture, tendon-gratting, lengthening and shortening were improved by Tonka. Much good work was done in this direction by Dieffenback. Transference of a tendon from a healthy muscle to a paralysed one was successfully done by Von Haker, and so also adhesion of tendons prevented by him by application of a freshly removed hernial Sac.

Baldwin's operation for making an artificial Vagina was by a loop of intestines cut out, of which the new vagina was made—the divided ends of the intestines were then united.

The deficiency in buccal mucus membrane and gaps in nose were made up by skin grafts from forehead, cheek, neck, auricular flaps and forearm.

Arterio venous anastomosis by crile (1906) and vein to vein by Faunleroy (1910) are instances of artriorrhaphy. Transplantation of segments of blood vessels were done by Pringle (1813) and the gap in brachial artery was united by anastomosis by a graft from internal saphenous vein by carrel's method. Burnheim made great improvements on the technique. Gaps in scalp were closed by bridge flap of the adjacent scalp by undermining the skin.

AESTHETIC SURGERY

Squint eyes, round eyes may be rectified or improved by plastic operations. Synechea of the lobule (prominent ear) were replaced in natural position by Laurens. Konig, Payr, Velpeau. Waber and others also made many improvements in this direction. Reconstruction of lower eyelid or plastic operation for eye brows, upper and lower lips, reduction of the prominence of nasal bridge or raising a flat nose correction of an asymmetrical nares are quite easy now-a-days. Passot's operation for the remedy of senile wrinkles and ravages of age is noteworthy.

ORTHOPÆDIC SURGERY

Excision of the hip joint was first done by Anthony in 1818. To Wright is due the credit of publishing detailed account of

arthrectomy in 1881. The names of Kocher, Nelaton, Langenbeck Parker, König, Von Bergmann, Olliers, Albee, Payr, Hanter, deserve mention in this connection. Fergusson was the first in England to perform an excision of the knee joint. Many workers, like Murphy, Payr, Laxer, Putti, have made good joint construction work. Capsulorrhaphy by axillary route for recurrent dislocation of the shoulder joint by Pauchet deserves mention. Many practical improvements by Sir Robert Jones are worthy of mention.

OPHTHALMIC SURGERY

Couching to dislodge or depress a cataract (lens) in the eye was known in India from the early centuries and it is still prevalent until cocaine was discovered. Operations of the eye were used to be done under general anaesthesia. At first only corneal flap was made out, but now a combined corneo-conjunctival flap is cut out instead. We owe to Smith for his process of dealing with cataract early by en-capsule method. To von Graefe (1828-70) we owe our famous cataract knives.

To Elliot is due the credit of removing a disc from the sclerotic coat by trephine after incising a curved flap from the limbus in the upper part in order to release the pressure in anterior chamber. In 1885 Muler devised operation for evisceration of the eye ball.

The first use of albuminous substance for injection was introduced by Ludke in 1914 as a protein body Schmidt injected milk for same purpose which he called "Protoplasm activation" and Bier called it as "irritation therapy." Its use is of great value in affections of the eye and corneal ulcer.

The deep infiltration anaesthesia by cocaine through the orbit into ciliary ganglion was demonstrated by Drs. Green and Icove of San Francisco to Major Duggan for the painless enucleation of eye ball.

Barraquer's operation for removal of cataract is done by suction action with the help of an apparatus called Erisophake. (*British Journal of Ophthalmology*, April 1927.)

GYNAECOLOGY

Ovariectomy was first done by Mc.Dowell in 1809. The operation made great progress in the hands of Dunlat and Abbe. In England, Lizars, Granvill, Clay and Spencerwell performed the operation. Spencerwell did his first operation in 1855 and was the pioneer in this operation. He invented special instruments for this operation. In connection with this operation the name of Keith, Smith, Kelly and Nelaton are worthy of mention.

The first successful operation of Hysterectomy was performed by Burnheim and Kimball in 1885, Spencerwell did it in 1861 and

Keith in 1875. The names of Czerny, Billroth, Schroeder, Trendelenberg, Pean, Riechelot, Schanla, Doyen, Mickulitz, Martin, Keliy and Mackendrodt who did much improvements in this operation will always be gratefully remembered. The operation as devised by Doyen is a very suitable one, and Kelly's masterly monograph on this subject has made the operation easy, and Jellet brought it within the reach of even ordinary surgeons. Dudley's ingenious method of building up a new urethra in female is worthy of note (1904).

The operation for shortening of the round ligament at the external abdominal ring (Alexander) intra-peritoneally by abdominal route or by vaginal route (Wertheim) and also Gilliam's, suspension operation over the recti muscles must need be mentioned before closing the subject.

MEDICO-SURGERY

Surgery is offering help in the treatment of diseases that have been hitherto contemplated as insufficient to deal with by the use of drugs alone.

The excision of Cervical Sympathetic by Joinesco in causalgia and trophic troubles are yet in the experimental stage. Cushing's decompression operation are performed for relief of epileptic or epileptiform of fits and also Jacksonian and traumatic epilepsy.

Francois suggested division of sympathetic nerve paths to the heart for relief of angina pectoris. Nancrede advises drainage of ventricles into sub-dural space in Hydrocephalus. Ballance devised subdural drainage of the ventricles by L-shaped tube of pure platinum or gold.

Reginald, Harrison and Edebohls introduced capsulotomy or decapsulation of the kidney for certain cases of nephritis.

Artificial Pneumothorax is done for the treatment of Pthisis. The treatment is summed up in the word "Collapse" i.e. production of artificial pneumo-thorax brought about by thoracoplasty by removing the posterior portion of the ribs. Soutter is the pioneer in this operation procedures. (*Reandle Short*).

Blood transfusion is of great importance in surgery. The practice of transfusion was first practised by Lower in 1665 on animals, and on man by Denys of Paris but credit is due to Esenberg in 1901 who introduced the proper technique.

The discovery of 'insulin,' has made operations on diabetic patients who were previously considered inadvisable for operative treatment possible.

The injection of antitetanic, antistreptococci and pneumococci serum render the patients immune against the infection, before, during or after operation.

THE ANTISEPTIC

X'RAY, ELECTRICITY, DIATHERMY AND
RADIUM THERAPY

Sir Holburt Waring writes "Another milestone in the progress of surgery between Hunter's day and ours is marked by the successive discoveries of X'Ray and radium." (*Progress of Surgery: B.M.G., Feb., 1928.*)

X'Ray was discovered by Roentgen in 1895. Not to speak of seeing the bones, intestines, liver, spleen, gravid uterus and movable organs, even intra-cranial, intra-abdominal and intra-thoracic growths can be seen and detected.

Monsieur and Madam Curie in 1898 discovered radium in pitch blende from mines in Bohemia. Exposure of radium to Cancer has been said to possess a curative action. Burying radium tubes for 24 hours or more along the line of removed cancerous growths is also recommended.

In 1907 Nagelschmidt of Berlin suggested high frequency currents on account of their penetration of heat in the tissues and their use for diseases of joints and circulation. The advantage of diathermic knife over the scalpal should be borne in mind as operation could be done by it with less bleeding and less shock.

INSTRUMENTS AND ACCESSORIES

The invention of instruments are too many to mention. I shall only name a few of them which changed the course of our procedures and made impossible operations possible.

Animal ligatures were introduced by Physick and Philadelphia in 1814 in ten form of strips of chamois leather. In 1809 Cooper used real catgut, and McSweemy used silk worm-gut. More recently kangaroo tendon and ox-aorta are being used.

Helmholts invented the ophthalmoscope in 1851. Jablochkov invented electrical candles in 1876. Nilze and Leites designed the Cystoscope. Sigmoidoscope, was discovered by Bodenhamer in 1863, œsophagoscope by Kussmaul in 1869—which was improved by Mickerlicz in 1881, and bronchoscope by Killan, in 1898. The latest Electrical instruments that have been invented for direct examinations are œsophagoscope by Brinih and Laryngoscope and bronchoscope by Chevalier Jackson and Hill.

Lastly, I apologise for the errors and omissions done inadvertently here and there and conclude the subject with grateful memory of those great masters who have improved surgical knowledge and ameliorated human sufferings, with hopes for further advancement in this branch to be done by those scholars that are in the field and are to come.

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PROGRESS OF MEDICINE WITHIN THE LAST QUARTER OF A CENTURY

BY

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The rapid progress in medicine is very marked. When we turn our eyes to the domain of Surgery, we are astounded at the marvellous achievements especially in brain, abdominal, ophthalmic and orthopaedic surgery. Plastic Surgery especially in Germany and France has nearly reached perfection. Gland transplantation, transfusion of blood, Cæserian section have every one of them thoroughly revolutionized the entire field of surgery.

I shall endeavour to put in a nutshell the resumé of advancement in medicine within the last 25 years. It was in 1902 that I qualified in Edinburgh. Poly-pharmacy used to be in vogue amongst medical men then, to-day we find that the leading physicians write out simple recipes with as few drugs as possible, in fact they are of opinion that medicines whose efficacy they have proved in practice are so few that may be counted by the fingers. Alkaloids have generally replaced other drugs. The treatment by injections have developed greatly; in fact, no physician of any repute can do without hypodermic, intramuscular, intrathecal and intravenous injections. In the tropics, Emetine Hydrochlor injections hypodermically introduced by Sir Leonard Rogers I.M.S. (Retd.) for amœbic dysentery have completely done away with the nasty and noxious Ipecacuanhæ treatment of old and similarly intravenous transfusion of hypertonic saline solution in selected cases of cholera and hæmorrhages also introduced by Rogers have saved many lives from untimely death.

The soluble salts of quinine such as the Bihydrochloride have been successfully used in cases of malaria. This drug must be injected intramuscularly (deep) or intravenously—in both cases well diluted with distilled water, or normal saline solution. Drs. Muir, Bramhachari and Napier have found in the intravenous injection of Stiburea (an organic antimony compound) or Von Heydens Stibosan, a short course of treatment given bi-weekly (8 to 12 injections in all) the sovereign remedy for the fell disease known as Kala-azar (Leishmaniasis). Neosalvarsan, Novoarsenobillion, Arovarsan, Quinby and various other preparations intra-

venously injected with cold redistilled water, in addition to the oral administration of mercury have worked wonders in syphilis and its various manifestations, chiefly on the osseous, skin and fibrous tissue and nervous systems.

Intravenous injections of Iodine has lately been demonstrated to check pneumonia and other inflammatory conditions of the lungs and sepsis generally. Small doses of adrenalin chloride solution, and Pitutrin have been found invaluable for relieving asthmatic spasms. Without Morphine and Atropine the armamentarium of an up-to-date practitioner is incomplete. Their injection has magic effect in relieving shock and pain and inducing sleep. The name of Sir Leonard Rogers will be immortalised by his researches in combating the most ancient, loathsome and fell disease that the human flesh is heir to, viz., leprosy.

Dr. Ernest Muir, Leprosy Worker, Calcutta School of Tropical Medicine has done yeoman work in this direction, the one being, subcutaneous infiltration bi-weekly in the extensor surfaces, of the limbs, beginning from 2 c.c. gradually increasing up to 10 c.c.s. of the preparations of the seeds of the *hydnocarpus wightiana* (Chaulmoogra), the one now in use being Hydrocreol, and the other, the inunction of the commercial Chaulmoogra oil and painting patches with Trichloroacetic acid.

Great improvements have been introduced in the treatment of pulmonary tuberculosis, which seems to be daily on the increase especially in India, and claiming the flowers of youth of both sexes and blighting many a happy and prosperous home. Sanatorium treatment is daily asserting itself. Pottenger remarks that a few years ago tuberculosis was considered an incurable disease. To-day clinical reference warrants the assertion that tuberculosis is not only curable but that when treated at the right time and in the proper manner it may be overcome and the patient restored to health, in a very large per cent. of cases. Early properly treated cases should have a mortality no greater than that of other infectious diseases. Sanocrysin is the sodium Aurithiosulphate, an inorganic compound of gold introduced by Prof. Mollgaard of Copenhagen. About $3\frac{1}{2}$ grains should be dissolved in sterile distilled water and injected intravenously every 7th or 8th day and not more than six in number should be given. It must not be given in advanced cases nor given to persons suffering from organic cardiac or renal diseases. In Denmark sanocrysin has been extensively and successfully employed. If used properly and timely it acts like a specific for that fell disease. In Diabetes Mellitus we cannot but be astounded at the radical

changes introduced in the treatment and dietary. Insulin has marked an epoch in the treatment. Luminal has replaced the Bromides in the treatment of epilepsy. For functional nerve lesions, such as hysteria, neurasthenia, and allied conditions the treatment by systematic massage, feeding, electricity, (Weirlutchell) graduated exercise, suggestion and music seem to be the most efficacious.

The treatment of Skin diseases like lupus by the Rontgen rays has proved a specific. When I was a medical student in Edinburgh in 1900, I remember the infant stage of X-ray therapy as applied to skin diseases and I remember the erudite lectures of Dr. Allan Jameison, and his worthy lieutenant, Dr. Norman Walker and the X-ray department, for Skin diseases at the Royal Infirmary. The introduction of Radium in the treatment of cancer is a distinct landmark and we are awaiting further developments in tackling a disease, which was believed to be incurable, except where surgery could remove by the knife early the diseased parts. In Ranchi a Radium Institute has been inaugurated for the treatment of Cancer.

Sunlight and vitamins have a marked action on the growth of the body and bone formation and are favourably influenced by violet and ultraviolet rays. The so-called accessories of foods or Vitamins have the same identical action. It may be proved that Vitamins are ultraviolet rays and the ultra violet rays are Vitamins. Exposure to the rays improves the general health and arrests pathological conditions and finally confers immunity against infectious diseases in persons exposed to the rays—sunlight is a brainfood and raises the spirits of patients, increasing the chances of recovery from diseases. There are two kinds of quartz mercury vapour lamp—the one working in vacua and the other working at a little above atmospheric pressure. The former lasts about 1000 hours when it requires renewal and therefore the latter is preferable. His majesty the King Emperor had this treatment done with very satisfactory results. There is a great future for this treatment and in order to keep abreast with modern methods, the installation of a lamp is a *sine qua non* for the physician. Vitamins have come to the forefront in modern medicine. I have mentioned in passing about them. They are especially indicated in Beri-beri, scurvy, rickets and disorders producing growth deficiencies. Vaccine and serum therapy have been almost worked to precision within the last few years. Vaccines, serums and phylacogens are best injected intravenously. The most useful serums have been the diphtheria, tetanus, puerperal, and bacillary dysentery serums, and they have reduced to a minimum the

mortality from these diseases. Treatment by serum of pneumonia and by phylacogens of rheumatism have proved effective. Vaccines have successfully combated colli infection, eczema, abscesses, acne, pyorrhœa alveolaris and whooping cough. Vaccine therapy depends on immunity and production of antibodies and here an attempt is made to exploit healthy tissues in the interest of diseased ones. It is the phagocytes (Leucocytes) that play an important role in combating microbial invasion.

Vaccines have also been successfully tried in filaria, asthma, gonorrhœa, furuncle, influenza, erysipelas and pyorrhœa. Protective serum injection against bubonic plague and vaccine injection against cholera and typhoid have played an important part especially in India, within the last few years.

Lastly endocrinology and gland therapy are the most up-to-date of all treatments. Investigations in this direction began with Claude Bernard in 1856, followed by Brownsequard, Murray and others. To-day this mode of treatment goes by the name of organ and hormonotherapy. The internal secretion of glands exerting a potent effect in the human body in all its phases forms the pivot on which the whole system of treatment rests.

The employment of the Thyroid extract was found successful; then the parathyroids have been tried with good results. The suprarenals (adrenalin chloride) Thymus, Duodenal, liver, and kidney substances, pepsin, pancreatin, placenta substance, prostate substance, spleen substance, red bone marrow substance; orchitic, ovarian and other hormones and organs are being used to-day with abundant success and manifold laboratory and clinical experiments are being carried on in this direction. Transplantation of glands have been tried in this and other countries. A matter of gratification is that research of indigenous drugs (herbs and minerals) is being carried on untiringly. Vaccines, and serums and gland products are being manufactured in India and can compare favourably with those of foreign make. Autogenous vaccines are of course made locally.

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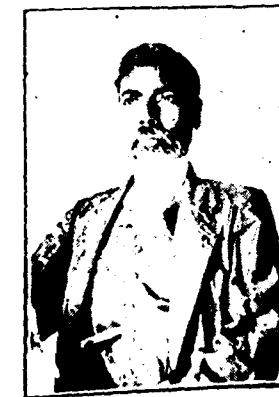
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THE CENTENARY DEVELOPMENT IN THE FIELD OF MIDWIFERY (1929)

BY

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During the last century, the most epoch-making discoveries and incidents have taken place in the field of obstetrics. Every branch of science is more or less empirical at the beginning, but it is the result of experimental researches, clinical experience and investigation which gradually put the subject upon a really scientific basis. This was also the case in midwifery. Every scholar will find it an interesting study to go through the developmental stages of obstetrics and specially of the last century. We begin our work by paying homage to two master minds of the 18th century, namely Smellie (England) and Levret (France). Just befitting the characteristics of both the countries, Levret was a clever but aggressive obstetrician, while Smellie was a quiet and steady worker and almost always followed the expectant treatment. This is also noticed by comparing their midwifery-forceps. Levret's midwifery-forceps have got a marked pelvic curve with strong traction-handles and suitable for high forceps; whereas, Smellie's midwifery forceps—a short one—have got a small pelvic curve, very light and meant for low or mid forceps but not for high forceps.

Curiously enough almost similar incidents happened in Germany where Lucas Boer (1751-1835) like Smellie was a silent and thoughtful worker and Osiander was very fond of operative interferences, although both of them were the pioneer obstetricians of the day. Osiander used to work in the Goettingen Maternity Klinik and did forceps delivery in 40% of his 2,540 confinement cases. Boer's was the expectant method of treatment and the frequency of forceps delivery was only 0.7%. Through his expectant treatment Boer first noticed, that natural delivery was possible in uncomplicated Face and Breech presentation cases.

Carl Nægele of Heidelberg (1810) first made midwifery a separate subject as important as medicine and surgery. He made a very good study of mechanism of Labour which is still in vogue, and pointed out many salient features of the pathological

anatomy of bony pelvis. Naegel's pelvis and Naegel's obliquity are known to every student of midwifery.

In 1847, Ignaz Semmelweis of Vienna made the most remarkable discovery as to the causation of childbed-fever, which unfortunately gained ground after about quarter of a century. It is very interesting to follow his method of observation. Semmelweis was one of the assistants in the Vienna Maternity Klinik, where the mortality after childbirth was very high, even reaching up to 25%. The Vienna Maternity Klinik was divided into two departments; one in charge of assistants, where the students used to get their training, and the other department was meant only for the nurses. The confinement cases were admitted 4 days a week in the students' side, and 3 days a week in the nurses' side. The heavy childbirth mortality used to take place in the students' department while in the maternity clinic in charge of nurses, the mortality was never more than 2-3%. A special commission was appointed to investigate the cause, but to no effect.

Semmelweis, a young assistant in the Klinik, was a fine observer and a bit sentimental. He was very much concerned about the question of childbirth mortality and more so on account of the woeful cries of the relatives of the patients. It so happened that one of his friends and a colleague too, died of a post-mortem examination wound. When his body underwent P. M. examination, Semmelweis noticed the same changes in the organs, as were met with in dead bodies of childbed fever. This strange coincidence of facts made him at once think—"Is it not the same infection which killed my friend, Kollutschka, that also kills so many cases in childbed?" His observations were also corroborated by some other incidents of similar nature. Then he began to take strict antiseptic precautions by washing the hands thoroughly well with soap and chlorine-water before every internal examination in confinement cases—a process not rigidly practised in those days. The result was most glaring, death-rate coming down from 15-25% to 1-2%. These facts and figures could not be denied, but poor Semmelweis was not appreciated before his death (1865) in the lunatic Asylum in Vienna.

In France, midwifery of the 19th century was under the influence of Baudelocque (senior) and his pupils, Mayguer, Gardien and Mittet. Mittet taught how to do compression of uterus in P. P. H. after the placenta being born. He was the precursor of Kristeller and Crede. In this 19th century Baudelocque constructed his cephalotribe, and Tarnier his new Axis-traction forceps (1877). Another important factor of the

DEVELOPMENT OF MIDWIFERY—SUBODH MITRA 285

19th century midwifery in France is that the maternity clinic of Hotel Dieu of Paris was in charge of Mme. Mary Lachapelle. She was a good midwife but lacked the knowledge of physiology and pathology of pregnancy and labour.

In Great Britain and Ireland, the midwifery of 19th century was still under the influence of Smellie. In Ireland, Collins during his 7 years' mastership in Dublin, applied forceps in 24 out of 16,654 cases (i.e. 1 in 694). Blundel (1830) from Guy's Hospital was the first to declare emphatically—"It is a fundamental axiom of British midwifery that we must save the mother, come what may to the child." Montgomery (1835) was known by his accurate observations of signs and symptoms of pregnancy. Smith established the London Obstetrical Society in 1860. Churchill (1857), Braxton-Hicks (president, Lond. Obst. Society 1871), Playfair (at first Prof. of Surgery in Calcutta Medical College, later on Prof. of obstetrics in the King's College, Lond.), Priestly (Middlesex-Hospital), Robert Barnes (St. George's Hospital), Meadows (St. Mary's Hospital), Baker Brown (1812-1873), Spencer Wells (1818-1897), Lawson Tait (1845-1899)—they all made appreciable improvement in the science of obstetrics during their regime. The most remarkable incident of the use of chloroform in midwifery by James Simpson in 1847 revolutionised the whole world, and more so when Simpson was called in to the Palace, to facilitate easy parturition of Queen Victoria of England.

In Japan, midwifery of the 19th century is characterised by the invention of Tanganki (a whalebone sling), by Sansetsu Mir-zuhara and Ransai Kagawa. This Tanganki was attached to a wooden handle for the extraction of forecoming or aftercoming head. Ransai Kagawa later on modified the Tanganki into Tentohed. Ransai Kagawa to avoid the injuries upon the skin of the child (a piece of silk) to avoid the injuries upon the skin of the child. Further modifications of the same instrument were made by Ranko Kagawa as Sei-Ochu (a silk band) and by Ryutei Tatsuno as Ho-toki (a silk net) with whalebone sticks. Ogata has compiled a handbook of midwifery, Sankwa-Zeu-Sho, in 12 vols. Since the latter part of the 19th century, Japan is closely following the European teachings, chiefly of Germany.

The 20th century is going to be the high renaissance period in the field of obstetrics. Many important problems, as for example, Hyperemesis gravidarum, Eclampsia, Acute yellow atrophy and Antipartum hæmorrhage (so called Accidental Hæm.) are being investigated with the help of Biochemistry, and the method of dealing with such cases is changing accordingly. The pioneer workers are Doderlein, Bumm, Franz, Stoeckel, Selheim, Opitz, and Menge of Germany; Wertheim, Schauta and Peham of

Austria; W. Williams, Kelly, Graves, and Potter of America; Kielland of Norway, Stroganoff of Russia; Munro-Kerr, Berkely, Bonny, Blair Bell, and Fitzgibbon of Great Britain and Ireland; Kedar Nath Das, Sundari Das, Green-Armytage, Bamandas Mukherjee, N. Basu and Lakshmanswami Mudaliar of India.

Hypnotic sleep was introduced in midwifery by Menge of Heidelberg. Potter has made himself known by introducing the Internal Podalic Version in all confinement cases normal or abnormal; Kielland by the invention of his high midwifery-forceps; Munro-Kerr by his famous Manoeuvre and Fitzgibbon by his rational treatment of A. P. Hæm. basing upon the histopathology of uterus.

India proud as she was for her past acquisitions even in midwifery as depicted in Atharva-Veda, Garbha-Upanishada, Sushruta and Bower manuscripts, fell far short of in the modern midwifery. Since the latter part of the 19th century and the beginning of the 20th century, the spirit of renaissance has been creeping in. It is through the sincere devotion and untiring energy of Kedarnath Das, Green-Armytage, Bamandas Mukherjee and L. Mudaliar that India can claim to have reached the high standard in midwifery in India. Kedarnath Das might well be considered as the father of modern midwifery in India. He discovered by measuring the pelvis of thousands of Bengali women that, on an average, the pelvis of Bengali women is smaller than those of Europeans and even smaller than those of women of other provinces of India. This fact instigated him to invent his "Bengal forceps" in 1914, which has become popularised throughout the length and breadth of Bengal on account of its efficiency and usefulness.

Bamandas Mukherjee and others have done yeoman's service to introduce the rational treatment in midwifery in India. It is an extraordinary fact that in spite of the strictest purdah system and manifold prejudices, these pioneer obstetricians have been successful in gaining the confidence of mothers and sisters of India, so that they do not in the least hesitate to take the necessary treatment from their masterly hands. It is through their instrumentality that the subject of midwifery has been popularised in India, and many lives are being saved by timely interference which would otherwise have been impossible due to carelessness, neglect and colossal ignorance of Dais and midwives.

But it was left to Green-Armytage to create a lively interest in midwifery amongst medical students and general practitioners. The demonstration of the mechanism of labour with a living child

in a specially constructed Dummy is indeed an innovation in the obstetric science. The most outstanding feature in Green-Armytage is that he has been utilising all his experience gathered from modern maternity clinics of England, America, Paris, Berlin, Vienna, and Rome to build up a new school of midwifery in India. The occidental advancement of obstetric science has been modified by him and made suitable for Indian women in Indian environments.

A few important questions in obstetrics may be touched upon:—*Eclampsia*. At the beginning of the 19th. century Busch (Germany) divided eclampsia into two groups: nervous or simple type and congestive or dangerous type where urgent operative interference is recommended. The treatment consisted mainly of venesection—about 4 lbs. of blood drawn out during the whole course of treatment in two occasions and 20 leeches applied. Johns (England) improved the management to a great deal by giving purgatives, diuretics; movement in open air; and in very severe cases venesection. Careful dietary recommended avoiding meat and alcohol. Albuminuria in eclampsia was detected first in England.

In the middle of the 19th century, chloroform was used to stop convulsions; and vaginal douche, to stimulate effective contractions of uterus. Scanzoni first recommended the injection of morphia during the latter half of the 19th century. Breslau examined the blood of eclamptic patients; Ammonia was found absent; urea—not increased. His theory is that albuminuria begins shortly before fits and passes away rapidly. Traube's theory: oedema of brain causes anæmia of brain: when the oedema is in the greater part of the cerebrum, coma sets in; when it extends to middle lobe, convulsions appear. This theory of anæmia of brain led (or misled) Schroeder (Berlin) not to do venesection but to push on narcotics, *e. g.*, morphia, chloroform etc. The result was very bad: mortality rose up to 34% for mother and 42% for child (Buettner). For rapid delivery Duehrssen recommended vaginal caesarean section: it was not found to be better than expectant treatment.

Towards the end of the 19th century, Stroganoff (Russia) introduced morphin injection and rectal administration of Chloral hydras in a definite scheme. The result was highly satisfactory. Zweifel again introduced venesection along with Stroganoff treatment. Accouchment Force was not advocated; only delayed second stage of labour helped by forceps or craniotomy. The last great war has taught one very important thing. During the war, the food materials were very deficient in the southern part of

Germany (Baden, Wuerttemberg, Bavaria) whereas the northern part (Berlin, Leipzig, Königsberg) had the supply of meat and fat. It was found that eclampsia was very rare in the south, while it was quite frequent in the north.

Placenta Prævia: At the beginning of the 19th century, the keynote of treatment was Accouchement Force. Lamotte advocated introduction of finger by perforating placenta; Levret used to separate the placenta and go round the margin. Towards the middle of the 19th century, Wigand and Naegele gave up Accouchement Force and introduced tamponade application inside the cervical canal and latter on artificial rupture of membranes. James Simpson used to separate the placenta from the rigid cervix and then rupture the membranes. No tamponade was used. The child mortality was usually very high—but the sepsis less frequent. The Prague school advocated ice-cold vaginal douche instead of tamponade, but the result was not satisfactory. Brauns and De Ribes (1862) introduced their Colpeurynters and used to fill it with cold water. Bleeding used to stop and pains stimulated. The result was much better than Accouchement Force, although the rupture of membranes was used to be as before, Crede laid much stress upon it (1853), specially when there is severe hæmorrhage. The rupture of membranes not only stopped bleeding but also stimulated contractions thereby hastening delivery.

Up to 1870, the Accouchement Force was in vogue in placenta prævia and the result was disastrous. The treatment had cost many lives of mothers not to speak of children. In 1870, Braxton Hicks brought forward his combined Bipolar-Version and Schröder modified his technique by "Early version—no traction". The result was highly satisfactory. Later on Duehressen introduced his vaginal Cæsarean section in placenta prævia, by which method the child mortality was reduced to a great extent, and so also the maternal mortality.

Kroenig was the first to begin the classical Cæsarean section in placenta prævia with very good results. In a series of 36 cases, Kroenig had no fetal mortality. He did not allow the assistants to use any tamponade. The patient should always be in the hospital or in a nursing home; and the operation to be done immediately when the pains start to a certain extent. If there is severe bleeding, operation to be done at once even without examination.

All placenta prævia cases should be treated in hospitals; only in exceptional cases, the treatment might be continued in private houses, by tamponade, rupturing the membranes and "early version—no traction"—methods, but the prognosis of the child is not so promising as in Cæsarean section, (Fehling).

To sum up: at the beginning of the 19th, century, at least two thirds of all children and one third of mothers having placenta prævia used to die inspite of the treatment of the time. It was a menace both to the patient and to the doctor. Towards the end of the 19th century, the treatment was modified by the introduction of tamponade with colpeurynter and combined bipolar version; and at the beginning of the 20th century, the treatment further modified by abdominal sections—thus bringing forth the success which has yet never been met with in any part of obstetrics.

Much remains still to give a comprehensive idea of the development of midwifery during the last 100 years. The rational treatment of Extra-uterine pregnancy began during the latter half of the 19th century. Veit did the first laparotomy (1884) to remove the tubal pregnancy; Lawson Tait and Frommel followed him. Symphyseotomy and then Pubotomy operations reached their climax towards the end of the 19th century, and the beginning of the 20th century. Bumm and Döderlein were most enthusiastic about these operations, but the same surgeons gave them up in course of time.

Destructive operations *e.g.*, decapitation, craniotomy, embryotomy etc. were commoner before the antiseptic period (about 1840–1866); in England, 1 in 179 (Collins), in France 1 in 1394 (Lachapelle, Boivini) and in Germany 1 in 540. Later on, when Pubotomy and more specially C. S. operations were perfected, the destructive operations became very rare. With the better teaching of 20th century and more advanced training of general practitioners and midwives, the destructive operations will be reduced to minimum.

Last but not the least in importance to note is the most marvellous improvement shown in the technique of Cæsarean section operation, which was considered to be a dreadful operation about 100 years ago having a mortality of 79% (Kayser, 1750). Porro's modification (1876) reduced the mortality but Saenger and Kehrer (1882) first began to stitch up the incised uterine wounds, which were never done before. This improved technique reduced the mortality to 30%; and C. S. operation in the 20th century is considered to be one of the very successful operations practically unattended with any untoward results. The 20th century also claims other useful modifications of C. S. operation, *e.g.*, Extraperitoneal C. S. of Frank, further modified by Latzko, Döderlein, Selheim and Kuester; De Lee's Low Cæsarean section and McCann's C.S. operation which is "particularly useful in India in huddled sitting position."
—(Tropical Midwifery C.A.)

RECENT ADVANCES IN PRACTICAL OBSTETRICS

BY

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In the last few years many new ideas have been introduced in the academic, as well as, practical aspects of midwifery. As very little useful purpose can be served by discussing the academic researches, in many cases still incomplete, and the deductions from which are, not yet universally accepted, I have attempted to present to the general practitioner, as concisely as possible, the fundamental improvements in the practice of midwifery, which I deem would be of some assistance to him.

The most useful system that has been introduced in obstetric practice in the last decade, is ante-natal supervision of the expectant mother. It lies with the medical profession of the country to educate and impress upon the people the absolute necessity of ante-natal supervision and examination. It is only natural that women should resent the idea of antenatal care and it would be only through the perseverance and tactfulness of the individual practitioner, that this can ever be made popular. Not only can most of the diseases of pregnancy and difficulties in labour be prevented by such supervision, but a very great number of gynaecological affections can also be avoided. How often we find a woman suffering from chronic ailments, dating from the last delivery, which makes her whole life miserable, attention to domestic affairs impracticable and proper care for the children impossible. It is needless to stress, how conditions such as these must adversely affect the whole public health, nor to emphasise the incalculable social and economic losses which must accrue to a state, in which the case of the prospective mother is neglected, and if the medical practitioner to whom we must look to ensure an improvement in these conditions for the future. The preventive aspects of obstetrics and Gynaecology have been fully discussed in the January '29 issue of this journal and the reader is referred to the same for a fuller detail on the subject.

INNERVATION OF THE UTERUS

Whitehouse and Featherstone¹ have shown that the uterus has a sympathetic and a parasympathetic nervous supply. The sympathetic is distributed through the hypogastric and is motor to the circular fibres of both body and cervix, and inhibitory to

the longitudinal fibres. The parasympathetic is distributed from the lumbosacral autonomic through the N. Erigentes and is inhibitory to the circular and motor to the longitudinal fibres of both body and cervix.

The practical importance of this is:—

1. That Cæsarean section can be done under spinal anaesthesia which cuts off the parasympathetic impulses, without causing any harmful effect, but the sympathetic stimuli, which are responsible for the control of hæmorrhage, are not affected.
2. That spinal anaesthesia is harmful in ordinary labour, because the parasympathetic, which supplies the longitudinal fibres responsible for the expulsion of the foetus, are paralysed.
3. That co-ordination between the two systems is essential for the proper uterine action (Dutta)³.

X-RAYS

X-ray has proved to be of immense value in the diagnosis of pregnancy and measurement of the pelvis. No harm is done to the mother or foetus if the Potter Bucky diaphragm is used. Pregnancy can be definitely diagnosed as early as the 16th week. The presence of twins as well as the position of the foetus can be determined. Any disproportion between the head and the pelvis can be ascertained later in pregnancy.

DISEASES IN PREGNANCY

Eclampsia. Much new light has been thrown upon our knowledge of the toxæmias of pregnancy, but very little of material value has been added since Tweedy's introduction of the Rotunda method of treatment. Stroganoff's method of treatment is also based on conservative lines, but the two differ immensely in detail. The Rotunda method was described earlier.

Very recently it has been suggested that autogenous B. Coli infection as the cause of toxæmia and Ivane³ and Browne⁴ have produced some evidence to support it. They base their treatment on this idea.

Prognosis. The prognosis of a case depends upon.

1. Coma—The depth of coma is the best index of the severity of the toxæmia. In cases of deep coma, where the patient cannot be roused, the mortality is 63%. Where some response can be obtained to cutaneous stimuli, it is 20%. Whereas in cases of slight coma when the patient can be made to speak, it is 5% only.

2. Number of fits. If the total number of fits is over 12 prognosis is very bad. Where it is below six, prognosis is good. The number of fits, before the treatment is started has a great prognostic significance; in cases where they are less than four the prognosis is good, but if over seven, it is generally bad.

3. Fever. A steady rise of temperature or hyperpyrexia denotes a bad prognosis.

4. Pulse. If the pulse rate is over 120, prognosis is unfavourable.

5. Blood pressure does not seem to have any effect unless it is very high.

6. Albumen in urine. It is not of much prognostic significance. But where it turns solid on boiling, prognosis is bad.

7. Œdema. The presence of œdema is a favourable sign.

The toxæmias of pregnancy are liable to recur. It was previously held that they produce some amount of immunity in later pregnancies, but this is entirely wrong. It recurred in 35% of the cases analysed by Young. Fifteen per cent of the eclamptic patients pass some amount of albumin in urine after leaving the hospital.

Treatment.—As ideas on the exact treatment of eclampsia, are in general, somewhat uncertain, I am describing them in detail.

Treatment of the pre-eclamptic state.

1. Absolute rest.

2. Diet. Exclude salt. Not more than two pints of fluids should be given. If the patient is accustomed to protein diet, boiled fish and eggs may be allowed.

3. Aperients. A drachm each of mag. sulph. and sodi. sulph. every day. At least two loose actions should be ensured daily.

4. Hypnotics. Chloral Hydras. gr. 20 with Pot. Brom. gr. 15 in the evening.

How long is it to be continued? This should be decided by the patients reaction to treatment. If the signs and symptoms improve, she should gradually be brought back to ordinary diet, leaving out meat and other highly nitrogenous foods as far as possible.

Indications for induction of labour.

1. When the case is first seen and the blood pressure is over 200mm., or in cases where the blood pressure was about 160mm. and is rising steadily in spite of treatment.

2. Blood urea above 50mg.

3. Urea concentration test below 1.5.

Rotunda Method.

1. Morphia gr. $\frac{1}{4}$ at once.

2. If conscious, Pulv. JalapCo. $1\frac{1}{2}$ dr., Mag. Sulph. one drachm and plenty of water are given by the mouth, and the bowel is washed out.

3. If unconscious, 15 minutes after the administration of morphia, stomach and colon are washed out, and $1\frac{1}{2}$ oz. of castor oil is left in the stomach after washing it out. Similarly one pint of water is left in the bowel after colonic lavage.

4. One to two pints of Sodibicarb solution is injected subcutaneously in cases of severe toxæmia.

5. In cases of further fits morphia should be repeated. If at the end of 10 hours, the patient does not show signs of improvement, another pint of sodibicarb solution is given subcutaneously, and if the bowels have not acted, it is washed out again.

Strogonoff's Method.—Remove all sources of irritation. Dark quiet room. No unnecessary manipulation or examination should be done.

Treatment of fits.

Morphia gr. $\frac{1}{4}$ at once, subcutaneously.

1 hour later Chloral gr. 30 in 10 oz. Saline rectally. If the patient is conscious, 5 oz. of milk is given by the mouth.

3 hours later morphia gr. $\frac{1}{5}$, hypodermically.

7 " " chloral gr. 30 as before.

13 " " " " " "

21 " " " " " "

Hypodermic injections are given under chloroform, and it should also be given when a prodrome of fit, e.g., increased headache, facial twitches, restlessness, etc. is noticed. The delivery should never be hastened except in cases of delay in the second stage. The delivery, natural or artificial must be conducted under chloroform. The general condition of the patient should also receive attention. If the rectum is loaded, an enema should be given, but no gastric or colonic lavage. When the patient has more than seven fits before the treatment is commenced, venesection is recommended and 15 oz. of blood is drawn out. It should also be done if the patient has three fits after the treatment is started, and there is no chance of delivery in the next four hours.

Hyperemesis Gravidarum:—Berkeley believes that most of the cases of hyperemesis are of neurotic origin. But this does not mean that they are easy to treat or never fatal. The persistent neurotic vomiting may in the later phases pass into toxæmia by depleting the liver glycogen and thereby producing a condition of hypoglycæmia and toxæmia.

Treatment:—A vaginal examination in all cases, to exclude the reflex causes, should be done. Daily injection of one cc. of corpus luteum extract and administration of cerium oxalate have been advocated. In mild cases simple dietetic treatment will suffice. In severe cases the treatment must be very rigid. The patient is isolated in dark room with cotton wool in her ears. Mouth is kept clean with glycothymoline or permanganate mouth washes. Fluids should be given ad lib. Fats are completely withheld, so too much milk should not be given. Patient is fed upon large amount of carbohydrates. If nothing given by the mouth could be retained, 8–10 ounces of glucose (5%), is administered by the bowel, every four hours, together with 10–15 grains of bromide. In worse cases one pint of 10%–20% glucose is given intravenously and this may be repeated in 12–24 hours' time. Green-Armytage⁴ emphasises that the intravenous glucose should be given very slowly, at the rate of one hour for one pint. In very bad cases he recommends 8 units of insulin at the beginning of the intravenous glucose and 8 units at the end. If the patient reacts to treatment, she will do so in 48 hours' time, and then fluids are given by the mouth, and very gradually brought back to ordinary diet, beginning with carbohydrates first, proteins next and fats last of all.

Indication for induction of abortion.

1. Presence of slightest jaundice
2. Continued pyrexia.
3. In spite of treatment the pulse rate is over 100, urine is still scanty and full of albumen and persistent vomiting.

Method of induction.

1. If the duration of pregnancy is less than 3 months the uterus is emptied at one sitting preferably under gas and oxygen anæsthesia.
2. If over three months vaginal hysterotomy is the best.

Osteomalacia:—The disease is fairly common in Northern India. It is most prevalent among those communities who observe

strict purdah. In Bengal it is commonly seen among Marwari and Mahomedan women, and occasionally in the poorest class Hindu.

Prof. Maxwell of Peking has shown that this is a deficiency disease and can be treated successfully by calcium and cod-liver oil, and there is no evidence to prove that the ovaries are in any way connected with the aetiology of the disease.

Clinical Features:—The disease appears in various forms, anæmia and irregular menstruation being constant features. It may be considered as manifesting in five main types. In the first one the symptoms are those of anæmia and tetany. There is hyper-irritability of the muscles and exaggerated knee jerks. Trousseau's sign is easily obtainable.

In the second form, symptoms are mainly gastric or intestinal with great distension and inability to digest food.

In the third variety, there are rheumatic or bony pains about the shoulder girdle, thigh or back. In the fourth one the symptoms are those of mild neuritis, e. g., facial neuralgia, tooth ache or formication. Green Armytage⁵ reports of cases of complete paralysis below the hips, which have readily yielded to efficient treatment. The fifth variety has an acute and a chronic type. In the acute form patient gets a severe attack of pain in the bones and is unable to walk or sit. In the chronic one the pains are not so severe, lordosis or kyphosis and a waddling gait are usual; gradually the patient becomes hopelessly crippled.

Treatment:—Prophylactic. A sufficient quantity of vitamins, specially A and D, in the food are essential. Sunlight and exercise activates the calcium metabolism. Milk, ghee, fish and eggs are useful. A suitable supply of salts, protein and carbohydrates should be provided. Cod-liver oil contains an abundant quantity of vitamins A and D, but these can only be utilised in the presence of sunlight.

Curative:—Sunlight, cod-liver oil, and exercise are essential. In very severe cases Green-Armytage⁵ recommends intravenous injection of 2–6 cc. (in gradually increasing doses), bi-weekly. Calcium should be given intramuscularly. Irradiated cholesterol is very useful. It should be freshly prepared by exposing half an ounce of the pure drug to the rays of a mercury quartz lamp for an hour at a distance of one foot. It is then dissolved in paraffin, two drachms for eight grains.

The difficulties in labour can be obviated by antenatal diagnosis and treatment of the disease. In cases of very bad deformities, lower segment cæsarean, is the treatment of choice.

Anæmia of pregnancy:—It occurs in woman under 35, and is due to pregnancy. The disease progresses steadily without remission, and is curable by blood transfusion. It differs from the ordinary Addisonian anæmia, which is essentially a chronic disease, occurring after 35 years of age, predominantly in men, is not curable by blood transfusion and runs a course characterised by remissions. (Allan)⁶ In the Eden Hospital, Calcutta (McSwiney)⁷ it occurred in 1.69% of cases, mostly among Hindus whereas most of Balfour's⁸ cases in Bombay were Mahomedans. The disease is most prevalent in the latter half of the year.

Clinical features:—The skin is of a lemon tint colour. Puffiness of the feet and eyes is generally present. A feeling of weakness, vertigo, and poor vision is common. There is generally some rise of temperature. The mouth is often sore.

Blanched mucous membrane, retinal hæmorrhages, sore tongue and enlargement of the liver is usual. About 50% of the patients pass albumen in urine. The blood picture is much like that of pernicious anæmia, but the diameter of the red cells is diminished rather than increased. Bile pigments in the blood are increased.

The anæmia comes on insidiously in the latter half of pregnancy, and is generally discovered shortly after delivery. Miscarriage or premature birth is the rule. The child does not suffer from anæmia. The course of the disease may be rapidly downward, causing death in a week's time.

Treatment:—The uterus should be emptied as soon as diagnosis is made. When the uterus is empty, blood transfusion stops the hæmolysis and leads to prompt recovery in 90% cases. The process is too acute to be benefited by liver feeding.

Glycosurias of pregnancy:—Lambie⁹ describes four types of glycosurias in pregnancy. (1) The early alimentary glycosuria, which he believes to be due to hyperglycæmia, (2). Renal glycosuria due to lowered threshold of kidney to sugar, from which 45% of women suffers, (3) Lactosuria, and (4) Late alimentary glycosuria.

Crook¹⁰ found that the glycosurias of pregnancy are of three clinical forms. In the first it is a simple glycosuria which disappears later in pregnancy; in the second, the glycosuria later develops into some form of toxæmia of pregnancy, and the third, which is true diabetes.

Acetonuria is present in 30% of pregnant women (Bar¹¹ and Stolz¹²). It may be present either in the early or late months of pregnancy. It is due in pregnancy, as in other conditions, to a disproportion between the amounts of fat and sugar undergoing simultaneous combustion in the body. The fats burn in the fire of the carbohydrates, so the ratio of fatty acid to glucose should not exceed 1.5, if acetonuria is to be avoided.

Diabetes:—Prognosis. The introduction of insulin has entirely changed the outlook of the pregnant diabetic.

Effect of diabetes upon pregnancy. It produces functional disturbances to ovulation and in long standing cases, cause atrophy and sclerotic changes in the ovary. Menstruation is absent in 40% of diabetics, and not more than 1.5% of them ever become pregnant. Insulin treatment may restore reproductive activity. Hydramnios is present in 27% of the patients. The foetus is often abnormally large. Mortality of the child is about 50% and of those, who survive, 80% die in the first few days. Miscarriage takes place about the 5th or 6th month in 30% of diabetics, and premature labour is quite common. The patients are more liable to infection and maternal mortality varies from 25 to 50%.

Effect of pregnancy upon diabetics. Pregnancy may precipitate the attack in those who are predisposed to it, or exacerbate the symptoms in those already affected. In certain cases diabetes appears in the 5th or 6th month but 'disappears' after labour. Prognosis is better in whom diabetes starts in pregnancy than in cases where pregnancy supervenes upon diabetes. The foetal islets of langerhans are increased in size and later in pregnancy help the combustion of sugar. The foetus itself utilises a certain amount of sugar. During labour there is increased mobilisation of the carbohydrates in the liver and muscles and this is rapidly burnt up. This may give rise to acetonuria or even to coma. The dangers are passed within 48 hours of delivery. Insulin treatment may then cause hypoglycæmia and symptoms of insulin shock.

A patient with diabetes should not marry; if married she should be advised not to become pregnant. The prognosis is better with the first baby than the succeeding one, but it is safe to let her carry on with insulin treatment.

Treatment:—The general treatment of diabetes should be carried on. Exposure to chill and infections are to be avoided. Insulin has no ill effect on the foetus. The pregnancy may be

allowed to go on if the parents are very keen to have a child, otherwise it is better to empty the uterus. The second stage of labour must be helped by timely application of forceps. Cæsarean section is better done under spinal (stovaine) anaesthesia. Gas and oxygen or ether is preferred in cases of general anaesthesia. Pituitrin has no ill effect in these cases. Where severe acidosis is present, the foetus is probably dead and uterus should be emptied. Labour is better conducted under morphine and hyoscine. Lactation should be avoided, as it necessitates consumption of more food.

Accidental Hæmorrhage:—Browne¹³ observed that most of the cases of accidental hæmorrhage occurred in patients with some kidney trouble. Lately he¹⁴ has shown that if chronic nephritis has been caused by a previous injection of sodium oxalate, accidental hæmorrhage can be induced by injection of uranium nitrate and bacillus pyocyaneus about the twentieth day of pregnancy, in a rabbit. If chronic nephritis is present this may be produced equally readily by injecting B. Pyocyaneus alone, whereas in the absence of chronic nephritis injection of B. Pyocyaneus is not sufficient to cause antepartum hæmorrhage. He believes that the hæmorrhage is not due to organisms but probably to failure of the kidney to excrete poisons. All the evidence goes to show that the one important predisposing cause of accidental hæmorrhage is chronic nephritis.

Fitzgibbon¹⁵ states that there are two types of accidental hæmorrhage, one purely accidental or due to a low implantation of the placenta, and the other due to toxæmia. The extreme tenderness and hardness of the uterus, he assumes to be caused by spasm of the muscles, some of the fibres of which are ruptured. At times there may be hæmorrhages from other organs as well as general intraperitoneal hæmorrhage. Paramoree²⁵ denies the fact that accidental hæmorrhage is caused by toxæmia.

Treatment:—Results of operative treatment are not satisfactory. Plugging of the uterus may be successful in milder cases, but this is seldom done nowadays as it produces extreme shock and is liable to infection. In severe cases morphia warmth and the treatment of shock are the essentials of treatment. Fitzgibbon¹⁵ does not operate in any case and holds that it will kill the patient. He has never seen any postpartum hæmorrhage in a case of accidental hæmorrhage, and he states that the patients generally improve in four to five hours' time.

Contraction ring:—This is caused by an inco-ordinated action between the circular and the longitudinal muscular fibres of the uterus, and spasm of the former. It is a condition of achalasia of the uterus. (Dutta)¹⁶ and is quite different from Bandl's ring or retraction ring. It is a primary condition of the uterus and liable to recur in later pregnancy.

Treatment:—Adernalin has been advocated (Rucker)²⁶. The inhalation of amyl nitrite and injection of atropine have been suggested. Lately Croft¹⁷ has reported some successful results with amyl nitrite.

Operative:—Manual dilatation may be successful in early cases. Version and continuous traction should then be tried. Craniotomy is very difficult if the head is above the ring, and useless if below it. Traction with Willett forceps on the scalp may be successful in early cases. Cæsarean section is the only method of delivery possible in most of the late cases.

Placenta Prævia:—Very little has been added to our knowledge of this condition. In the treatment, cæsarean section is becoming more popular. Willett¹⁸ has introduced a form of forceps which is more like scalp forceps, for applying to the head and maintaining traction through it. It is used in vertex presentations and is passed through the Os pressed against the head, which is held in position by pressure from above. The forceps are now opened and then closed gripping a portion. Continuous traction may now be applied by attaching some weight to the handles of the forceps.

Cæsarean Section:—Various modifications have lately been introduced to deal with a latent septic case. The most difficult problem is presented by the potentially septic case who has been long in labour and the "failed forceps" case. The following modifications are worth mentioning.

1. A large skin incision is made, the whole of the uterus is then everted, and the wound is protected with gauze; uterus is then incised. After delivery of the child, placenta is pushed down through the vagina and uterus washed with methyl green (Brilliant green $\frac{1}{2}\%$, methyl violet $\frac{1}{2}\%$).

2. Portes of Paris keeps the uterus outside the abdominal cavity, stitches the abdomen round the uterus. The uterus is then treated like any other septic organ, douched every day, and when healed up is reintroduced into the abdomen by another operation.

3. Polak starts with an intravenous injection of 5% glucose. He incises the uterus vertically, partly in the upper partly in the lower segment, at the midline. The uterus is then drawn upwards by pulling on a suture passing through the upper angle of the uterine wound. After delivery, the uterus is stitched in two layers. The parietal peritoneum is then stitched to the visceral layer covering the uterus just outside the uterine wound, that is, the wound in the uterus is thus shut off from the general peritoneal cavity and is kept extraperitoneal.

4. The Lower segment operation.

This is by far the most popular operation. By reason of the site and the fact that it can be covered by peritoneum, it is safer in 'suspect' and infected cases. The patient can always be given the benefit of a trial labour and there is no chance of intestinal adhesions forming later. As the uterus is thin at this site it is easier to stitch and heals better as there are no active contraction or relaxation after labour. It leaves the patient with more confidence for a natural delivery in later pregnancies, and in repeat operation, the scar is generally invisible.

The uterine incision is made in the lower segment. A transverse curved incision is preferred by Solomons and certainly gives more room. If the head is very low down in the pelvis, it may be extracted with the blade of forceps.

The other commoner varieties are the extraperitoneal and the transperitoneal operations which are seldom done.

Anæsthesia:—Pure chloroform is administered until the child is delivered, and then ether is given.

Post-operative care in Cesarean cases: The usual post-operative treatment for abdominal cases is carried out. The patient is kept in bed for three weeks. She should be advised not to get pregnant for a year.

Cesarean scar:—Holland¹⁹ has shown that the rupture of the scar in the next pregnancy is not a negligible factor. If there is a thorough muscular union, i.e., the muscle fibres run across the scar, there is no likelihood of a rupture in subsequent pregnancy. But, if the union is formed by connective tissue elements, it is liable to rupture. So in suturing the uterine wound great care should be taken to appose the cut surfaces properly and to ensure that the sutures are not tied too tight so as to strangle the tissues.

When rupture takes place it generally happens at the thinner part where there was no muscular union. In repairing these ruptures Holland lays great stress upon the necessity of removing

the decidua with which the muscle edges are covered, before they are in a suitable condition for direct suture.

Of all causes predisposing to rupture, sepsis is the most potent. It produces a layer of granulation tissue between the cut edges and prevents muscular union.

Holland found that with catgut suture the chances for rupture was 1 in 21, with silk 1 in 46.5, and that there were no cases of rupture after silk-worm gut suture; but it must be realised that many more cases are stitched with catgut than silk-worm gut.

With a latent or definitely septic case, whether cesarean would be done or not, depends more upon the demand of a living child by the parents, and its chances of survival.

The mortality of the mother and the child after cesarean section has been found to be as follows (Munro Kerr and Holland):—

	Mother	Child	
		Immediate	Among survivors
After long labour	9.4%	11.4%	5%
Failed forceps	26.5%	27%	10.9%
Induction of labour	14%	X	X

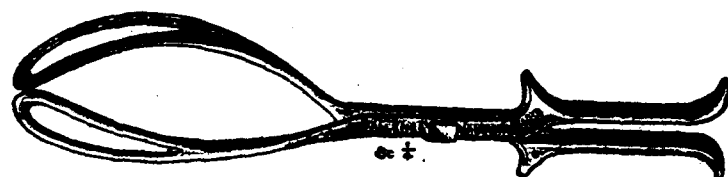
FORCEPS

Quite a number of different types of forceps have been described lately. Of these Das's Bengal forceps and Fergusson's forceps deserve special mention. The former is specially adapted to fit in the average Bengali pelvis which is a little smaller than the European pelvis. The latter has certain advantages in that traction may be applied from the middle of the blade, and the fenestræ are larger so there is less compression on the head.

Our ideas of high forceps operation have been revolutionised by the introduction of Kielland's and Burton's²⁰ forceps. The former is the more popular of the two, and is extensively used on the continent and in America but very rarely in Great Britain or Ireland. It is quite true that high forceps application is a very risky operation, and the teaching is very sound for the student, but the general practitioner and more specially the obstetrician encounters a definite group of cases where this may be done with greatest benefit to the patient.

If the presenting part does not adapt itself to the inlet, the ball valve action of the head is lost and early rupture of the membranes is the rule, resulting in long tedious labour. Unfortunately secondary uterine inertia frequently sets in with the head still high in the pelvis above the brim, and this can only be avoided by earlier delivery with forceps. As a rule no harm can

be done to the mother by high forceps application when there is no bony obstruction and immediate delivery of the child is indicated, but the operation is without doubt, a difficult one, and should not be attempted by one who is not fairly well experienced in forceps delivery.



Kielland's forceps:—For a detailed description and its uses reader is referred to Jarcho's²¹ article in the *American Jour. of Obstetrics*.

It differs from the ordinary forceps in that the pelvic curve of the blades scarcely exists and resembles the old type of straight forceps. The blades are slightly inclined posteriorly from the shanks, so that their long axis is parallel but is posterior to that of the handles. There is no lock but the blades are articulated by means of a slot, carried on one of them, into which the other slides. The head may thus be grasped by the blades lying at different vertical levels.

Method of Application:—The patient is placed in the dorsal position, and the exact position of the head is diagnosed. Lock the forceps towards whatever part the head is lowest in the pelvis, and orientate the fenestra outside the vulva, according to the position of the head diagnosed. Grip the upper blade by the fenestra and detach it from the other, it is the anterior blade. The index and the middle fingers of the left hand are then introduced into the vulva, so that the tips of the fingers abut against the back of the symphysis. The anterior blade is applied first with its convexity against the baby's head and concavity towards the pubis; it is then turned round and applied against the foetal head. Hold the anterior blade in the first three fingers of the right hand, as if holding a pen, with the concavity of the blade pointing towards the ceiling. Slide the blade along the palm of the left hand and so into the vagina and guide the tip of the blade upwards into the uterus; on reaching a certain height etc., the blade will be felt to turn, a movement which is completed by gentle rotation with the introducing fingers. Push the anterior blade as high up as it will go without undue force to the uterus. The blade should always be rotated with the convex edge next to the lower uterine segment, so that the arrow or knob leads.

Rotation should only be made at the intervals between the pains. As a matter of fact the blade tends to rotate itself. The danger of application in cases of protracted labour has been overrated. If the abdominal wall is watched during the application, the movements of the anterior blade can be accurately gauged. The blade once applied is held in position by an assistant, while the posterior blade is applied. This is done in the ordinary way with the fingers of the left hand lying in the concavity of the sacrum, and guide the tip of the blade past the promontory. The usual difficulty is to get the posterior blade passed the promontory. Once the forceps are applied, patient may be placed in Walcher's position, and traction applied in the axis of the pelvis. The forceps may be used to rotate the head, but this should only be done in the interval between the pains. When traction is made, it often turns itself giving one the cue. When the head is in perineum, the rest of the delivery is conducted as in ordinary forceps cases.

Advantages of Kielland's Forceps:—1. As the blades fit the head more exactly than in ordinary forceps, traction and descent are easier, and there is less risk of maternal injuries. They are of most use with transverse position of Sagittal suture at all stages specially if the head is above the brim.

2. Intracranial injuries of the foetus are less frequent as the forceps are applied in the biparietal diameter instead of antero-posterior diameter, when the head is lying transversely and do not compress the face.

3. The head is not displaced by the introduction of the blades which grasp it intimately.

4. The splinting action of the anterior blade in cases of disproportion is also an added advantage.

5. Blades can be locked even when they have not been to the same height.

6. With its very slight pelvic curve and sliding lock, it is most satisfactory for unrotated heads (McNally)²³.

Disadvantages:—1. Slipping of the forceps. This is due to faulty application. A correct diagnosis of the head relative to the pelvis being absolutely necessary.

2. Injury to the bladder and rupture of the lower uterine segment. These only happen in cases of gross want of manual dexterity and when application of forceps is contraindicated.

PUERPERAL SEPSIS

Ætiology. Anything that is likely to sap the patient's resistance acts as a strong predisposing factor for sepsis. The commonest of these are exhaustion in labour due to mechanical difficulty, laceration or bruising of the soft parts and hæmorrhage. Manual removal of the placenta is always a dangerous procedure, as the hands come in direct contact with the open mouths of the venous sinuses. Contact infection is rare and should not occur if the ordinary rules of surgical cleanliness are observed. Albuminuria predisposes to sepsis. Any septic focus in the body is liable to cause infection in the puerperium. Coitus late in pregnancy is a means of introducing infection and Lockhart quotes a series of cases where 31% of the patients who were septic in puerperium, had had coitus within ten days of labour.

The question of autogenous infection is fairly definite now. There can be no doubt that streptococci do occur in the vaginas of apparently healthy women and that they have periodical waves of virulence (Watson)²². This knowledge should not in any way lead us to lessening the rigidity of antiseptic and aseptic precautions, and blame each case as an auto-infection. Autogenous infection only forms a minor part in the death role from puerperal sepsis (Young)²⁶.

The prognosis depends upon:—

1. The onset of the fever: the earlier the onset the greater the mortality.
2. Temperature, the actual highest temperature attained has no prognostic value whatsoever.
3. Pulse, when the rate is below 110, mortality is low.
4. Blood culture, cases which are positive to streptococci, the mortality is 66%.

Prophylactic Treatment:—The treatment of puerperal sepsis begins in the ante-natal clinic. There all septic foci must be treated.

Antistreptococcal Serum: different observers have experienced different results with this.

Streptococcal antitoxic serum: This, as the name indicates, is an antitoxic and not antibacterial serum. Encouraging results have been obtained in the Rotunda Hospital with this.

Collosol Iodine (Crooks): It has proved to be useful in suspect cases. The dose is 20cc. intravenously.

Curative:—Drugs. Antistreptococcal serum and vaccines have been used with divergent results. Antiscarlatina serum is useful in some cases.

Gordon Luker's method of treatment:—30 cc. of antistreptococcal serum is given hypodermically for three days. Five grains of quinine bihydrochloride is injected intramuscularly every other day for six to ten days. The patient is placed in Fowler's position and is given rectal saline, and half to one pint of 10 to 20 per cent. glucose intravenously. A drachm each of potassium citrate and dextrose is given with a pint of barley water. Open air is essential.

Blood transfusion is very beneficial in septicæmia. Immunotransfusion has given still better results. It is done in the following way. An injection of 1000 million streptococci is given to the donor and then his blood is transfused in the patient, four hours later.

Collosol Iodine in 20 cc. doses. intravenously is used in the Rotunda Hospital.

Treatment directed to the uterus:—The only indication for exploration of the uterus in puerperium is hæmorrhage. If a small piece of the placenta has been left behind and this is noticed in 36 hours' time it may be taken out otherwise it is wiser to leave it.

Remington Hobb's 27 method:—After a hot vaginal douche, one to two ounces of glycerine is injected into the uterus by means of a Jacques catheter attached to a glass syringe. This is done twice a day. This has yielded very encouraging results.

Operative treatment:—Ligature of the pelvic veins. This may be done when there is a persistence of the characteristic temperature with frequent rigors and a feeling of resistance in one or both sides of the pelvis. If the blood culture is negative or the organisms are only present during the rigor and not in the interval, the operation is indicated. In cases of a positive blood culture there is general septicæmia, and the operation is unlikely to do any good.

Hysterectomy is indicated when there is an abscess in the wall of the uterus. Munro Kerr²⁸ recommends it in cases of general peritonitis. He admits that this is a very drastic procedure, but the only method that is likely to save the patient.

Puerperal Mastitis:—This is one of the most neglected conditions and the results are often appalling. It usually takes months for the sinuses to heal up if they do so at all, for the whole of the breast tissue may be disorganised. The large amount of

fatty tissue, the depth of the sinuses, all tend to keep the infection going in a very chronic state.

There are two types of mastitis, the parenchymatous, and the interstitial.

1. In the parenchymatous form, inflammation is confined to the milk ducts. They are generally caused by milk decomposing on the nipple. There is a wedge shaped area of redness, the thinner end of the wedge being at the nipple, with some pain and tenderness. Slight fever is also present.

Prophylaxis:—The nipple should be washed with Eue de Cologne after nursing and with boric lotion before putting the baby to the breast.

Treatment:—The breast is supported and hot fomentations applied. As there is no pus formation, the baby should be kept at the breast.

2. The interstitial type generally starts from a crack in the nipple. It is the more serious of the two, and if neglected causes grave results. In the fully developed case of interstitial mastitis, abscess may form in any part of the breast.

Prophylaxis:—In pregnancy the nipple is bathed with Eue de Cologne or spirit, and later massaged with Borofax. If the nipple is cracked Friar's Balsam is applied. In cases of very bad cracks the sore is touched with silver nitrate and nipple shield should be used. The treatment indicated below "should be followed in every detail if the best results are to be obtained" (Solomons).

Treatment:—A general anæsthetic should always be given. Chloroform is rather dangerous in the presence of pus, so ether or gas and oxygen is preferable. Incision is made radiating from the nipple. Push a gloved finger down into the tissues and break down the loculi and then douche it out. The cavity is plugged with iodoform gauze soaked in 2% carbolic acid.

Subsequent treatment. The plug is removed, cavity douched out with some antiseptic lotion and plugged again with iodoform gauze. Dressing on the second day is very painful and may require another anæsthetic. Plugging with the plugging forceps is less painful as it does not hurt the skin edges.

Twilight sleep or painless labour:—The treatment is very satisfactory for the mother and there is no reason why the modern woman must undergo the horrible pains of labour if she can afford to pay for the extra attention from the doctor and the nurse. There is no doubt that it exacts unremitting attention

from the doctor and the nurse. The uterine action is diminished and labour is prolonged, but this may be counteracted by pressor substances or operative delivery. No doubt the chances of forceps delivery are greater, but there is practically no danger if the effects of the drug are carefully observed. It shortens the first stage as a rule but the second stage is delayed.

Method:—Injections are commenced in primigravidae when the cervix is dilated to two fingers, and in multiparæ when labour pains have definitely set in. The first injection is of 2/3 grains of Omnopon or Morphia with 1/150 gr. of Hyoscine. Each subsequent injection of 1/450 gr. of hyoscine alone is given practically every hour, unless the patient appears to be excessively affected by the drug in which case one injection is missed. The memory test is useless. Morphia need not be repeated, except in very rare cases where the labour is prolonged and painful, and in no case should it be given when the child is likely to be born within the next two hours (Holland 29). The injections should be stopped when the head is in perineum.

The average number of injections required is five. If the pains are becoming less mix one or two drops of pituitrin with the next injection. Patients generally recover in six hours, and are very thirsty. The puerperium is much better than the ordinary case. Lactation is normal. The child is usually a little asphyxiated, but soon recovers.

There are two forms of hyoscine, the dextrorotatory and the laevorotatory. The former is the part which makes the patient maniacal and produces other mental symptoms. The latter does not produce any untoward symptoms and is the useful part of the drug. If the patient becomes maniacal, hyoscine injections should be stopped and in violent cases chloroform may be needed.

Ergot:—The main active principles of the drug are ergotoxin and ergotamine. These may be extracted with alcohol, but are practically insoluble in water. The liquid extract of the British Pharmacopia is prepared with water and contains only a minute quantity of histamine, too small to cause any uterine contractions. The United States Pharmacopial extract is made with alcohol and is useful. The other effective preparations of ergot are:—

1. **Femergin**. This can be administered by the mouth as well as hypodermically. The active principle is ergotamine and the dose is 1cc.

2. **Aseptic ergot (P & D)**—Dose 1 c.c. Hypodermically.

Bourne and Burn,³⁰ as well as, Nelson and Patte³¹ have demonstrated that ergotoxine and tyramine have no important effect, but ergotamine produces powerful contraction of the uterus and is most useful for therapeutic purposes. It does not seem to have any affect on the involution of the uterus. (Bourne and Burn)

Obstetric Stethoscope:—This has been introduced by De Lee. It can be fixed to the head like a head mirror, and so keeps the hands free. The foetal heart can be auscultated while the operator is using forceps, without soiling his hands. This is also very handy for testing tubes by Rubin's method, as the hands are free.

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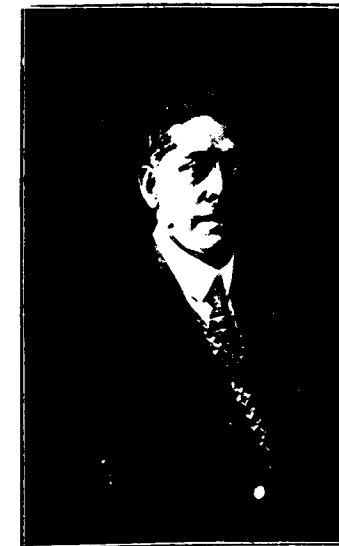
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PROGRESS IN OPHTHALMOLOGY

BY

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The last quarter of a century has seen great advances in various directions in ophthalmology. Considerable work has been done in the study of the Embryology of the Human Eye, on the physiology of intra-ocular circulation, and on the nervous mechanism connected with vision especially as a result of the unprecedented opportunity afforded by the Great War. Methods of diagnosis have been elaborated to such an extent that we have now an extremely efficient set of instruments for the study of the various eye conditions. In treatment methods also we notice a marked advance along certain directions.

Many investigators and notably Miss. Ida Maun have done a great deal in clarifying our knowledge of the development of the eye and relating it more definitely to the development of the organ of vision of related species. A more minute examination of the structural varieties was made possible by improvements in the methods of examination and a more minute study of embryology has been made especially in relation to congenital eye defects.

In the domain of optics the generally accepted conclusions of Helmholtz's theory of accommodation have been questioned and re-examined by various investigators. The opposing theory of Tscherning has to some extent been reconciled to Helmholtz's theory: but not all the facts observed have been fully and finally explained.

In methods of diagnosis, perhaps the microscopical study of living tissue or Bio-microscopy—which has been made possible by the introduction of the slit lamp of Prof. Gullstrand is the greatest achievement. The Slit lamp is only a scientific method of application of a concentrated narrow beam of light. The part illuminated in this way stands out in contrast to the surrounding dark unilluminated area. Microscopical studies have thus been made possible with the aid of this light. The Binocular microscope which had existed for sometime has only recently been efficiently used because we have only now had a sufficiently powerful beam of light to make examination under a high magnification possible. The Slit lamp has thus become one of our most valuable instruments in ophthalmological diagnosis. The

great exponent of Slit lamp Studies is the Swiss investigator, Prof. Vogt. The Slit lamp has provided for us the opportunity for direct examination in detail of living tissue. It has made it possible for minute and accurate records to be made and for the progress and results of our treatment to be closely followed. With the aid of this instrument and the microscope we can now observe minute changes in the different layers of the cornea, the early presence of pathological changes in the aqueous, the minute structure and early changes in the iris, and the structural peculiarities of the normal and pathological lens. The slit lamp has also for the first time made possible an accurate study of the vitreous, eliminating the difficulty of artificial methods of examination of jelly like mass like the vitreous.

With the aid of a Koeppe microscope and a contact glass it is even possible to study the retina in the living eye under even as high as magnifications as 108 diameter.

Another instrument of precision which we owe to the same investigator, Prof. Gullstrand is his elaborate self-illuminating binocular Ophthalmoscope. By means of this instrument it is possible to examine the fundus of an eye stereoscopically under magnification from 10, to 40 diameters.

The retina is almost transparent to ordinary light and is hence almost invisible under ordinary methods of examination. But the researches of Vogt have demonstrated the value of examination by the shorter waves of the spectrum which do not penetrate the retina but are mostly reflected. The retina is thus rendered visible. Hence examination of the fundus under red free light is now often used. With the aid of such light retinal nerve fibres can be made out and their course followed and pathological changes can more easily be differentiated.

Quite the most recent instrument for the examination of the eye is the Gonioscope introduced by Manuel Uribe-Troncoso. This instrument is based on the principle of the periscope. By its means the study of the structure of the angle of the anterior chamber under normal and pathological conditions is made possible. Its greatest application is in the study of the angle in cases of glaucoma.

Another instrument which is coming into greater use is the Retinal Camera of Dr. Nordenson. By its means an accurate record of the normal and pathological retina can be made. Photographs which serve as permanent records of the morbid conditions of the retina can be taken with it from the living fundus.

A very brief account of 2 or 3 directions in which considerable investigations have been carried out and great progress has been made in methods of treatment may also be given here.

The pathological lens has taken the greatest share of investigation. Many methods of dealing with cataract have been tried. Medical measures have been tried to 'cure' a cataract. But no method so far has had any measure of success. So long as the aetiology of cataract remains obscure there is little chance of developing any method of removing an organic opacity by medical treatment. The only reasonable method at present seems to be that of surgical removal.

Amongst operative procedures for this purpose the method of Intra-Capsular extraction which had been practised in some form or other for many years, has had an impetus given to it by the methods elaborated by a few expert Surgeons:—

Amongst these may be mentioned the Expression method of Smith, the suction method of Barraguer's and the combined traction pressure method as practised by Knapp and others.

In the hands of its originators these methods seem to have given good results but few others have been able to practise them with the same measure of success.

The first and the third methods have no specially elaborate instruments for its performances. Barraguer's method of suction is performed by means of a complicated instrument called Erisiphake. This is a mechanical contrivance by which a vacuum is created in a small cup which is applied to the lens. The vacuum makes the lens adhere to the cup, the lens can thus be recovered entire in its capsule. This instrument has been slightly modified by various surgeons, the Forbes Moore, Green, Urrea, etc.

Such an instrument is a beautiful piece of workmanship but it has its disadvantages. A mechanically controlled vacuum may disappear at any time and consequently the lens may slip back. But the greatest disadvantage in all these intra capsular operations is the frequent loss of vitreous. All methods of intra capsular extraction are difficult to perform and great skill is required for its performance and great care in selecting suitable cases. Hence these methods although they have given good results in the hands of its exponents have failed to give uniform satisfactory results in the hands of those who would follow in their steps. "The method of most general application is certainly the old procedure: and the merit of the newer operations is not so much in standardising a new technique, but in putting forward new points of view in

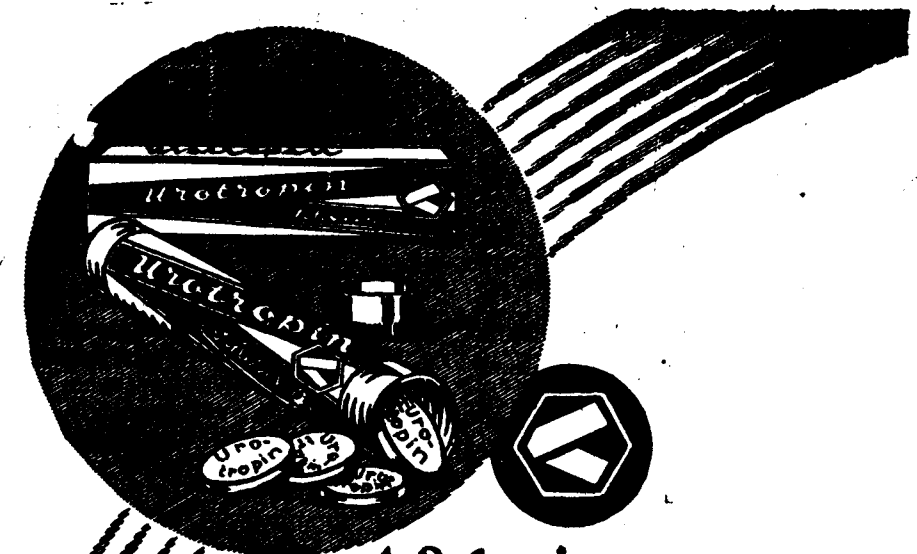
the light of which each individual may orientate and model the technique which suits him best" (Duke-Elder)

Amongst recent methods of treatment which have greatly increased our usefulness in combating diseased conditions may be mentioned that known as *Protein shock* therapy. The principle of this method seems to be to produce a general constitutional disturbance and consequent elaboration of protective substances in the body by the introduction into body of non-specific proteins. Various substances have been used. According to certain investigators Cow's milk which produces the most marked febrile reaction is said to be the best. Others like Ben Wilt Key who has done a great deal of work in this direction advocate the use of antidiphtheritic serum. Still others have found anti-typhoid vaccine of great use.

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PROGRESS AND PRESENT POSITION

OF PSYCHIATRY

BY

FRANK NORONHA, M.B.C.M. D.P.M. [ENG.]

Superintendent, Mental Hospital, Bangalore

Though "psychiatry" is a term of comparatively recent origin, yet the principles it enunciates are to be traced to the earliest times in the history of medicine. Unfortunately on account of the different views held at different times on the relationship of the body and mind, the psychic aspect of the organism came to be considered apart from the physical, and as general medicine which concerned itself "with the ills that flesh is heir to" progressed, the science of mental medicine went off at a tangent into metaphysical realms and naturally failed to appeal to the practical physician.

In support of the fact that mental disorder was a subject for observation and rational therapy in ancient times we find that intoxication was recognised as a cause of mental malady among the ancient Egyptians and about the year 460 B.C. Hippocrates laid down the principle that the brain was the organ of the mind and that insanity was merely the result of disturbance of the organ.

A glimpse into Hindu medicine reveals the interesting fact that long before Hippocrates, even the real nature of the relationship between mental and physical conditions was understood in ancient India. For, we find it mentioned in Mahabaratha, Shanti Parva—Chapter XVI Verse 8-9 that "there are 2 sorts of diseases viz., physical and mental and that each originates from the other and none of them independently. Forsooth—Mental diseases originate from physical ones. Likewise physical diseases originate from mental ones. This is the truth"

Dhanavanthri, the father of Hindu medicine divided medical treatment into two sections—the healing forces within us and the healing forces without. Whether or not he had discovered the natural disease-resisting powers of the body which are implied in our modern expression "immunity", his theory of "healing forces within us", would undoubtedly indicate those measures for the relief of suffering which we recognise to-day as Psychotherapy.

* A paper read at the Medical Conference, Bangalore, on 22-12-28 and sent for publication in the Jubilee issue.

For, in the chapter from Mahabharatha, just quoted there is a further allusion, indicating the then prevailing view on the influence of the mind over the body.

It runs as follows:

"He who bewails for past physical or mental afflictions reaps affliction from afflictions and suffers double afflictions" and later on it is said that "Goodness, darkness and ignorance are the three qualities of the mind. The harmonious existence of these three is the sign of health."

How inspiring and yet how different is this view of mental medicine with that which prevailed in the succeeding centuries when the doctrine of demoniacal possession held sway and insanity was accounted for, by the entrance of a spiritual being into the body and treatment consisted of ceremonials and incantations.

It is needless to state that such doctrine finds favour with many people even at the present day.

Thus mental medicine became divorced from general medicine and when the epoch-making discoveries came to be made in anæsthetics, in antiseptic surgery and in bacteriology the mere confinement of lunatics in asylums continued, without any advance whatsoever either in the etiology or the treatment of mental disorders.

We may well pass over this dark chapter relating to the asylums and consider the main principles underlying mental disorder and mental treatment and their relationship with general medicine.

We are however brought up on what I may call "somatic," lines in our medical studies and naturally carry that tendency in our practice and the public have yet to reconcile themselves to the idea of the interdependence of the psychic and somatic functions and to recognise that an individual is a physiological and psychological unit reacting to disease, and until that is done, one should not wonder that our mental hospitals receive scant attention with regard to improvements, and that the sequestration of the "lunatic" is the only method thought of when he becomes unbearable to society.

It is therefore quite necessary that medical opinion with regard to the status of Psychiatry, as a not unimportant branch of medical science, should be organised, as to influence in its turn public opinion and the powers—that be in order that proper arrangements be made and proper facilities afforded not only for the treatment of the definitely insane but for the relief of the large class of neurotics and psychoneuro-

tics who pass muster as sane persons but whose psychic functions are so disorganised as to make their lives less useful than would otherwise be.

ÆTIOLOGICAL CONSIDERATIONS

With very rare exceptions mental disease is the resultant of several interacting factors, which may be physical or mental. The popular view usually attributes a mental breakdown to a single cause, such as, overwork, intense religiosity, disappointment in love, financial loss, or something of the sort. But what appears as a single cause may be a precipitating factor in a chain of causes. It would be of utmost advantage if the public would realise this important fact so that one may not be prejudiced by viewing any case as being due to this cause or that cause. On the other hand it must be estimated, how much of this and how much of that cause is responsible for the trouble. We have to regard mental stability as the balance between the resistance offered by the environment and the capacity of the individual to face it. The individual being constitutionally weak succumbs to a normal environment or being constitutionally well-endowed finds the environment too over-powering. The term "constitution" should include both the mental and physical make-up of the individual. They are interdependent. It is a well known fact that digestive disorders bring on lethargy and disinclination for work while anxiety and worry create loss of appetite, dyspepsia and kindred physical disorders.

Moreover a clinical picture in a case of bodily illness is incomplete without its psychic counterpart and it is for the recognition of this portion of the clinical picture at least, that psychiatry demands the attention of all medical men.

Mental disorder as a rule does not set in suddenly like an attack of cholera but by a slow, insidious process and need there be any doubt that the value of treatment lies in applying it in the earliest stages?

It may be a focal infection or a system run down by a previous bodily ailment which may have been cured so far as physical treatment is concerned but which has left that system in a condition favourable for the development of a psychosis. In such cases the initial lethargy, irritability of temper and insomnia are lost sight of, and, when the psychosis develops in its intense form the asylum is thought of as a last resort. Instances could be multiplied of such a state of affairs and statistics of the mental hospital go to show that recovery rate is most marked when treatment is sought within 3 months of the onset of the disease.

Unfortunately psychiatry has yet to make a forcible appeal to the public as regards the value of early treatment of mental disease and it is up to our profession to create a public opinion in this matter. If early treatment of mental disease is to be popularised, it is necessary to recognise a continuity in the development of mental disorders and consider its manifestations as more of degree than of kind. Of course there has been a scientific classification of mental diseases which has been elaborated by the genius of Kraepelin and which is based on ætiology and pathology and symptoms; but the tendency to demarcate the diseases in the popular terms—insanity and not insanity is to be greatly deplored.

Insanity is a legal term and may well be reserved for the purposes of conservative Law. Progressive medicine has no use for such a term. We would do well to consider that what the law calls insanity is the end product of a series of phenomena and endeavour to note mild forms of changes in mood, alterations of character and habits and be forewarned regarding the probability of a psychosis of definite type developing in course of time, if neglected.

There are certain features peculiar to mental disease which make their treatment different from that of physical disease.

The co-operation of the patient which is ensured in almost every case of bodily disease is lacking in many mental cases. So long as a patient retains an insight into his condition he will be found to be co-operative and treatment is possible either at home or in the wards of a general hospital. With loss of insight the patient passes over the borderland into a psychotic state. Sooner or later, active treatment on both physical and mental lines has to be undertaken, and the sooner this is done the better. A thorough physical examination including serological procedures may reveal an underlying cause. If not, treatment on general lines for the relief of the most distressing symptoms has to be carried out. It is needless to point out that in a modern Mental Hospital, all the equipment of a general hospital is requisitioned and the co-operation of physicians and surgeons practising in every branch of the profession is sought for. It must be admitted that in the realm of mental medicine, there have not been epoch-making discoveries such as that of anæsthetics and antiseptic surgery or the treatment of syphilis by '606' or diabetes by 'insulin.'

This lack of progress is due probably to the set back which mental medicine received earlier in its history. Psychiatry even to-day as an art and science, is very young. As Lugaro points out "the progress of psychiatry has been slow, laboured, and rather unsatisfactory. This science of psychiatry can however prove an

attraction to him who feels the fascination of deep and difficult problems but its results are far from giving that satisfaction which one obtains for example from surgery or from the study of infectious diseases. It is one of the noblest as a science, the humblest as an art."

During the past quarter of a century, what is known as the psychological concept of insanity, has been greatly developed. Psychology or the science of the soul has always been associated with physiology. It is but natural that those men who interested themselves in the study of the structure and functions of the body should have also speculated about the nature and seat of the soul. So many of the psychologists in every age have been medical men. But in spite of the remarkable progress made in the structure and functions of the nervous system, physiology failed to furnish an explanation for many mental phenomena. Therefore one had to endeavour to explain abnormal mental states along purely mental lines and this method has greatly contributed to the progress of psychiatry. The chief exponent of modern times of this phase of development, of mental medicine is Prof. Freud of Vienna whose psycho-analytical investigations have given rise to the dynamic school of psychology. According to the Freudian School, the period of infancy is full of potentialities for the development of the mind. It is the development of the personality of the child that helps it, as it grows to face the struggle for existence and ultimately ensures for it success, happiness, contentment and satisfaction with life.

The various stages in the growth of human personality from infancy onwards and the set back which it may receive at any level have been so elaborated in the psycho-analytical conceptions of Freud, that they enable us to get an insight into the mental mechanism and to explain the several morbid phenomena which are otherwise inexplicable on purely physiological grounds.

The importance of the unconscious mental activities in modifying the conscious mental states and behaviour and its relation to the morbid manifestations is now widely recognised. These discoveries and the conclusions that have been drawn from them have given a great impetus to the progress of psychiatry and demand the interest and attention of the profession. Misbehaviour or disorder of conduct which characterises an insane person should not merely be an occasion for his separation from the sane but a matter for close observation and interpretation of the fundamental reactions which are at fault.

Interpretation of conduct is the objective approach to the subjective mental states and is the basis of psycho-pathology whose principles offer a much wider range of application than in the study of mental disorders alone. It includes the role of the emotions in influencing conduct and in modifying the personality. On the physiological side the elucidation of physical processes underlying the activity of the nervous system has advanced to a certain extent our knowledge of psychic activities both in health and disease. But the progress has been slow. The demonstration of spirochaetes in the brain, in cases of general paralysis has completely changed our former views on the causation of that disease and attempts are still being made to find the causes for mental symptoms, in the biochemical, serological, and general metabolic reactions of the system or in the disturbances of the vegetative nervous system or the ductless glands. Now these physiological and psychological investigations, at first sight, appear to be along widely divergent lines. But it is necessary for a clinical understanding of mental disorders to accept the conclusions arrived at by both the methods. One may be said to be complementary to the other.

Freud himself the great exponent of psycho-pathology says that "the edifice of psycho-analytic doctrine...is in reality a super-structure which will have to be set on its organic foundation at some time or other."

Mental Hygiene, in the words of those who first adopted the term, inculcates the gospel of "right thinking in order to bring about right living" and constructively to bring about a right adjustment of the individual to his environment. The avenues of application of its principles extend to every field of human activity, domestic, educational, economic, and industrial—and those who are interested in promoting Public Health cannot by any means ignore the mental health of the community. In promoting mental health all the resources of medical and psychological science are requisitioned, in preventing mental breakdown in those predisposed to it, in stabilising the emotions of those who are emotionally unstable, in detecting mental kinks in those who show deviations of character, which render them socially useless and in setting on their legs 'problem' children in schools.

Assessment of an individual's worth with regard to his fitness for a job, not merely from an intellectual and physical standpoint but as regards his emotional attitude, his likes and dislikes, and other factors that may mar his efficiency are considered as of

vital importance for the individual concerned. Mental Hygiene devises ways and means of rescuing the criminal, on the broad principle of not merely considering the crime but the causes that have led up to it.

As in the case of general medicine, further progress will be in the direction of prevention of mental disease and of those tendencies which reduce the usefulness of an individual as a member of society and which lessen his happiness in life.

In order to popularise mental treatment, facilities should be provided at our patient clinics where the mild incipient and non-certifiable cases could receive advice and treatment. Such clinics should preferably be in general hospitals, as it would enable the patients who have prejudice against going to the Mental Hospital to seek treatment otherwise. Moreover a large class of sufferers who primarily seek treatment for physical symptoms happen to be psychoneurotic who have to be treated with psychiatric methods. Provision should be made to admit non-certifiable cases of mental disorder in every general hospital. This is a pressing need of the day, as most of these cases at present languish for want of adequate treatment until they become certifiable and in many cases chronic.

The science of Psychiatry has far advanced since the time when Shakespeare defined "Madness!—What is it nothing else but to be mad." We now realise that the so called "madman" is one who has failed to adapt himself to his usual environment. If that is so, what is more rational than to provide him with a better environment? We have hitherto been content with protecting our sane selves from the troublesome insane by keeping them apart. Now what Psychiatry demands—and demands with scientific authority at the back of it is—that we should not only salvage those that have fallen, but help those who are about to fall and enable every one to rise to the full height of his mental vigour which will lead to greater efficiency in action and greater happiness in life.

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SOME NEWER CONCEPTS IN ORGANOTHERAPY

BY

DR. H. C. MENKEL, M. D., *Simla*

In the department of Organotherapy, internal medicine has recently made several interesting and promising developments.

The liver has yielded more of its long hidden secrets to the diligence of the research worker. As a result of these findings the liver assumes not only clinical interest but most valuable therapeutic properties.

In addition to its production of bile, storage of glycogen, and detoxication, the liver is now shown to be an important gland of internal secretion, producing at least two catalytic hormone-like substances having the true homostimulating action of internal secretory principles.

ANABOLIN

The first internal secretory principle to be isolated by the fractional solvent method was called "anabolin" by the American workers who found this active residue to exercise a marked influence over the anabolic or detoxicating function of the liver, hastening the destruction of certain protein wastes like guanidine, etc.

At first anabolin was thought to be a depressor principle because of its effect in reducing hypertension. This pressor relieving action is now known to be the direct result of increasing the toxin destroying function of the liver by the hormone-like action of anabolin. This result is obtained by either oral administration or intramuscular injection.

The Japanese workers under Prof. A Sato have shown that this principle "is capable of detoxicating any liver poison". Their work was with rabbits. Having determined the reaction of rabbits to certain poisons, these animals are classified according to their response to a fresh 3 per cent ammonia chloride solution in doses of 10 C.C. per kilo of body weight, which produced convulsions within fifteen minutes. An injection of the anabolic liver principle given five minutes later prevented the convulsions. This was done with ammonium chloride, chloroform, histamine and heavy doses of urea.

Functional high blood pressure is nearly always preceded by a breakdown of hepatic detoxication. The same appears to be true in the high blood pressure of eclampsia associated with pregnancy. The anabolic hormone re-arouses hepatic detoxication

NEWER CONCEPTS IN ORGANOTHERAPY—MENKEL 321

with consequent clearing from the blood stream of the pressor toxins and relief of hypertension.

Hæmopoëtin:—The successful development of a water-soluble hæmopoëtic liver extract has placed liver therapy on the definite basis of hormone therapy. This hæmopoëtic principle when administered under conditions of anæmia evidently arouses the production by the liver of more of the same principle, the two amounts serving directly to set in motion the production of complete, mature bloodcells and restoring the normal blood picture.

The result in pernicious anæmia, and in secondary anæmia if sodium nucleate be added, is literally spectacular. The more serious the case the more positive seems the results.

Such observations lend strength to the view that in pernicious anæmia we have a defective production of a true internal secretion on the part of the liver, and that this water-soluble hæmopoëtic principle definitely replaces this, thus providing the essential stimuli to the red bone marrow and other reticulocyte producing structures.

Please take time to note that this liver therapy development has done more than to provide an effective remedy in serious anæmia, and in functional hyperpiesia. It has provided undisputable evidence that oral organotherapy, and homostimulative organotherapy, not substitutive, is effective in so serious a condition as pernicious anæmia.

Perhaps it is not out of place to include in our observations of progress the increasing use of oral administration of endocrine hormones. This is as it should be. The thyroid hormone gave us our experience and established confidence in oral hormone therapy. We now know there are other hormone producing organs which may be administered in the same way as thyroid substance for securing their characteristic hormone effects.

Allen who has worked extensively with tadpoles, recently called attention to the advantages of pluriglandular therapy in controlling the growth and development of these animals.

When pituitary alone was used and thyroid withheld, the tadpoles grew but did not develop into frogs. When thyroid alone was allowed, the tadpoles failed to mature normally. Under combined influence of thyroid and pituitary, uniform physical development was secured.

The practitioner in India finds frequent evidence of under-active thyroid, thymus and pituitary, with its resultant under-development and handicapped child. The physiological influence

of all hormone producing organs are essential to normal life. The day of rational pluriglandular therapy has come as a definite development in medicine.

PLACENTAL HORMONE

Another recent advance is the isolation and standardization of the female sex hormone from the placenta. This folliculin-like principle has the same action as the follicular fluid from the graafian follicles. When this placental estrin is injected into ovariectomized rats according to the method of Doisy, it produces rut and is even capable of producing estrus in immature rats.

Follicular hormone gives promise of being the most potent agent for relieving functional sterility in woman. The difficulty of procuring this at a reasonable price has limited its scope of application. Now that an equally effective hormone is procurable from the placenta in greater quantities and at much less expense, it is possible of far more extensive application.

The placenta as a gland of internal secretion is a recent concept but it has come to stay. Placental therapy will occupy an increasing place of importance in the problems arising out of pregnancy. During pregnancy it exercises a governing influence over the internal secretions of both mother and child but particularly does it have a restraining influence over the post-pituitary function of the mother. Like the pancreas, the placenta is a restraining factor over certain bodily functions, but in the event of insufficient secretion of the opposing group of secreting glands, the placental secretion assumes the dominance and the woman experiences a definite train of ailments associated with the child-bearing period.

Normal placental endocrine balance during pregnancy produces a state of "drowsy content and passive relaxed happiness". Therefore if this is not the normal course of events in a given case of pregnancy, the attending physician has a powerful balancing measure in modern pluriglandular therapy.

In the early future we shall probably see still further developments in organotherapy covering widely separated disorders in which overburdened organs of internal secretion are involved.



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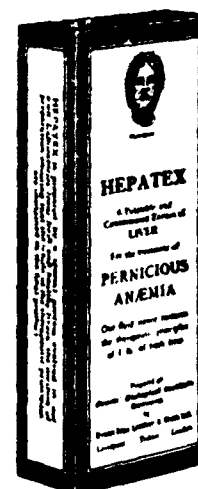
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SOME EXPERIENCES IN DERMATOLOGY DURING THE PAST 25 YEARS

BY

DR. A. WINKELRIED WILLIAMS,

*Late Dermatologist to the Royal Sussex County Hospital and
Royal Alexandra Childrens Hospital, Vice-President
Dermatological Section, Royal Society of Medicine.*

It is not my intention in this paper to attempt to give a general review of the progress and changes in dermatological knowledge but to relate some personal experiences mainly culled from practice when in charge of the skin departments of general hospitals.

OPSONINS AND BACTERIAL VACCINES

Early in the period Sir A. E. Wright introduced his method of determining the Opsonic index of the blood as a means of regulating the doses of bacterial vaccines. The method was ideal but required a vast amount of practice before one could acquire the necessary skill for an accurate determination; moreover it takes a long time to perform. The process has fallen into disuse but the knowledge acquired is still helpful in treatment.

I personally was very enthusiastic, and devoted my spare time for several months practising Wright's Method. At the end of this time I was able to get uniform and accurate results in obtaining the opsonic index of the blood to Tubercle but in regard to cocci I had no confidence in my work. I learnt a valuable lesson from my experience and will quote an illustrative case.—I had a case of a child with resistant tubercular onychia; I tried all sorts of treatments including tubercle vaccines in minute doses every week, the latter treatment apparently made the child worse and the other treatments failed to cure. I then made a series of examinations of the opsonic index to tubercle and found that after a small dose of tuberculin vaccine the child had a negative phase of over a week's duration and that when the positive phase was established it lasted three weeks. I accordingly gave the vaccine once a month and after prolonged treatment cured the patient.

SUMMARY OF MY EXPERIENCES WITH OTHER BACTERIAL VACCINES

Staphylococci:—In recurring Furunculosis vaccines are of great value,—but the dose must not be repeated more frequently than

once a week. In coccal Sycosis,—sometimes a considerable improvement resulted but practically all cases relapsed on stopping the vaccine. A few cases had relapses worse than the original affection. In acne vulgaris,—treatment was tried with staphylococci, acne bacillus and mixed vaccines. Many cases did well but the majority relapsed as soon as the vaccine was given up. One case of comparatively mild acne became a severe case with large abscesses; this was the last case of acne I treated with vaccines. I rarely fail to cure acne vulgaris by other methods in a reasonable time, and have found that the addition of vaccine treatment failed to shorten the period of treatment.

Alopecia areata:—I had a great disappointment in treating this condition with a vaccine of Sabourauds microbacillus. Several cases treated with this vaccine resulted in a rapid growth of hair. In one case the vaccine apparently caused a temporary eruption of a crop of comedones. After a considerable trial I found every case relapsed either during the treatment or after giving up the vaccine and in some of the cases the relapsed patches were larger than the original.

Leprosy:—The failure to cultivate the leprosy bacillus on artificial media has been a great stumbling block in the vaccine treatment. Vaccines made from several organisms cultured from leprosy have been tried and failed. The rarity of leprosy cases in England prevented me for a long time from having a case to try what I had long wanted to test, i. e.—since vaccines are not procurable on account of the failure to get artificial cultures; why not make a vaccine from a natural culture? A leprosy nodule from the skin is so crammed with bacilli that it is practically equivalent to a culture.

My opportunity for testing this came in March 1914. A severe nodular leprosy turned up at my clinic, so marked were the facial affection that I made a diagnosis as the patient entered the room. He showed marked protuberance of the eyebrows, broad nose, great swelling of the ear lobes, nodular masses all over his face with considerable pigmentation, also infiltration of the sclerotic conjunctiva. Further investigation confirmed the first impression. The body and limbs had large numbers of flatter nodules, areas of deep and yellow brown pigmentation, also white areas. Pain sense deficient, anæsthesia more or less complete on arms especially the ulnar side of the forearms, complete anæsthesia of anterior aspect of the lower extremities for about one-third above and below the knees. A large painless ulcer covering one knee showed no signs of healing. Constant nasal discharge; cough with profuse expectoration. Ulnar nerves very large and

insensitive to pressure. The nasal discharge and sputum swarmed with acid-fast bacilli. A nodule excised without pain from the chin showed typical infiltration with lepra cells and lepra bacilli. The nodule was used to make a vaccine according to the method described below.

For several months before starting the vaccine he was treated by massive doses of chaulmoogra oil by the mouth which fortunately his stomach was able to bear without inconvenience, boric nasal douches followed by perchloride of mercury spray and inunction of the nodules and treatment of the ulcer with an ointment of ammoniated mercury and ichthyol. Practically no improvement resulted, the knee ulcer showed no signs of healing, there were febrile attacks with fresh erythema and developing nodules. I showed him at this time to the dermatological section in London and outlined the way I proposed making a vaccine. (*Proceedings Ry. Soc. Med.* 1913-14. *Dermat. Section* P. 170.)

The first dose of the vaccine was too small to produce a visible reaction, but a week later the nasal discharge and sputum were notably reduced; the knee ulcer was healing rapidly. Four weeks after the first dose of vaccine the knee ulcer was reduced to small scabbed lesions and I gave him a second dose, this time double the amount of the first dose; this was followed by a reaction—i.e., no temperature, but the eruption of patches of erythema, which later faded leaving slight pigmentation but no nodules. The ulcer then healed completely, the nasal discharge and sputum stopped entirely, swabs from the nose and throat showed no leprosy bacilli and all nodules became small many disappearing entirely; sensation to pain began to return and the ulnar nerves became sensitive to pressure.

He continued taking a dose of the vaccine once a month and the symptoms steadily diminished until in 1917 it was impossible to find any distinct evidence of leprosy. About this time my stock of vaccine became contaminated and the vaccine was stopped for several months, but the chaulmoogra oil was continued as before. Then a new crop of erythema developed some of which became nodular and the knee scar broke down. I excised a large bit of skin from the arm which included a new nodule and the pigmented site of an old one, but leprosy bacilli were absent so I could not make a new vaccine.

Dr. Turner then kindly sent me a nodule excised from a very bad case of nodular leprosy which had just been admitted to the Essex home. From this a new stock of vaccine was made. For several months doses were given every 4 weeks and the patient greatly improved; a slight reaction followed each dose as before.

The case then became stationary; a few nodules could be detected by touch on the arms and legs. I then gave the vaccine every 2 weeks, and later every week, eventually the remaining nodules completely cleared up and he ceased to give any reaction to the vaccine. At close of year 1919 there was no evidence left of his trouble excepting some slightly thickened patches in the corium of the front of the thigh, which felt like fibrous tissue and over which sensation was normal; and a little thickening of the corneal conjunctiva. The patient shortly after this made a very happy marriage and started life again with a small farm. All leprosy treatment was stopped and for several years he remained in perfect health. Early in 1925 he came to see me. For several months he had been having trouble with his vision, for which he had attended a London eye hospital where they told him his trouble was due to his tonsils and that he must go and have them removed. This was done but unfortunately he did not like to go back to the eye hospital. After a time his sight got worse. I carefully went over his skin surface but could not find any hyperæsthesia or anæsthesia, sensation to pressure of the ulnar nerves was apparently normal, nothing abnormal was visible in the nose and throat and swabs failed to show any leprosy bacilli. I directed him to see the hospital ophthalmic surgeon. Unfortunately owing to an error he could not see him and he returned home and I did not see him again for several months. He then came to see me again and as he was nearly blind I got my colleague Dr. Mary Cripps to see him. She found destructive iritis indistinguishable from ordinary septic iritis. She treated him locally and with intestinal treatment; but her prognosis was not hopeful. He improved a little, then relapsed. At this time I had personally a serious breakdown in health and had to give up all work and resigned my hospital appointments and retired from practice. I had recovered and was considering a return to work when I got the invitation to contribute this paper to the *Antiseptic*. I have not had time to go and see the case and get this paper off to India in time for publication in the special number.

I am afraid I have taken up a lot of space with the clinical description of this case but I wanted to show clearly that the good results were due entirely to the vaccine as proved by the failure of treatment until the vaccine was given and that when the vaccine was stopped before complete cure he relapsed. Return to the vaccine treatment on a more intense scale was followed by complete disappearance of all signs of leprosy. Stoppage of all treatment for several years followed during which time he remained in apparently perfect health.

The last time I showed him at the Dermat. Section of the Royal Soc. of Medicine Prof. Castellani told us that Dr. Nicholas and himself treated some cases by a vaccine made by triturating nodules and obtained temporary good results.

N. B. The nodules had not been desiccated before making the vaccine. Dr. Graham Little also told us of a case which Sir A. E. Wright had treated for a time at St. Mary's hospital, there was remarkable improvement but he rapidly relapsed while injections were being given and the treatment was relinquished. (*Transaction of the Royal Soc. Med. Sec. Dermatology* 1920 pp. 50-53).

I now give details of my method of preparing the vaccine.

PREPARATION OF VACCINE

A

- (1) Excise nodule and cut in half.
- (2) Harden half for microscope sections:
Place other half in desiccator over sulphuric acid for 4 weeks.
- (3) Cut hardened half, stain sections for acid fast bacilli and roughly estimate proportion of bacilli.

B

Example taken: weight of desiccated tissue = 22 m.g.
Presumable bacillary tissue about 5 m.g.

- (1) Grind up the desiccated tissue with sand (wear respirator of cotton wool) with a small quantity of normal saline and place in sterilizer (60°) for 4 hours. Then completely grind up and make 8 c.c.m. with normal saline, grinding during this addition.
- (2) Centrifugalise for 3 minutes and decant the surface liquid into flask.
- (3) Repeat grinding of deposit from centrifugaliser with 8 c.c.m. saline as before.
- (4) Centrifugalise—decant and repeat Process 4 times. Let the decanted liquid stand. And then pipette a few drops of deposit and microscope to see if free from sand.
- (5) Sterilise as (1).
- (6) 30 c.c. of the well stirred decanted liquid diluted with 2 c.c. 10% Phenol and Label.
Original Emulsion 1 c.c. = $\frac{1}{10}$ m.g. Bac. substance (approx).
- (7) Stir well the original Emulsion with sterile syringe and remove $\frac{1}{2}$ c.c. and dilute to 50 c.c. and label.
1st dilution $\frac{1}{1000}$ m.g. in 1 c.c.
- (8) Stir 1st dilution remove, $\frac{1}{2}$ c.c. and dilute W 50 c.c. label & 2nd Dilution.
Sterilize as (1)—then test with plate culture to see if sterile and give $\frac{1}{2}$ c.c. (3 minims) for initial dose. If no reaction—give 6 minims for 2nd dose. To be injected subcutaneously.

In the above preparation of vaccine I want to lay especial stress upon the absolute importance of preliminary desiccation of the nodule. I admit my original idea in desiccation was not to improve its therapeutic value but from a fallacious idea that I should be able to grind up a desiccated nodule more thoroughly

than a fresh one—whereas in practice the converse was the case. Desiccation added considerable difficulty to the process. Afterwards when I got such excellent results from the vaccine the same technique was adopted in subsequent preparations.

After hearing at the *Royal Society of Medicine* about the failure of Sir A.E. Wrights and Prof Castellani's cases; I considered "Why has my case done so much better?" I concluded that it might have been due to the effect of desiccation liberating some active substance through the damaged fatty layer of the bacilli. I then took some dead tubercle bacilli already rather dry and put a definite weight in a desiccator for 4 weeks. I then extracted the desiccated mass and an equal weight of undesiccated from the same stock (*i.e.* Equal weight to that originally taken for desiccation as weighed before putting it in the desiccator) and extracted them both with equal quantity of ether. I found the supernatant ether of the desiccated bacilli a distinct orange colour, while that of the undesiccated was nearly colourless. Want of time and failing health prevented my going further into this problem but it satisfied me that desiccation enabled some ether soluble matter to be removed from the bacilli.

Further proof of the beneficial effect of desiccation I obtained in the next nodular leprosy case I had under my treatment for a few months. This case had been treated among other treatments with a vaccine made of a triturated nodule, but she rapidly got worse under the treatment.

When she was sent to me I found a large crop of nodules on limbs and grouped largest nodules on the face. The patient was most distressed at the facial disfigurement and wanted me to excise all the face nodules. I explained to her that scarring would be considerable after excision. But I required to excise one in order to make the vaccine, and if the latter succeeded as I hoped it would, the other nodules would go leaving little or no trace behind: she agreed. While preparing the new vaccine I used some of my old stock, many years old. She improved, but the improvement was far more marked, than when I started the new vaccine and she was quite satisfied with the result as a rapid flattening down of the nodules followed the administration of the vaccine. I did not want to leave a stone unturned in the treatment, so after satisfying myself that the vaccine not only stopped the progress of the disease but also started its involution I obtained from India some *Hydnocarpus* oil and added infiltrating injections of this.

The patient was not able to remain under my treatment but Dr. Colebrook of St. Mary's Hospital, inoculation department, continued the treatment. He gave her the previous vaccine, and was

surprised and delighted with the great change in the case after the new vaccine. At this time I had to give up work and have not been able to get the latest details of this case in time for the mail to India.

Other vaccines have since been made with excellent results from bacilli obtained from the serum from blisters produced by freezing with carbonic acid snow. I have not myself been able to see these cases.

I hope that this paper may lead some of my Indian colleagues to give a careful test to the treatment of Leprosy by vaccines made from *desiccated* leprosy nodules. I only wish now my health is restored that I could afford to go to India and try to help in these tests.

The application of intense cold by means of liquid air or solid carbonic acid.

Liquid air was first used, later the far greater ease in obtaining and in using solid carbonic acid led to its universal use. It has been tested in a large number of skin affections. The chief diseases in which I continue to use this most valuable addition to our therapeutic armory are as follows,—

Various naevi. e.g.—

Vascular and soft nonvascular naevi (moles) of limited extent are most effectively treated by this method. Before treating hairy moles the hair must be cut short. Carbonic acid snow is hammered into a cylinder of hard wood so as to make a firm hard stick the surface of the stick is trimmed to the shape and size of the naevus. The skin is stretched and the stick fairly firmly pressed on the naevus for from 30 to 40 seconds. A blister forms which is pricked the next day and boric acid or weak yellow oxide of mercury ointment applied until healed. A second application is often necessary, it being better to under-do than over-do the first application. Over freezing with subsequent sloughing of the skin results in unsightly scars. Accurate freezing both as to time and pressure of the application gives good cosmetic results. Patients vary considerably in their resistance to freezing the skin hence the necessity of caution in the first application. I have never had a case of metastasis or of malignant after-result from refrigeration treatment of moles. Unless the naevus is rapidly growing infants under six months had better not be treated. Sloughing of the skin is apt to happen in very young infants.

Large naevi require progressive applications as only about one square inch can be treated at a time and about 3 weeks interval allowed before an adjacent area is treated. Care must be taken

not to overlap. The results in large nævi are not as a rule very uniform. In the case of extensive (port wine) vascular nævi the ultimate results often resemble mottled soap.

Hard warty nævi, can be cured by freezing but it is advisable to reduce the thickness of the warty mass by salicylic acid &c., before freezing.

I have *not* obtained better results in nævous treatment by using the carbonic acid gas dissolved in acetone as recommended by some authorities.

Rodent ulcer:—When excision is not available refrigeration gives results comparable to radium and x-rays and is a valuable treatment.

The duration of exposure largely depends on the thickness of the growth as a rule at least 40 seconds' freezing is required. Recurrences are inevitable if the freezing is not thoroughly done.

Multiple benign erythematous epitheliomata (Graham Little's) This affection recently described and separated as a clinical entity by Dr. Graham Little, yields to refrigeration and this is undoubtedly the best treatment. In the early stages *i.e.* the first seborrhœic dermatis-like condition and the second stage like lupus erythematosus refrigeration should be applied very lightly for from ten to fifteen seconds. In the third stage resembling superficial rodent a more vigorous application is required.

Lupus Erythematosus. This disease yields to carbonic acid snow. The application however must be light and more than ten seconds for the first application. L.E. tissue easily breaks down under intense cold and obstinate ulcers resulting in disfiguring scars may result from too vigorous an application. The treatment is only surely successful when the source of the toxin is removed *e.g.*, septic teeth, tonsils etc. If the toxæmia is continuing one often finds after curing a patch of L. E. by refrigeration the disease starts from the scar beyond the site of the original affection.

N.B.—The scar from refrigeration is whiter and more distinct than the scar resulting from spontaneous involution.

Lupus Vulgaris. On the whole the result of refrigeration in disease is rather disappointing. An application for fifteen seconds of solid carbonic acid is usually the limit of safety otherwise troublesome ulceration may result. This is more likely in sites where the Lupus is stretched tightly over bony or cartilaginous surfaces. Refrigeration in Lupus Vulgaris has of late been largely replaced by the application of Acid Nitrate of Mercury, resulting from the work of Dr. Adamson. I might here briefly describe it.

An area of about one square inch must not be exceeded for an application at one time; after this has healed further treatment from the border is made. The part to be treated is firstly cleaned of grease etc., by ether and a swab of cotton soaked in the ether is left for a minute or two on the part. A small pledget of cotton wound tightly round a pair of pointed forceps or stiff probe is then dipped in the strong Liq. Hydrarg. Nitrat Fort. P. B. and the patch vigorously scrubbed with it for thirty to sixty seconds or more. *i.e.*, until a crinkly white surface results. The application is painful and the pain persists after application, this pain may be reduced and stopped by smearing soft soap over the treated area. The preliminary application of ether also reduces the pain. Ulceration follows, the Lupus nodules being picked out by the application. By perseveringly going over the area inch by inch large areas can be treated in time. To avoid risk of contraction an area treated should be allowed to heal up before the adjacent area is treated. A second application may be necessary to isolated nodules seen under the diascopé and so located in the new scar tissue.

RADIO THERAPEUTICS

X-rays in Dermatology:—Practically every skin affection has been treated by X-rays. It is still the practice of many dermatologists to commence treatment of most dermatosis by X-rays. I, probably, have been too conservative in limiting treatment by X-rays. My experience in the use of X-rays in dermatology dates from the first introduction of this method before it was known that dermatitis could be set up by it. I, from the first, was most cautious in their application because when testing the tube as was then done, by holding one's hand against the screen, I felt a peculiar sensation continuing in the skin after exposure. My colleague with whom I was working said it was a *malade imaginaire*. He is now suffering from chronic X-ray dermatitis which I fortunately have escaped. Subsequently I had many terrible examples of harm done by the reckless use of X-rays in skin affections by inexperienced therapeutists sent to me. The experiences led me to, perhaps, being unduly cautious in the use of X-rays. I have used them generally as a last resource than as an early treatment.

PSORIASIS

Some years ago I was asked to take temporary charge of a terrible case of almost universal chronic X-ray dermatitis with numerous malignant epitheliomas. The case was utterly hopeless and was the result of treatment of Psoriasis by X-rays.

Since then I have had other cases of malignant disease arising from the over treatment of Psoriasis by X-rays. I remember the late Sir James Galloway remarking to me "X-rays have done much good but I fear the harm done more than counterbalances the benefits derived."

Psoriasis is a good example of this, X-rays will in large enough doses temporarily remove obstinate patches of the disease, but relapses usually follow and further doses are requested by the patients who when refused often go to another practitioner without telling him of the previous doses and so get further treatment. X-rayed patches of psoriasis are prone to develop epithelioma, (psoriasis being an acanthosis, it is a short step into an epithelioma) if a cause for the latter is added. Every case of post psoriasis epithelioma I have seen, has either been heavily treated by prolonged internal use of arsenic or repeated doses of X-rays. So far I have not had a case of epithelioma in Psoriasis from the use of tar. Personally I have always refused to give X-rays in cases of psoriasis.

I would advise practitioners never to treat a case with X-rays without getting from the patient a history as to whether X-rays have been used before and if such a history is obtained to refuse further X-ray treatment until they have obtained from the previous administrator the exact amount, the number of doses given and the date of the last application.

Lupus Vulgaris is another disease formerly largely treated by X-rays in which severe fatal epitheliomas have resulted. X-rays can only cure lupus vulgaris by huge doses, doses which must result in chronic X-ray dermatitis. I only use X-rays in Lupus where there is much fibrous thickening and never give more than a Sabouraud dose filtered through $\frac{1}{2}$ mm. aluminium and never more than two doses at three weeks interval. This will thin down much of the fibrosis and ease contractures and so help other treatments which cure the case. Many authorities give X-rays as a preliminary to light treatment in order to reduce the thickness of the granuloma and heal up ulceration but all who know use the treatment sparingly and with great caution.

X-rays, from their fibrolytic action are valuable in patches of chronic lichenification and, for the same reason, are by far the most efficacious treatment of Keloid. In Keloid several doses at two or three weeks interval are required and the rays should be filtered through aluminium. Treatment must be stopped at the first sign of pigmentation in the rayed area. They will not cure every case but all are improved by their action.

The use of X rays as a depilatory in ringworm and favus is well known. I might add a warning of the great danger of using X rays to depilate superfluous hairs. To get permanent effects doses must be given dangerously large.

Rodent ulcer, when operation is not desired, yields to X rays but Radium is preferable. I think relapses are more frequent after raying than after surgical removal. Despite the denial of many authorities I am sure that in rodent ulcer at all events a time comes when X rays, radium etc., lose their efficiency and cease to stop the growth. Some cases of rodent will not yield to X rays. It is a good plan when starting to treat a rodent ulcer by repeated doses of X rays to give a full Sabouraud dose and then if after four weeks there is no improvement to refuse further treatment and insist on operation. Adamson treats rodent ulcer with most massive doses, of several Sabouraud doses being given at a sitting; to avoid dermatitis, before raying he removes under anæsthetic all the skin from the area and for a short zone round and then carefully fixes lead foil over the skin around.

During the war I found X rays of great value in the treatment of a very persistent intertrigo and the eczematous dermatitis of amputation stumps. The folds of skin at the end of a stump are frequently the site of an intertrigo which resists ordinary treatment and delays the fitting of artificial limbs. I found a Sabouraud dose of rays unfiltered, using a tube of about seven Benoist degrees of hardness, cleared these cases up in about fourteen days. Rarely a second dose was necessary and I did not hear of any relapses. As I was during the war attached to a hospital dealing with amputation case I had a large number to treat. I might here mention an example of dermatological experience. The effects of X rays in removing 'fibrous tissue of Keloid led me to ask Colonel Campbell, I.M.S., to allow me to treat a number of stumps ankylosed at an angle preventing the use of artificial limbs. I succeeded in straightening out over a hundred of these cases saving the patient a secondary operation.

LIGHT TREATMENT

I need not enter upon the local treatment of Lupus by Ultra-violet rays but I must emphasise the enormous value of light baths to the whole skin surface in treating Lupus vulgaris and all types of skin tuberculosis. If lamps are not available sun baths should always be used.

ADMINISTRATION OF GLAND SUBSTANCE OR EXTRACTS

Thyroid Gland. This once much vaunted treatment for many skin diseases is now only used in a few cases. When there is

distinct evidence of deficient thyroid activity (hypothyroidism) then in ordinary routine one gives thyroid sometimes with advantage to the dermatological condition. But to give thyroid haphazard is more likely to do harm than good.

Parathyroid.—The action of parathyroid in regulating calcium absorption and combating toxæmic conditions suggested its value in various skin affections. I have given this a prolonged test with varying success. I have never seen any ill effect if the dose is limited to one twentieth of a grain daily of the dried gland. The effect of parathyroid in Hebra's Prurigo is phenomenal. I will relate the first case in which I used it and this will serve as a text in other conditions.

A girl fifteen years old with fairly severe prurigo, the entire skin surface was excoriated by scratched lines and new papules were frequently erupting and the lymphatic glands were everywhere enlarged. The disease began in the seventh year and all sorts of treatment, aimed locally and at all possible focal centres of infection, failed. All that resulted was a cure of concurrent attacks of impetigo and eczema. I started parathyroid gland giving one twentieth of a grain daily also ten grains of calcium lactate twice daily for two days of the week. Improvement was at once manifested and in three weeks the whole had cleared up excepting some flesh coloured papules on the face. Hoping to get rid of these I increased the dose to one tenth of a grain daily and the patient came to me a week later with the body covered with lesions. I stopped treatment for three weeks and then recommenced one twentieth of a grain daily and again it cleared up. I watched the case for two years. Parathyroid was given for four weeks and then stopped; in a variable time usually three to four weeks new papules and fresh pruritus started but were at once controlled by Parathyroid.

Equal success was obtained in Bazin's disease and chilblains from Parathyroid treatment. In Psoriasis, in Alopecia Areata, common urticarias, papular urticaria of young children (dose one fortieth of a grain), generalised eczemas and dermatoses of intestinal origin I found it uncertain, some cases responded at once, others failed.

Adrenalin is of value in cases of scleroderma with low blood pressure.

I fear this paper has reached the limit of available space, so must now end these reminiscences and wish the "Antiseptic" many years of success in the continuation of its good work.



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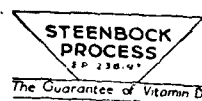
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RECENT ADVANCES IN OUR KNOWLEDGE OF THE CAUSATION AND PREVENTION OF TUBERCULOSIS

BY:

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The word 'recent' has been used in this article with a purpose. Different persons would be inclined to fix different periods for what has been achieved of late in the prevention of tuberculosis especially in the elucidation of various questions concerning the ætiology, epidemiology, pathology and treatment of the disease. The bacteriologist would date it from the eighties of the last century when Koch made the epoch making discovery of the tubercle bacillus. The Sanatorian would perhaps date the period back to 1840 when George Bodington first advocated the treatment of pulmonary tuberculosis by open air or to 1859 when Brehmer, Deitweiler and their-followers placed this treatment on a practical and effective basis by the institution of sanatoria. The pathologist and radiologist would perhaps put down their periods to a quarter of a century ago dating from the discovery of the X-ray, which has enabled us to trace the pathology of pulmonary tuberculosis to its earliest stage of localization in the hilus glands and their neighbourhood. The physician who is adopting the most recent methods of surgical treatment of pulmonary tuberculosis might date the modern progress of treatment from the discovery of artificial pneumo-thorax collapse by Forlanini in 1894, and of thoracoplasty and cauterization of adhesions by Sauerbruch and Jacobæus during the last 15 years.

It is thus clear that the length of the period during which we have made rapid progress in our grasp of the tuberculosis problem either from the epidemiological or therapeutic side is more or less an indefinite one, as judged from its different aspects. Hence the reason for my adopting the vague word 'recent' in styling this paper.

Tuberculosis is a disease which has been prevalent from antiquity and the infectious nature of it has been understood even from ancient times. Segregation and open air treatment seem to have been adopted in ancient India but it was only in the 19th century that the first scientific demonstration of its infectiousness was made by Villemin, who in 1865 proved by animal experiments that

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the disease could be transmitted by inoculation into animals. The discovery by Koch in 1882 of the bacillus of tuberculosis has been the starting point for further research which is the basis of our modern conceptions of the propagation and prevention of tuberculous diseases.

The disease is universally prevalent in all countries and amongst all races, no locality or community being exempt from it. If till recently the aboriginal populations of Central Africa, America and Australia were free from tuberculosis, it is just an additional proof of the infectious nature of the disease rather than of racial insusceptibility. It indicates that though a disease of antiquity, tuberculosis has been the scourge of civilization and the formation of social habits and modes of living in man and till recently did not make its inroads into the tracts of the primitive races due to their practical segregation from the civilized communities by want of communications and otherwise. Once the disease was introduced into these aboriginal tribes it has been proved beyond doubt that it is highly infectious in nature and has a much more deadly effect on populations amongst whom it never existed before and in whom racial immunity against it had not been established.

The broad outlines of the campaign against tuberculosis once the causative organism was discovered, were naturally considered to be identical with those adopted against other infectious diseases but a closer study of the epidemiology, pathology and clinical progress of cases has enabled us now to grasp the question of prevention more thoroughly and adopt it to suit the special nature of tuberculosis.

Unlike most infectious diseases tuberculosis is an ubiquitous disease and consequently the infection is universally present in all civilized communities, so that it is difficult or impossible to escape it altogether. In some degree, however small it may be, the vast majority of human beings have to encounter and imbibe the causative organism so that all attempts at prevention are now aimed not so much at the absolute exclusion of all chances of infection, but at the minimizing of such infection, *i.e.*, prevention of massive infection and the fortifying of the human system enabling it to develop a natural immunity against the disease. Herein lies the great difference between tuberculosis and most of the other infectious diseases. In the latter class it is the seed which plays the predominant part in disease production and all methods of prevention are directed against the seed, *i.e.*, infective organism, whereas in tuberculosis it is the soil that is more important and

excepting during the period of early childhood all efforts should be directed mainly towards fortifying the system and making it unsuitable for the propagation of the tubercle bacillus and the production of the disease.

Being a bacterial disease, the ordinary laws governing infection, propagation and the development of natural immunity as a result of infection hold good in the case of tuberculosis as in that of any other bacterial disease.

As far as is known, the new born child inherits no immunity against tuberculosis from the parents. It is in fact highly susceptible to tuberculosis. Statistical figures have definitely proved that the tuberculin test which is now universally recognized as the index of infection is perfectly negative in the new born child and that the percentage of positive reactions increases with age. The statistics of different countries as regards the prevalence of infection have given results almost identical in nature though not in degree. The figures for countries like Austria, Hungary, and France which are more highly infected than countries like Great Britain, Denmark, and the United States are so conclusive as regards the high prevalence of infection that it is now definitely known that by the time adult age is reached about 95 per cent of all persons in such countries have imbibed the infection. The statistics of the Tuberculosis Institute of Madras show that by the 12th month 20 per cent of children are infected, by the 2nd year 60 per cent, by the 5th year 80 per cent, and by the end of the 15th year at least 94 per cent.

Epidemiological figures confirm these bacteriological findings. The new born child with no immunity against tuberculosis falls an easy prey to the infection and the mortality from the acute type of tuberculosis is very high in the first two years of life. The grosser the infection, the more acute and fatal the type of the disease. Such of the infected children as escape the acute infection and disease begin to develop a natural resistance on the principle of bacterial vaccination and the resulting immunization. It is at this stage that the importance of social and food conditions asserts itself. When the age of puberty is reached the result of the efforts of the system to balance itself will begin to be manifested. Such individuals whose environments have been satisfactory and the infection consequently has been controlled and has become latent will continue to remain exempt from tuberculous manifestations in later life, but such of them as are and have been under unfavourable conditions will get a recrudescence of the infection contracted in childhood and develop the signs and symptoms of tuberculous disease.

From the above it is evident that since epidemiological figures show that only 1 in 7 to 10 deaths from all causes occur from tuberculosis, whilst 95 per cent of all human beings are infected with the bacillus, not less than 90 per cent of the infected recover naturally from the infection. It is thus clear that whilst it has to be admitted that tuberculosis forms the largest factor in human mortality, the fact that natural recovery from mild infection is the rule constitutes a highly reassuring aspect of the tuberculosis problem. It is a hopeful indication that increasing effort in improving the environments of the individual is certain to enhance the resistance against the disease. This is really what the campaign against tuberculosis has achieved and is still achieving in all modern countries.

Fortunately for us tuberculosis is as a rule a chronic and slowly developing disease which, unlike the acute bacterial diseases like cholera, plague, and diphtheria gives plenty of time for the individual to rectify himself, if only he will take timely warning. The various vague manifestations of stunted growth, indefinite ill health, malnutrition, recurring attacks of indisposition, colds, coughs, nervous symptoms, etc., are the various types of warning, which if taken at the right time, must lead to a marked fall in the incidence of tuberculosis.

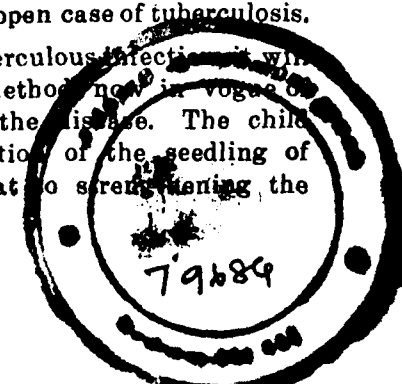
This brings us to the important question of frequent overhauling and early diagnosis especially in childhood and early adult life. Taking our lessons from the findings of the post-mortem room which disclose a predominance of active lesions in the earlier years of life and of latent lesions in the more advanced years, one has to attach considerable value to prompt and early diagnosis, i.e., the detection of the disease at a stage when the prospects of recovery are bright. Herein lies the preventive value of the Tuberculosis Dispensary or Institute. The motor car that is frequently inspected and overhauled lasts the longest and so does the machine of the human body, which if frequently inspected and overhauled at the Tuberculosis Institute, will have the best chances of escaping tuberculous disease.

This suggests the question whether re-infection is not possible or common in the adult. Cannot tuberculosis be the result of extraneous infection in adults, who have already been infected in childhood? This must be an uncommon way of infection, unless the infecting dose is massive, because the adult has already developed a certain degree of immunity as a result of infection in childhood. What is known as Koch's phenomenon is definite

evidence of the development of immunity against tuberculosis by a previous infection. It has often been said that scrofulous subjects remain insusceptible to pulmonary tuberculosis. Conversely scrofulous glands are not commonly seen in subjects of pulmonary tuberculosis even in its advanced stage, though millions of tubercle bacilli are daily being thrown up the trachea and pharynx and massive and continuous absorption through the mucous membrane must necessarily take place. In fact a mild and barely perceptible enlargement of the cervical glands is the rule in all subjects of pulmonary tuberculosis but adenitis of any advanced type and typical scrofula is comparatively rare. The statistics of tuberculosis hospitals and sanatoria show that the incidence of tuberculosis amongst the staff is no greater than that amongst the general population though exposure of infection is certainly greater. Though the preventive measures enforced in the hospital are supposed to be responsible for this freedom of disease it is really the factor of natural immunity of the adult that is the main factor in the absence of greater incidence in these tuberculosis institutions. No greater evidence is necessary of the development of racial immunity by the presence of general infection than the fact that acute tuberculosis is comparatively rare in civilized communities after adult age whilst it has been found to be common amongst individuals of the aboriginal races amongst whom tuberculous infection and racial immunity have been unknown and who for the first time in their lives have come into contact with the civilized races who possess to a greater or less degree a racial resistance to tuberculosis. This was sufficiently proved during the recent All World War when the colored troops from the Soudan and South Africa had a much higher mortality from the acute type of tuberculosis than the European troops.

From considerations of this factor of immunity developing from continuous and mild infection it has often been argued that it would be a very dangerous thing if the human subject be completely segregated from childhood from an infected community and not given any chances of getting himself naturally vaccinated by mild doses of bacillary infection. Such a subject might run immense risk in later life of falling a prey to acute tuberculosis, as soon as he comes into contact with an open case of tuberculosis.

Having understood the course of tuberculous infection it will be easy to grasp the significance of the method now in vogue of preventing or lessening the incidence of the disease. The child being the suitable nidus for the germination of the seedling of tuberculosis all measures must be aimed at so screening the



system of the growing child as to make it an unfavourable soil for the germination of the organism. Maternity and child welfare movements therefore form the bedrock on which the structure of tuberculosis prevention is to be raised. Scrupulous care of the mother both before and after confinement and the care of the young and growing child are essential in formulating any scheme for the prevention of tuberculosis.

The next point is early detection of infection. We are fortunately now in possession of the means of detecting the infection in a fairly early stage. A positive tuberculin reaction and a host of recurring minor ailments like coughs, colds, malnutrition, low pyrexia, anorexia etc., which are now recognized to be the early stages of the disease should be taken as a warning and prompt measures should be taken to suppress the infection early. It is here that the importance of Tuberculosis Institutes comes in.

It is next to impossible in modern communities to exclude infection altogether and it is doubtful whether it is wise to do so. This does not mean that one should intentionally expose himself or the children to infection, but every effort should be made to limit the sources of infection by segregation of open cases into hospitals, sanatoria or asylums. Limitation of infection should be followed by limitation of germination of the infection. This is effected by improving the social and food conditions, by providing the child with plenty of fresh air, sunshine, and food, together with free physical exercise. The boy scout and girl guide movements and at a later age the U. T. C. with its camp life are very helpful in this direction.

Artificial immunization can only touch the fringe of the tuberculosis problem and the B. C. G. vaccine of Calmette and the anticipatory de-tuberculinization adopted by Sir Robert Philip at Edinburgh can only play a very minor part in the prevention of the disease amongst the masses.

Too great importance cannot be attached to the provision of facilities for the treatment of cases especially in the open stage. The value of hospitals and sanatoria is manifold. The facilities afforded by these for the treatment of the disease is certainly a minor part of their function. Though early cases are cured, the advanced cases can benefit only to a more or less limited extent. The real value of these institutions lies in the fact that they have a highly educative influence on the population amongst whom they are located. The tuberculosis hospital and sanatorium are schools for the education of the patients in the preventive aspects of tuberculosis. The danger of infection, the benefits of disin-

fection, the training of the individual in the ideal methods of living requisite not only for the cure but for the prevention of the disease, are brought home to the patient in a practical and vivid manner, which no amount of lecturing and demonstration outside an institution can inculcate. Such practical education of individuals in course of time spreads throughout the country, each individual discharged from the institution constituting the teacher of at least one home in a corner of the country. The knowledge of the benefits of institutional treatment rapidly spreads throughout the length and breadth of the land and in course of time the principles of tuberculosis prevention are slowly but surely brought home to the masses in a manner that no other method can succeed in doing. The Hospital and Sanatorium combine treatment with education and the latter function is discharged with greater advantage to the country than the former. They are in fact preventive institutions rather than curative. Statistics have shown that the greater the provision a country has for the treatment of its tuberculous patients the lesser the tuberculosis incidence. The segregation of the open cases must necessarily lessen the sources of infection directly and minimize the chances of infection once the educated and relieved or cured sufferers return home after treatment fully equipped with the knowledge of how they should conduct themselves in later life with maximum of benefit to themselves and minimum of risk to others. Denmark of all modern countries has the largest provision for its tuberculous cases, the Danish Government having provided 1 bed for 15 cases of tuberculosis, whilst Great Britain and America have provided 1 bed for about 30 cases, whereas we here in India have barely 1 bed for a thousand cases. Denmark can today boast of the smallest tuberculosis incidence and mortality of all countries in the world, the death rate from tuberculosis being well below 1 per 1000, whilst in India it is well over 3 per 1000.

It has been truly said that the tuberculosis dispensary is the headquarters of the field operations in tuberculosis. It is here that tuberculosis is diagnosed at the earliest possible stage and a distribution of the cases made in such a way that the earliest cases are kept under continuous observation and care and the later cases treated in institutions. The full function of the dispensary extends to the inspection of the home of the tuberculous, the detection of the "tuberculosis nests," the improvement of domestic conditions by its health visiting staff, and last but not least the work of notification and estimation of the amount of tuberculosis prevalence in the locality administered by it. Notification and statistics form the foundation on which preventive

measures have to be based and the value of the result measured and their importance cannot therefore be overestimated.

If there be any disease in the prevention of which social work plays a most important role it is tuberculosis. In all modern countries social workers take an active part in this preventive work. In Great Britain and America the National Associations for the prevention of tuberculosis do a considerable amount of such work along with other propaganda work and care committees exist in all important centres where tuberculosis dispensaries are located, which endeavour to deal with the economic conditions which are the essential cause of tuberculosis amongst the poorer classes. Relief in these cases has to be given not only to the patients but to the dependents as well, who are really the sufferers during the necessarily long illness of the breadwinner of the family. Apart from the question of infection, which may have already occurred from the supporter of the family, there is the economic distress amongst the members of the family resulting from his disablement, which must tend to light up the latent infection in them. In such cases care committees have to make provision not only for the treatment of the breadwinner but for the maintenance of the dependents in a variety of ways, e.g., by granting allowances to them, providing work for them either locally or elsewhere and later on as a measure of after care to arrange for work for the patient after his recovery suiting his impaired capacity.

What is known as the Tuberculosis scheme, formulated by Sir Robert Philip and now adopted not only in Great Britain but in other European countries and in America is a machinery which works with the Tuberculosis dispensary as a centre and a number of other institutions including the sanatorium, the hospital, the colony, the open air school and the settlement in co-operation with it. All these institutions combined serve a variety of purposes including 1. early detection and notification of cases enabling a proper estimation of the incidence of the disease and efficacy of preventive measures; 2. health visiting and improvement of domestic conditions and environments; 3. the allocation of patients either to the hospital or to the sanatorium depending on the stage and nature of the disease; 4. the education of the public as already explained in the preventive aspects of tuberculosis; 5. the segregation of open cases and the consequent minimizing of infection; 6. the cure of earlier cases and relief of the more advanced; 7. the giving of facilities to ex-patients with their families to settle down in life as self respecting citizens earning their own living and supporting their dependents with, at the same time, ample facilities for treatment in case of emergencies; and

8. the proper care and training of pre-tuberculous children in open air schools under ideal conditions enabling them to develop a strong resistance against tuberculosis.

The advantages of notification have been underestimated by many. It has been argued that compulsory notification has never been successful in any country and that especially in this country it will be a failure. This is a travesty of actual facts. Notification is the essential factor in the estimation of the incidence of the disease and its distribution and in the adoption of preventive measures including the systematic examination of contacts and the early treatment of suspects.

The prevention of indiscriminate spitting should be enforced by law as it is done in western countries. The dust raised from dried up sputum is one of the most fertile causes of dissemination of infection and in a country like India where spitting is such an extremely common vice, it is essential that it should before long be made a punishable nuisance.

The existence of facilities for the free examination of tuberculous material in laboratories either in connection with the tuberculosis dispensary or otherwise is very essential and forms one of the practical measures adopted in Denmark and other countries.

Luckily for us in India tuberculosis amongst bovines is a negligible factor, so far as is known at present and the inspection of dairies and milk supplies which constitutes an important item in the campaign against tuberculosis need not be enforced in the same scientific detail as is done in western countries.

From the standpoint of medical education it is essential that tuberculosis which is the greatest scourge of mankind should find a special place in medical curricula. Every medical student should take a special course in tuberculosis before he passes out of the college and should have clinical instruction in the wards of a tuberculosis hospital. Medical officers of health should have a thorough grounding in the modern ideas of the causation and prevention of tuberculosis. Instruction in general hygiene and sanitation together with the principles of prevention of diseases should form part of the curriculum of the S.S.L.C. student so that the coming generation may become fully conversant with the modern ideas of prevention of infection and disease.

What are the results achieved by western countries by their systematic anti-tuberculosis campaign? Has there been any reduction in mortality and in incidence? Is there any evidence to prove that in case such a reduction has occurred it is in any

measure due to the anti-tuberculosis work? The absolute mortality from tuberculosis in Great Britain has fallen by over 50 per cent during the 50 years 1870-1920 and the death rate has fallen by about 70 per cent during the same period. The figures for the United States of America have been almost equally good. Another interesting fact is that the rate of fall of the mortality has been greater during recent years than during the earlier years. In Scotland there was a fall of 35 per cent in the mortality from tuberculosis during 1870-1890 and 45 per cent during 1900-1920. In the city of New York there has been a drop of 78 per cent in the mortality from tuberculosis during 50 years and this fall has been more rapid during the latter half of the period than during the former half. Possibly tuberculosis might become a rare curiosity by the year 1950 in the United States of America. The economic condition of the States as also of Great Britain is no doubt greatly responsible for this reduction. Thus during the later years of the Great War all the countries which were economically affected like Austria, and Germany and to a much less extent England and France showed a rise in the mortality which soon after the cessation of hostilities was replaced by a rapid fall in the countries which were economically at an advantage. Again the mortality amongst females which is usually lower than amongst males showed a rapid rise during the years of the war when females had to work in the factories during the absence of the men at the front.

To sum up, though tuberculosis is strictly speaking an infectious disease due to the tubercle bacillus, its real causation is the social and economic factor and the general sanitary condition in which a community lives. The campaign against the disease to be successful should therefore consist of improvement in general sanitation and the formation of a sanitary conscience in the community together with an improvement in social conditions like good housing, healthy habits, and food, with an education of the masses in the principles of the causation and prevention of tuberculosis in institutions and by propaganda work. Is it not quite reasonable for us to hope that with an earnest and enthusiastic health education and propaganda work and an efficient public health administration the prospects of our country will be as bright as those of our more advanced sister countries of the west and that by the end of this century though not earlier the student of medicine in this country will have to wait long and strive hard to obtain suitable opportunities of making a study of the various types of tuberculosis and consumption in the wards of our future hospitals?

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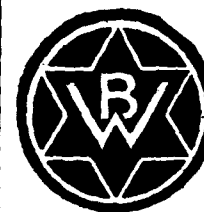
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RECENT ADVANCES IN VITAMINOLOGY

BY

R. K. PAUL, M. SC., M.B., (CAL.),

Lecturer of Physiology, K. E. Hospital Medical School, Indore (C.I.)

The science of vitamins is a new introduction in the subject of Physiology. The first idea about the essential food factor originated with Lunin in 1881 from experiments on animals which died in one month on artificial purified diet. But the true conception about it must be dated thirty years hence when Osborne and Mendel in 1911, Stepp in 1911-12, and Hopkins in 1912 showed young rats died rapidly on a diet of purified food substances but lived on addition to their food alcoholic or ether-extracts of fresh food or milk or yeast. Not a single vitamin was isolated till 1913 when Osborne and Mendel found out that the active essential food factor was concentrated in the butter-fat fraction of milk. MacCollum and Davis in 1915 on study of rice diets, proved the existence of a second accessory food factor, essential for normal nutrition during growth. It was they who named the two factors (1) fat-soluble A (2) water-soluble B to which a third one-water-soluble C was subsequently added in 1919 by Harden and Zilva. So up till 1921 only three vitamins were known.

(1) Fat-soluble A or the growth-producing, anti-rachitic, and anti-xerophthalmic vitamin, which is abundantly present in milk, cod liver oil, and other fats.

(2) Water-soluble B or the anti-neuritic vitamin (deficiency causing Beri-beri and epidemic dropsy) is present in seeds, pericarp of rice and eggs, etc.

(3) Water-soluble C or anti-scorbutic vitamin is present in fresh vegetables and fruits.

Funk in 1914 suggested that deficiency of a vitamin of the fat-soluble group causes rickets and the idea that growth-producing and anti-rachitic vitamins are one and the same was held till 1921 when Mellanby of Sheffield formulated that in spite of close similarity the anti-rachitic vitamin which plays the essential role in the normal processes of bone and teeth formation is not the same as the growth producing factor—which was corro-

borated in 1922 by Simmonds, Becker and Shipley and subsequently in 1923 by Goldblatt and Zilva. Quite recently Drummond and Rosenheim's delicate colour reaction for the presence of Vitamin A by the addition of 1 c. c. of pure arsenic trichloride to a drop of substance containing both Vitamins A and D—on shaking giving an ultra-marine blue colour which in a few seconds becomes purple and then fades owing to the destruction of Vitamin A when subjected to oxidation has facilitated the separation of Vitamin A from B which is much more resistant to oxidative destruction than the former and as such does not respond to the test. It has been possible in this way to find the more beneficial effect of butter-fat containing more of Vitamin A on growth production and prevention of xerophthalmia than cod liver oil which again has got more of Vitamin D (the anti-rachitic factor) than the former. Similarly it has been proved that liver fat of sheep, calf, or ox contains ten times as much Vitamin A as a good sample of butter. Though anti-rachitic property has been transferred from Vitamin A to Vitamin D still the former retains three other properties to it, namely, growth-producing, anti-xerophthalmic and infection resisting or anti-toxic properties. Lt. Col. Green Armytage of Calcutta has shown that lack of this Vitamin in food produces infantile cirrhosis of liver. Deficiency of the same Vitamin has been proved to be at the root of green diarrhoea of infants as well. Noting down effects of different diets rich in fatty contents and Vitamins on guinea-pigs and rabbits suffering from experimental tuberculosis or any such infection the writer has been led to believe that the infection resisting or anti-toxic property of the diet responsible for immunity against diseases in the body may be due to an entirely separate vitamin resembling Vitamin A in nature.

Vitamin E or the anti-sterilitic vitamin is the latest addition in vitaminology. It has been definitely shown that rats fed on diets containing all necessary ingredients, such as proteins, carbohydrates, fats and vitamins A, B, C, D may grow quite normally but later on exhibit a peculiar but typical type of sterility, in which impregnation occurs but the foetus becomes resorbed within a very short time. It has been found abundantly to be present in lettuce, tea, wheat and peas. (Evans Bishop and others). The writer on investigation, finds a good deal of it in wheat-germs of Malawa. This vitamin belongs to the fat soluble class but unlike others can resist heat, light, oxidation and other chemical reactions for a pretty long time. It passes from mother to embryo, while in utero; that is why, tissue of a new born animal as food can cure female sterility due to deficiency diet.

ORIGIN OF VITAMINS IN NATURE



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Testes-----●

The origin of vitamins was quite obscure to the physiologists till 1921 when Dr. K. H. Coward's researches clearly showed that light is necessary for the formation of Vitamin A in tissues of green plants, and may take place even in the absence of oxygen and carbon dioxide from the surrounding air, but no case of formation of Vitamin A has been found out in plants without chlorophyll. In 1922 Drummond and Zilva accounted for the origin of Vitamin A in cod liver oil. In the same year Jameson, Drummond and Coward showed that a typical, unicellular plant named

diatom that is found at the bottom of the sea stores up a good supply of vitamin A in it by the ultra-violet rays of the sun piercing through the sea water. Hjoeh, simultaneously, proved that these sea weeds form the chief food of small animals in sea like plankton which again are devoured up by the large species, such as, squids which again as food for still bigger fishes like cods provide them with lots of vitamins, a good supply being stored up in their livers. So when the livers of cods are pressed, out comes the cod liver oil or the 'bottled sunshine' full of vitamins A and D. Dr. Josephine E. Eilden, Professor of Botany at the University of Minnesota, in a paper written quite recently corroborates the same statement by saying that marine algæ are responsible for all the food produced in the ocean, these plants in presence of sunlight taking the inorganic materials from the sea-water surrounding them and manufacturing them into proteins, carbo-hydrates, fats, inorganic salts and last, but not the least, important vitamins which form the chief food of the little marine fishes.

Numerous authors have similarly shown that the vitamins in the eggs of duck or hen also come from a similar source, because during periods of gestation, and lactation, there is a mobilisation of reserves of vitamins A and D in order to provide the egg or milk of high nutritive value for the young ones. It is exactly in the same manner that vitamin supply of milk yielded by a cow or goat is affected by the amount present in the diet she receives before or during the period of lactation. Miss Chick of Vienna supported this theory by her observations on infant nutrition that same is true for human beings as well.

Vitamin C which is found abundantly in green vegetables, fruit juices, such as, lemon, orange etc., is also derived from the same source, that is, sunshine by the help of chlorophyll present in them. The greatest amount of Vitamin is stored up at the place of greatest absorption of light and can be demonstrated by the maximum evolution of oxygen, a test that was formulated by Engelmann in 1882.

Vitamin B, which is present in a large quantity in germinating seeds and also in the pericarp of rice, is also mainly derived from the sunshine. But this vitamin exhibits a marked dissimilarity to vitamins A and C in that it may be produced by many lower plants which may be devoid of chlorophyll, such as, yeast or bacteria.

Vitamin D is also produced by irradiation with sun light or artificial ultra-violet rays. The presence of this factor in our usual sources, such as, butter and milk is closely related to sunshine to which the cows are exposed so that vitamin yield is dis-

tinctly less in winter than in summer. Not only this but it has been shown quite recently by Steenbock and also by Drummond that sunlight can activate the cholesterol content of the skin which is subsequently absorbed into the blood-stream as Vitamin D and thus preventing or curing ricket. Cholesterol when vitamin D is produced in it (ergosterol) by irradiation no longer exhibits the absorption bands in the ultra violet at 2650, 2760, and 2930 A. U. (Purest cholesterol when exposed to ultra violet radiation does not show this anti-rachitic property in the milk.) A. F. Hess, M. Weinstock, and E. Sherman have demonstrated the presence of a definitely anti-rachitic property in the milk of those mothers that have been subjected to irradiation whereas those untreated do not exhibit any such reaction. The Medical Research Council Report on Vitamins and Rickets also shows,—“the extra-sunshine experienced by one set of people makes the smaller amount of calcifying vitamins in their diet do the work carried by the larger intake of Eskimo.” So also this is corroborated by the fact ricket is less prevalent in villages where sunshine is plenty than cities or town.

The presence of Vitamin E in green vegetables, pea, lettuce tea, and wheat also speaks in favour of theory that the supply in plants also is taken directly from the rays of the sun.

Lastly, the relationship of sunshine in the gaining of immunity against diseases like tuberculosis, ricket, anterior poliomyelitis, encephalitis-lethargica, infantile cirrhosis of liver marasmus, skin diseases and erysepelas, should not be ignored. So, if the presence of anti-toxic factor is proved any time in future it will not be difficult to establish its relationship with the sunshine. *Bacillus acidilactici* is also accredited with the power of generating an antitoxic substance in the milk by the conversion of the same into curd.

ACTIONS OF VITAMINS IN BODY

Vitamins form the most essential accessory food factor of our diet. Hopkin's experiments show that they do not go under chemical changes like other food stuffs such as proteins, carbohydrates and fats. They act in the body just like a catalytic agent with stimulating influence of some kind or other in some of the vital organs of the body without undergoing any physical or chemical change. Vitamin A can be stored up for a long time in the body in the form of reserve supply but Vitamins B, C, D and E have not got the power to such an extent.

Ma'Carrison studied the effects of vitamins over the endocrine organs and specially on thyroid and proved the fact that Vitamin-poor diets cause a decrease in size and weight of the glands.

of internal secretion whereas Vitamin-rich diets have got the opposite effect over them. The relationship between vitamins and the body, to-day stands like this;—"The vitamins are to the endocrines what endocrines are to the economy." But if we take into consideration Dr. Priestley's saying "vitamins are ultra-violet rays and the ultra-violet rays are vitamins" we are quite justified in saying further;—what vitamins are to the endocrine organs the ultra-violet rays of the sun are also to the vitamins.

Gaglio's experiments in 1919 show that the vitamins after acting as "hormones (external)" to the body appear to be excreted unchanged in the urine.

CONCLUSION

In spite of all these advances that have been recently made, widening our knowledge about vitamins, the subjects remains an obscure branch in Physiology. The chemical nature of them save and except that Vitamin B has got a basic property and as such is precipitated by phospho-tungstic acid, remains unknown. But it is hoped that the zealous activity of the physiologists all over the world will soon be able to find out the true nature of these most important food factors. Up till to-day we know the presence of five such essential food factors in nature. Let us hope fervently that before the next decade becomes a matter of the past, we shall be familiar with some more of them (no wonder if upto X, Y, and Z) thus explaining all those diseases of unknown origin such as pellagra, sprue, marasmus, etc., as avitaminosis of one type or other.

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When the blood is deficient either in quality or in quantity the organism loses its power of resistance to the invasion of pathogenic agents, since it has been proved that the blood contains protective bodies — alexins and vitamins — which are endowed with the property of destroying poisonous germs. According to the severity of the infection, these protective bodies are either able to combat successfully the disease, or, when the virulence of the infection exceeds the defensive powers of these protective bodies, the organism succumbs and a fatal termination ensues.

Recent researches have definitely established that in addition to protein and albuminoid food, it is essential to supply the organism with nutrient salts of vegetable origin in order to provide the blood with all the salts which enter into its composition. In this connection alkaline salts play an important role, a fact which had hitherto been neglected, since attention chiefly centred in maintaining the iron content of the blood. For this reason preparations of iron were extensively prescribed in anaemia and chlorosis on the assumption that these were capable of remedying the deficiency in iron present in these conditions. Apart from the fact that these preparations of iron discolour the teeth and irritate the mucous membrane of the stomach and intestine, it has now been recognised that they fail to achieve their object, and recourse is being made to preparations in which it exists in the blood. However, the sole administration of compounds of this class by themselves is insufficient to provide all the constituents which enter into the composition of the blood, and while iron is beyond doubt a factor of vital importance other bodies also play a very important part, for we must not lose sight of the fact that blood is a very complex fluid.

Anaemia and chlorosis are of frequent occurrence, and often lead to many and varied illnesses. Anaemia is a condition in which the blood is deficient in quantity, while in chlorosis, a form which mostly affects girls about the age of puberty, the number of leucocytes, the white blood corpuscles, exceeds that of the red blood corpuscles, which are the carriers of haemoglobin. Both conditions are marked by paleness of the skin, loss of energy, debility, insomnia, headache, loss of appetite, nervous disturbance, and other general symptoms. In anaemia, as well as in chlorosis, the deficiency in blood is responsible for a diminished supply of oxygen to the body tissues, while the whole organism suffers from the effects of insufficient nutrition. If this functional disturbance is not removed loss of weight occurs, and the organism readily falls a prey to serious diseases, especially tuberculosis.

It is evident that it is impossible to cure a disturbance of so fundamental a character simply by administering iron. The patient must be given a food which contains all the constituents essential to blood, and which is capable of promoting the formation of healthy blood. This can be achieved only by the administration of nutrient salts found in the animal as well as vegetable tissues.

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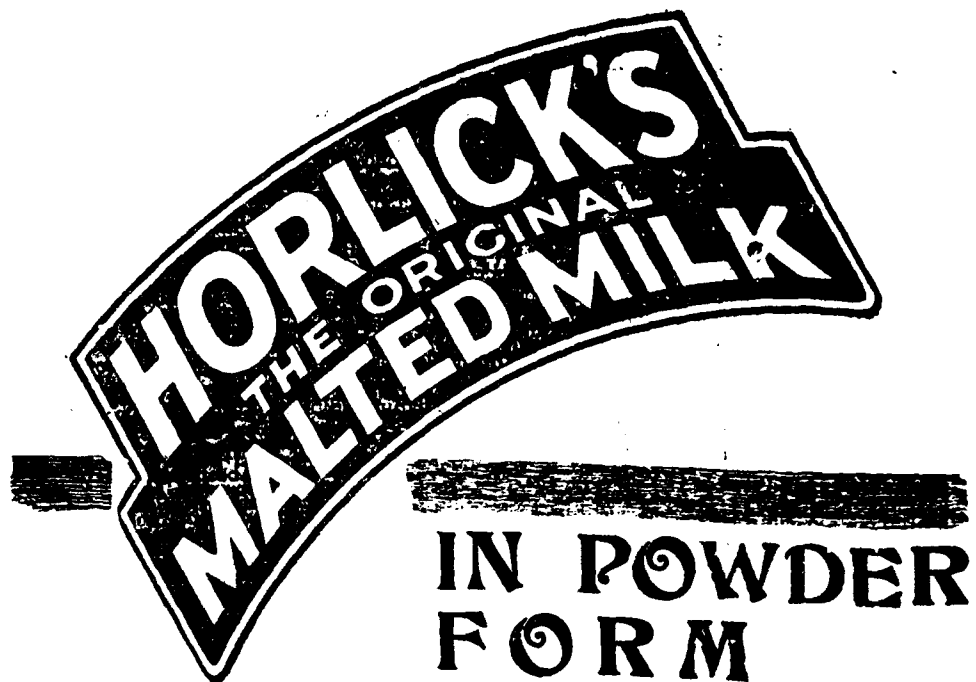
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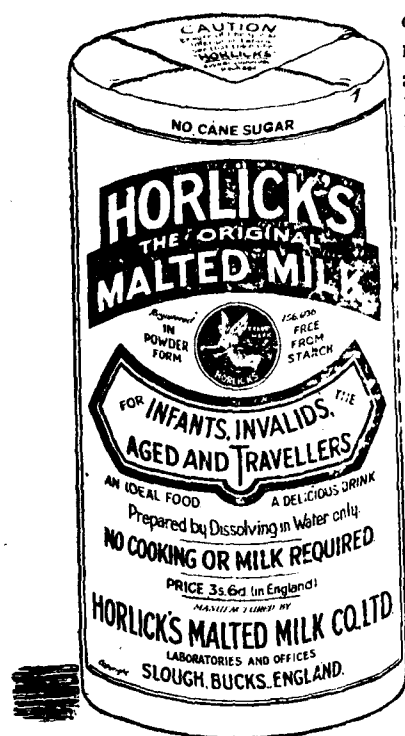
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THE ROLE OF MINERAL ELEMENTS IN NUTRITION, HEALTH AND DISEASE.

BY

RAO SAHIB T. S. TIRUMURTI, B.A., M.B., & C.M.,
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*Man's Descent From Marine Ancestors*¹.—The study of Biological Sciences has established that Man has evolved from his marine ancestors. The course of evolution is well described by Walt Whitman as follows :

"The world below the brine ; Passions there—wars, pursuits, tribes—sight in those ocean depths—breathing that thick-breathing air, as so many do ;

The change thence to the sight here and to the subtle air breathed by beings like us, who walk this sphere ;
The change onward from ours to that of beings who walk other spheres."

In the chemical composition of human blood are found all those salts which are present in sea-water and in similar ratios. But these salts are, however, in much less concentration than is found in the sea water at the present date, because the ocean, since some of the living beings left it in the course of their evolution, has been receiving continuous additions to it of salts from the rivers, which have been perpetually flowing into it from the land. Our ancestors probably never lacked the mineral elements which are necessary for nutrition in their aquatic days. Conditions leading to deficiency of them would have therefore arisen from the time when life swam ashore. Iodine is one of the most important marine elements for which we are still dependent upon marine sources for its production, showing that we cannot carry on even now on *terra firma* without that element, which was necessary, when our evolution started in the sea.

In the history of the growth of scientific medicine it will be seen that different periods were characterised by concentration of attention on particular theories which best explain the etiology and pathology of diseases. The days of '*Heredity*' were succeeded by those of '*Infection*' which has now given place to that of '*Nutrition*.' Many diseases have now been grouped under Deficiency Diseases, and much research has centred in the study of diseases resulting from the diminution or absence of particular

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kinds of Vitamins. But little attention has been given to those Deficiency Diseases which are the result of mineral deficiencies. These mineral deficiency diseases are not peculiar to man alone, because they are seen in the animals under the domestication of man. Artificial diets given to animals in modern intensive farm practice as well as poor pastures have been shown to contribute to the deficiency of Calcium and Phosphorus for growing and lactating animals. In the Chadwick lecture for the year 1926 Sir Robert Greig has reviewed the investigations which had been conducted until then into the problems of animal nutrition. It is evident that a study of comparative pathology will continue to throw a much greater light on this subject of mineral deficiency diseases.

Dr. J. B. Orr in his presidential address² to a section of the British Association in 1925 stated that the experiments which were carried out at the Rowett Research Institute proved that the addition of lime to the food of pigs fed on a calcium deficient diet contributed to considerable increase in weight of the animals within a given time. Young pigs have been shown to suffer on a diet deficient in iron. It is well known that the deficiency of iodine accounts for several different pathological conditions in addition to goitre. Young fishes developed goitre when they were cultured in the hatcheries containing pure water, but all promptly recovered when a little iodine was added to the water. This observation has led subsequently to several important discoveries.

Sir Arnold Theiller and his colleagues in South Africa have unravelled the pathology of two previously puzzling diseases in cattle—"Lamsietke" and "Styfsiekte." They have shown that both these diseases are due to the want of Phosphorus.³ "Styfsiekte" is due directly to a deficiency of Phosphorus and is therefore a true deficiency disease. But Lamsiekte of cattle results from Ptomaine poisoning, because these animals fed on phosphorus deficient pasturage and consequently suffering from phosphorus starvation are driven by their instincts to eat the carcasses of dead animals. The natural craving for phosphorus evidently gives these animals a morbid craving for eating the decomposing carcasses of dead animals. This results in the infection by a specific anærobic bacillus which has been named 'Para-botulinus bovis,' an organism closely akin to the well-known B. botulinus. Just as the depraved appetite (osteo-phagia) of these cattle is due to phosphorus starvation from the want of phosphates in the natural pasturage, other animals have been observed to wander far and wide in search of "salt-licks"⁴. The addition of bone-meal which is rich in phosphates to the diet of cattle prevents

both these diseases. This addition also quickens the growth of young animals and increases the milk yield of the cows.

The above investigations show how indispensable are the mineral and other salts in nutrition and how their lack or deficiency contribute to ill-health and disease. These discoveries are as important as the discovery of the importance of Vitamins in nutrition, health and disease by Hopkins and many other investigators who have followed him. Also these discoveries in Veterinary Medicine have given a lead to human physiology and medicine. In this connection it should be remembered that at least in respect of farm animals mineral deficiencies are of greater practical importance than Vitamin deficiencies.

We have no exact knowledge of the definite amounts of calcium, phosphorus, iron, iodine, etc. which are present in the different human dietaries or which are needed during the growing years of childhood or during the nursing period of a mother. These have yet to be worked out. The present day polished, milled or otherwise highly refined foods, tinned, canned or otherwise preserved foodstuffs and patent and sophisticated foods of other kinds are comparable to the artificial farm rations, which are given to animals and are probably like them deficient in calcium, phosphorus, and possibly other minerals. It is, however, fortunate that the danger of mineral deficiency in the diet is less in the case of human beings than in the case of farm animals, except under conditions of rationed diets in war time and in the event of being besieged and isolated.

It has been estimated that the human body contains about 7 lbs. of mineral matter, of which about 5/6ths are in the bones. All these mineral ingredients are of course obtained from the diet and it is evident that they are necessary for the building up of tissues and organs. Strictly speaking, therefore, mineral constituents of the diet should be regarded as foods. If the supply of the mineral constituents is entirely cut off, an otherwise sufficient diet does not support life, and death is the inevitable result in about a month. Recent estimates of the amount of some of the chief mineral ingredients of the diet required per day are as follow.⁵

	Grammes		Grammes
Phosphoric acid	3 to 4	Calcium oxide	1 to 1.5
Sulphuric	2 " 3½	Magnesium oxide	0.3 " 0.5
Potassium oxide	2 " 3	Chlorine	6 " 8
Sodium	4 " 6	Iron	0.006 " 0.012

The mineral constituents of the foods do not supply heat to the body but in an indirect way supply it with energy. It is difficult to ascertain what amount of mineral matter must be

supplied to the body daily, as has been estimated in the case of carbon or nitrogen. Many of them are excreted by the intestine and we have no means of estimating how much was absorbed from the intestine and how much subsequently excreted after playing a part in the metabolism of the body.

It is, however, fortunate that the amount of mineral matter found in an ordinary mixed diet is more than sufficient for all the needs of the body. The amount of mineral matter in an ordinary mixed diet is estimated to be about 20 grammes exclusive of the addition of salt in the culinary preparations.

The mineral constituents of an ordinary diet are mostly in a state of organic combination and it would appear that organic mineral compounds are of greater value in nutrition than inorganic compounds. There are, however, exceptions, *e.g.* inorganic preparations of iron have been successfully used in the treatment of chlorosis.

Sodium and Potassium. Sodium is required for the proper constitution of the body fluids whereas potassium is necessary for the construction of cells, especially, the red blood corpuscles and muscles. Vegetable foods are richer in potassium salts while animal foods are richer in Sodium salts. Sodium is chiefly taken in the form of common salt. The amount consumed differs with different nationalities but it may be roughly estimated at 20 grammes daily. This quantity is at least ten times that required to meet the needs of the body. The advocates of a salt free diet emphasise the injury done to the kidneys by a needlessly excessive consumption of common salt. The amount of sodium chloride present in natural form in natural foods is quite enough for our body needs. The extra addition of salt to the diet, as is practically universal, has not, however, been proven to be injurious to health.

The advocates to the addition of salt urge that it aids digestion. Here also there is no experimental proof. It appears, however, true that sodium chloride stimulates the flow of a hyper-acid secretion in diseases of the stomach and duodenum. A salt free diet does give considerable relief to the patient by lessening the secretion of hydrochloric acid in the gastric juice. The benefit of a salt-free diet, in cases of Bright's disease with oedema is, of course, undisputed.

The craving for salt as an addition to the diet appears to be universal and it is only by a great deal of self-control and strong will that people are able to expunge salt from their dietary. This craving is said to be more strong among vegetarians than in those who take a mixed diet.

There has also been controversy as to the merits and demerits of refined salt as compared to coarse salt. Table salt does not differ much in composition from the coarse salt. Only coarse salt is more deliquescent because it has a different texture or aggregation of crystals. The refining of salt does not remove any substance likely to be useful to man. Coarse salt contains impurities, such as, iodides, bromides and calcium and magnesium salts. Even though the refined salt does not contain these substances, the missing calcium and magnesium salts would be abundantly provided from the other articles of diet. Table salt is not refined in the sense that it is chemically pure sodium chloride. It has only been rendered non-hygroscopic by the addition of sodium phosphate. Originally, however, the idea of adding sodium phosphate to coarse salt arose from the belief that the sodium phosphate would supply a deficiency needed as food for the brain.⁶ At first this combination was put up in the market as a brain food. That was how the discovery was made that the calcium and magnesium chlorides present in ordinary table salt were transformed by the addition of sodium phosphate into phosphates which are not hygroscopic.

Calcium. Calcium forms a constant constituent of blood and tissues. This element has been shown to play a part in a variety of physiologic functions. These are no longer restricted to the building up of the inorganic structure of the bones in which calcium is the most important element. In the adult person, the total calcium salts in the body may weigh several pounds. It is known that calcium plays a part in the regulation of nervous, muscular and glandular activities, though these processes are not clearly understood. The importance of calcium in the coagulation of blood is well known. The permeability of the blood vessels appears to be influenced by the variation of the proportion of calcium to other mineral elements of the blood. In the phenomena of transudation, pathology of oedema, and in urticaria a hypocalcæmic condition of the blood is a marked feature. According to Sherman the average calcium requirement of an adult person daily is about 0.5 grammes.⁷ Comparatively few common foods yield calcium in abundance. The daily diet may not therefore contain the required amount. Calcium is absorbed in the fore intestine and excreted in large quantity again into the intestinal tract and to a less extent in the urine. Moreover, the absorption of calcium depends on the reaction of the intestinal contents and on the healthiness or otherwise of the alimentary canal. The absorption of calcium is depressed by a tendency to alkali-

nity of the intestinal contents. Therapeutic administration of large doses of calcium salts may lead to irritation of the intestinal mucosa and prevent optimum absorption.

Though in one sense calcium plays a very important role in the metabolism of the body, in another sense calcium may be regarded as an inert substance. It is deposited in normal tissues which show a sluggish metabolism, such as, the bone or in dead tissues which are, however, not infected and which cannot be easily absorbed. In calcification the salts deposited are the insoluble salts of calcium and magnesium. The salts most commonly found are the phosphates and carbonates of calcium and magnesium.

Calcium becomes deposited in muscles showing reaction of degeneration, retrogressing malignant tumours, quiescent caseating areas, areas of fat-necrosis, in and about the bodies of dead parasites, *e.g.*, Trichini in muscles; in the atheromatous patches to form calcified plaques; in old thrombi; and in the costal and tracheal cartilages in old age. The replacement of elastic tissue by calcareous material is a characteristic feature in old age.

Calcium and Blood Clotting. The calcium only renders the fibrin ferment active but does not form an essential part in the resulting clot. Once the fibrin ferment is formed, the calcium can be removed without interfering with the process of clotting. In urticaria, chilblains, angioneurotic oedema and physiological albuminuria, there is a lowered coagulability of the blood, which permits transudation of plasma from the vessels into the lymphspaces. Calcium salts are prescribed in all these conditions. Calcium salts are used to promote clotting in the sac of an aneurysm and to increase the lessened coagulability of blood in purpuric conditions. Calcium salts are also administered as a precautionary measure against bleeding, before a liver or spleen puncture is done for the diagnosis of Kala-Azar, and before operations on individuals who had a tendency to bleed profusely. Calcium salts are given both by mouth as well as in the form of intravenous injections in such conditions as hæmoptysis, menorrhagia and other hæmorrhages.

During pregnancy blood coagulation time is reduced owing to the drainage of calcium from the blood into the foetus. Immediately after delivery blood is said to clot more quickly than normal. But as suckling begins coagulation

becomes perceptibly slower from the drainage of calcium salts into the milk of the mother.

Calcium and Heart Rythm. Calcium salts are essential to the systole of the heart. Increased concentration of calcium salts stimulate the accelerator nerve and augment the heart beat. Reduction in the normal amount of calcium salts leads to more rapid and more feeble heart beats.

Calcium and Parathyroid. The parathyroid in some way controls calcium metabolism in the body. Parathyroidectomy leads to calcium deprivation and produces a group of symptoms, known as Tetany. The disease is characterised by intermittent painful cramp in the muscles of the extremities or larynx and hyper-excitability of the neuromuscular and peripheral sensory apparatus. Though the causes of tetany are varied, Parathyroid and Thyroid tetany result from gross disease or extirpation of these glands. The internal administration of parathyroid and calcium salts has a moderating influence upon the neuromuscular tissues.

Calcium and Ductless Glands. It has already been mentioned, that Parathyroid influences calcium metabolism. Calcium deficiency may result from defect or excess of Thyroid secretion. Thyroid excess increases the excretion of calcium—which perhaps accounts for the menorrhagia in hyperthyroidism. Also excess of the internal secretion of the ovary increases the excretion of calcium, whereas suprarenal and pituitary extracts are believed to keep calcium content at a high level.

Calcium Deficiency and Osteomalacia. Osteomalacia is a chronic disease occurring usually in females characterised by decalcification and weakness of the bones which results in their bending or fracture and deformity. The affected bones are soft and can often be bent without much difficulty. The formation of new bone does not take place normally and the absorption of the calcium salts in the affected bones leaves the bony framework fibrous and decalcified. Various deformities of the pelvis and fracture and deformity of long bones are common. Pregnancy aggravates the disease, probably, because pregnancy leads to the drainage of calcium from the tissues of the mother to the foetus.

Calcification of Teeth and Vitamins in the Diet. The structure of the teeth is stated to be a sensitive index of the national health in the report of the Medical Research Council⁸. Mrs. Mellanby has done considerable research work on the relation

of diet to calcification. She has shown that normal calcification of the teeth and dental development depend on a sufficiency of fat soluble vitamins A and B in the diet. She has given experimental proofs in puppies in which the teeth can be modified according to the diet employed. How far in man defective dental structure is due to deficiencies of diet is a subject in which, as yet, there has not been unanimity of opinion. It is, however, possible that good vitamin-rich balanced diets will produce teeth which will offer a greater resistance to decay, as there is little doubt that deficient structure predisposes to caries. Dr. Syme Wallace, however, is of the opinion that dental caries cannot be prevented by constructing a dietary on a Vitamin basis.⁹

He states that the children of the Maories in New Zealand, the Eskimo in the far north and the Australian aborigines are never fed on cow's milk, and cereals, if eaten at all, form but a negligible part of their diet, yet their teeth are unexcelled by any other race in the world with regard to freedom from caries. Proper development of teeth is not aided but probably prevented by such diets as milk, bread soaked in milk, milk puddings, and biscuits and milk, and such like diets prescribed by Dieticians. He says, "If food values were to be adjusted according to the narrow theories of vitamin enthusiasts who base their beliefs on animal experiments, why should they not boldly advocate a diet of green grass and dandelions, especially, for nursing mothers?" He observes that in relatively wealthy countries, especially, among the well-to-do, their children's diet consists largely of milk, eggs and butter, but yet the teeth of the children are a disgrace to civilisation.

Calcium Salts in Rickets. Two dietetic factors are necessary for the development of Rickets, viz. (1) low or unbalanced intake of calcium and phosphorus; (2) lack of vitamin D. The ossification of normal bone is said to be due to the precipitation of calcium phosphate in bone owing to the lower concentration of carbonic acid in the osteoid tissue than in the plasma.¹⁰ In Rickets there is a demonstrable deficiency of dicalcium phosphate in plasma. The calcium value may be normal in the blood in rickets but reduced only when complicated with tetany but the reduction of phosphorus in the blood is constant in rickets and it is stated that it is sufficient to estimate only the phosphorus value. The pathology of rickets is characterised by defective calcification. The new bone that is formed is soft; ossification of the epiphysis is irregular. This may lead to thickening of the epiphysial end of bones. The whole process may be summed up in the statement.

“that there is an excessive preparation for ossification but a defective accomplishment of it.”

Rickets is a disease of the poor rather than of the rich; the disease is associated with insanitary surroundings and crowded areas. Hutchison and Murphy in their article on "Rickets in India" state that among the children of mothers who are purdah 24% are rickety, whilst only 4·8% of the children of mothers who do not observe the purdah are so affected. They conducted their investigations in the town of Nasik¹¹. These facts support the now well-established fact that seclusion and deprivation of light play an important part in the development of rickets.

The bio-chemical researches of Mellanby proved that the absence of the fat-soluble vitamin D in the diet led to the development of rickets. But it was subsequently shown that an animal though fed on a diet rich in vitamins will develop rickets, if it is confined in a close and dark place, whilst an animal fed on a diet deficient in antirachitic vitamin may not develop rickets, so long as it is not confined and is at liberty to share the sunshine and fresh air which it did enjoy normally.

It was known for a long time that cod-liver oil cured rickets, and phosphorus will do the same. There is a definite calcium-phosphorus balance in the blood of normal children. In rickets there is a deficiency in the phosphorus element of the content. Whereas in tetany with laryngeal spasm and in rickets with convulsions there is a fall in the percentage of calcium content. A hypocalcæmic state is said to be always present in the convulsive conditions of infants. A deficiency of calcium is not responsible for rickets but inorganic phosphorus is always reduced in active rickets. It is a significant fact that both the calcium content and phosphorus content of blood can be restored to the normal by such simple means as exposure to the sun or to artificially produced violet rays. The vitamin D of cod liver oil has a similar action.

Rickets, Tetany and Convulsions are thus seen to have a common etiology and are cured by exposure to light.

*Calcium Therapy*¹². On the idea that calcium is a detoxicating agent it is used in a number of infectious diseases, such as, typhoid, septicæmia, erysipelas etc., In such diseases as Rickets, Osteomalacia, Scurvy, etc., where calcium deficiency is known to exist, the use of calcium salts combined with parathyroid gland produces very beneficial results. Its use in conditions of hæmorrhage is well known. Calcium Salts are also used in cases of hay fever, asthma and nephritis to promote coagulation in cases of aneurysm; also in such dis-

eases, as hæmophilia, purpura, urticaria, serum-sickness; in such functional nervous diseases as hysteria; also in epilepsy, chorea, angio-neurotic oedema and migraine; in tuberculosis of the lungs and tuberculous lymphadenitis; in the delayed union of fractures, in fragilitas osseum, osteomalacia and caries; in gynæcology for amenorrhœa and menorrhagia; in children's diseases, such as, diarrhœa, laryngismus-stridulus, whooping-cough, bronchitis, tabes mesenterica, etc.

The success of calcium therapy is dependent upon our knowledge of the factors which influence calcium retention and also factors which influence calcium absorption. We, as yet, do not know very much about these conditions which influence calcium absorption and retention.

Studies in calcium and phosphorus metabolism in rickets are in accord with the hypothesis that the faulty utilization of the bone-forming elements in infantile rickets is dependent on their defective absorption, which is possibly secondary to some alteration of the gastro-intestinal functions. Cod-liver oil alone appears to have a specific effect in increasing the retention values of the mineral elements, calcium and phosphorus, and also their increased absorption from the intestines. Probably the free absorption of these mineral elements from the gastro-intestinal tract is the essential factor in the prevention and cure of rickets.¹³

On this basis the improvement of the condition in the bones when antirachitic measures are instituted might be attributed to the increased absorption of calcium and phosphorus. The primary difficulty in the rachitic disturbance is a defect in the capacity of the intestine, to absorb calcium and phosphorus; hence the low concentration of these elements in the serum and defective calcification in the bones. Though no change is made in the diet, treatment with cod liver oil or ultra-violet rays, probably, aids the absorption of these elements much more readily. The blood calcium has been shown to rise thereby, but it is also conceivable that these measures may lead to a decreased excretion of these elements, *i.e.*, better calcium retention. But the hypothesis of increased absorption is supported by most investigators.

The absorption of calcium and phosphorus compounds has been shown to depend on the reaction of the intestinal contents. Normally the reaction of the contents of the small intestine tend to remain on the acid side; increased alkalinity promotes the formation of insoluble calcium phosphate. In experiments¹⁴ on rats and dogs, rickets-producing diets have been shown to produce marked alkalinity of the intestinal contents. Ultra-

violet irradiation or cod liver oil administration, however, even though the diet was not changed, brought the intestinal reaction to its normal acidity. From the above facts it was concluded that the primary defect in rickets is an impairment of absorption from the intestines of calcium and phosphorus.

It should be remembered that excessive internal administration of calcium chloride might actually lead to a condition of acidosis and to increased loss of calcium instead of proper absorption and retention. Calcium lactate is stated to be preferable to calcium chloride, since it does not favour acidosis.¹⁵

The estimation of the calcium content of the blood is, however, not a reliable index for the application of calcium therapy. The calcium which is stored in the bones can be utilized for the needs of other and more vital parts in the body, as such transfer of calcium takes place in the blood. An increase of blood calcium may be observed, even though there is a deficiency of this element in several other organs. Hypercalcæmia has been observed in neuralgia, yet calcium therapy has produced excellent results in persons suffering from the disease. Also hyper-calcæmia has been demonstrated in tuberculosis, nephritis, asthma, rickets, osteomalacia, etc., in all of which calcium therapy produces beneficial results. It should, therefore, be concluded that hypercalcæmia is no guide for calcium therapy.

A diet mainly of cereals and not adequately supplemented by foods rich in vitamins, calcium and phosphorus will produce rickets. Under ordinary conditions none of our cereal grains contain a sufficiency of calcium for adult man, when they are consumed as the sole article of food. Hence the need for the use of such foods as milk, eggs, or fresh vegetables. "Polished rice, pearl barley, wheat farina and patent wheat flour are notoriously deficient and, of these, polished rice and patent flour are deficient in phosphorus as well".¹⁶

Iron. The actual daily requirement of iron for an adult man is estimated to be only a few milligrammes of the element. A large part of the iron in the body is confined mainly to the red blood corpuscles where it is combined in the hæmoglobin. The amount of iron in the blood is estimated to be about 3 gms. and the amount contained in the other cells of the whole body as roughly 1 to 3 gms. Iron is present in the chlorophyll of vegetable cells; it is a constituent of the blood and tissues of other animals, as it is in the case of man. Therefore iron enters into the human body both in animal and vegetable food. The complex organic compounds are split up in the intestines, and the iron is absorbed in the ionic form. The ingested iron is absorbed in the upper part of the

small intestine and the excess is excreted into the colon and leaves the body in the fæces.

The function of iron in the body is definitely associated with the transfer of oxygen. It is essential for the oxidation of the tissues. The fact that iron is present in the chromatin is proof that it affects directly or indirectly the process of growth. Active iron is present in an invisible form in the cells. It becomes visible as pigment granules in the cells, only when it is cast out of functional activity.

It has been found possible to induce anæmia experimentally, *e.g.*, in rabbits by feeding them on diets extremely deficient in this element. Cow's milk is very poor in iron, because it contains only 0.0003% of the element. This is an example of anæmia of dietary origin. Possibly, many cases of anæmia in infants, who are fed only on cow's milk, are of similar dietary origin.

The internal administration of iron is not effective in all cases of anæmia. Possibly there is a difference whether this element is administered in an inorganic or an organic form. In the experimental anæmia of the rabbits inorganic iron proved ineffective but when to the diet was added a little fresh cabbage or an extract of the same, inorganic iron cured the anæmia. The investigators in the John Hopkin's University have suggested that the newly recognized vitamin E is associated in some manner with iron assimilation, comparable to the relation of vitamin D to phosphorus and calcium metabolism. The therapeutic value of liver as recently suggested by Minot and Murphy in the treatment of pernicious anæmia is explained by the fact that the liver is rich both in iron and in this vitamin E.¹⁷

Chlorosis, a disease now said to be disappearing in Western countries and rarely seen in our own, is said to be a disease of young girls, specially those who are ill-fed, badly-housed and over-worked in factories and shops. The disease is characterized by a disproportionate diminution of hæmoglobin to the red blood corpuscles which makes the hæmoglobin index extremely low. The cure of constipation by laxatives and the administration of iron in any form cure this disease. The cure even by the administration of inorganic iron is remarkable. Whether the inorganic iron actually forms the constituent of the new hæmoglobin which is formed in the body or whether the production of hæmoglobin is stimulated by the liberation of the combined iron from the tissues is not known. In chlorosis, however, either the absorption of iron or its combination into hæmoglobin appears to be deranged.

There is a peculiar disease which is known as hæmochromatosis (Syn. Pigmentary cirrhosis; bronzed diabetes). This is a

rare disease confined to men, characterized by progressive enlargement of the liver and spleen, ascites, pigmentation of the skin and internal organs, and, in the late stages of the disease, diabetes, due to cirrhosis of the pancreas. The pathology of the condition is an extraordinary deposition of iron-containing pigment throughout the body. There is no obvious anæmia and no evidence of hæmolysis and consequently no evidence of any special activity in the blood-forming organs. In this disease there is little or no blood destruction and there is adequate hæmoglobin production but yet there is a deposition and accumulation of hæmosiderin, the iron containing pigment of the blood. The mystery of the disease is, as yet, unravelled. The retention of iron is, probably, due to defective excretion through the mucous membrane of the colon.

Iodine. That a minimum amount of iodine in the food is necessary for health is shown by the existence of goitre regions, *e.g.*, around the great lakes in the United States, in the valleys of the Alps and the Himalayas and in some endemic areas, such as, Derbyshire in England. In these areas the water supply is said to be deficient in iodine. The exhibition of a very small amount of iodine has been shown to act as a prophylactic in the prevention of this disease. The amount of iodine in the blood is about 1 or 2 parts to 2 millions and that in the liver 3 or 4 parts to 2 millions. As the liver is the most complex and active chemical factory in the body its appropriation of a greater amount of iodine for itself is understandable. The places where goitre is endemic possess one thing in common, *viz.*, a water supply which is not well-protected from contamination by human excrement. There has been a controversy regarding the etiology of endemic goitre, whether the exciting cause is microbic in origin or whether there is any deficiency of iodine in drinking water. It was shown that marked pollution of water supply was associated with the highest goitre-rates. Professor Blacklock points out that deficiency of iodine in unimpeachable water supplies in America gives rise to goitre and that such iodine deficiency may be artificially produced by contamination of the water supplies in other countries. Sir George Newman says that the question of the causation of endemic goitre is at least a two-sided one, deficiency of iodine in lakes on the one hand and an abnormal condition preventing assimilation on the other.¹⁸ These theories are not yet proven. In certain of the Nile villages, where goitre is prevalent and the water supply is polluted, the iodine-content of the Nile water is stated to be higher than that of the metropolitan water supply of London. The

prevention of endemic goitre is, probably, more closely bound up with sanitation than with the administration of iodine.

Investigations in New Zealand show that endemic goitre there varies inversely as the amount of iodine in the soil and that the important factor is the iodine content of the food. The influence of the water supply is said to be very small.¹⁹

Lt. Col. McCarrison states that the freedom of localities from goitre is not related to the iodine content of their soils and that the richness of a soil in iodine does not preclude the development of goitre.²⁰ In the Himalayan regions, where goitre is endemic, there is no evidence that it is in inverse ratio to the iodine content of the soil. In the presence of a high degree of bacteriological impurity of the water, high iodine content does not prevent endemic goitre, and a substitution of a bacteriologically pure water supply has caused a rapid disappearance of the disease. According to Col. McCarrison's view the essential cause of this disease in Himalayan India is the unhygienic conditions of life of the people, the chief of which being the bacteriological impurity of their drinking water. A deficiency of iodine relative to these conditions is favourable to the development of the disease.

It is interesting to note that Lt. Col. McCarrison has experimentally produced a new type of goitre unrelated in its origin to iodine.²¹ The basal factor in its causation is mainly a diet of white flour which is devoid of vitamin, small amount of protein with fats and inorganic salts (including iodine in adequate amounts), but not containing green vegetables or fruits. He states that it is likely that this type of goitre will be found sporadically amongst white flour eating peoples. The provision of iodine in the food does not prevent the disease but a well balanced vitamin rich diet will.

According to Dr. Barwise the following are the functions of iodine which exerts its influence through the thyroid gland:—

1. It is necessary for effective metabolism, and specially promotes respiratory changes and physical growth.
2. It promotes efficient mental development. A severe shortage before birth results in cretinism.
3. It is specially required in the pregnant condition and antenatal clinics must bear this point in mind.
4. It is needed at the age of adolescence for the reproductive organs particularly in the female, in whom the change over takes place more rapidly than in the male.

5. It is needed to keep the skin and its appendages in a healthy condition. A dry skin, and falling hair frequently mean thyroid deficiency.

6. It is required for the digestion, assimilation, and combustion of fats. When shortage occurs, the fat cannot be satisfactorily dealt with and it is stored in the sub-cutaneous tissues. Many cases of obesity may be occasioned in this way.

7. It is required for the metabolism of calcium. The harder the drinking water the more iodine is required.

8. It is needed to enable us to resist the invasion of microbes and to render harmless the toxins which they produce.

It is to be remembered that iodine deficiency may be present without any enlargement of the thyroid gland. Exophthalmic goitre has never been produced in animals by any doses of iodine; iodine has been prescribed in the treatment of syphilis in much larger doses than are needed by the thyroid but no instance of exophthalmic goitre has ever been reported, as being the result of the treatment.

It is acknowledged that thyroid secretion is necessary for the immunity processes which take place in the body as a result of infection. For the maintenance of health infinitesimal quantities of iodine are as necessary as vitamins and the effect of it is similar and quite out of proportion to the quantity taken.

The amount of iodine in wheat in goitrous and non-goitrous regions has been estimated. The wheat of non-goitrous regions contains more iodine than the wheat from the goitre areas. There is no iodine in wheat flour. Iodine deficient diets of the people have attracted the attention of investigators into this question. In view of our knowledge of the thyroid and the possibility of iodine deficiency without any visible thyroid enlargement, the idea of adding iodine to the diet, so that all may share, was suggested.

This addition is now being successfully made in 3 ways.—

- (1) Adding iodine to the water supplies deficient in this element.
- (2) Administration to school children of a tablet or two of chocolate every week, containing iodine as an organic salt.
- (3) The sale of iodised salt, which should be used for all cooking and table purposes. The iodized salt contains 1 part of potassium iodide in 250,000 parts of salt.

Here in iodine is an example of an element which influences metabolism through one of the ductless glands. We are in the beginning of many more discoveries along this line. The influence of the ductless glands, such as, Parathyroid on Calcium metabolism and the role played by vitamin E in the metabolism of Fe, have been

already pointed out. The interdependence of mineral metabolism, endocrines and vitamins on each other is evident and a vast field for further research has been opened up. The master word in Medicine in our century is not Heredity or Infection but 'Nutrition.' We are beginning to acquire the knowledge which is power for *Creative Health*." (22)

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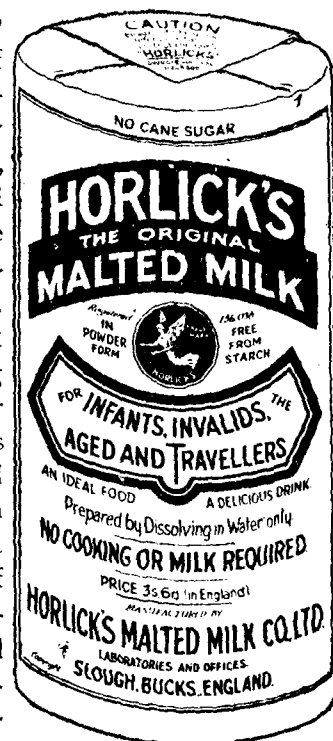
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THE MODERN PHYSICIAN AND PREVENTIVE MEDICINE.

BY

DR. W. CHODZKO, M. D.

Director of the State School of Hygiene, Warsaw: Poland

"Never during the six thousand years of the history of humanity", says Liek, "has medicine made such brilliant progress as within the last 50 years. No physicians of any epoch possessed such a deep knowledge and were so widely and thoroughly educated, as are those of our days. Research Institutes of all kinds, well equipped clinics and hospitals, a vast literature, complementary courses, congresses, lectures, the cinematograph and the wireless co-operate to make accessible to the physician the knowledge and inspiration derived from the very best sources. On the other hand, in spite of all these improvements the number of quacks has greatly increased." Liek's remarks refer chiefly to Germany, the real center of scientific medicine and the modern treatment.

German physicians who had hitherto been entirely absorbed in the progress in scientific medicine, have suddenly become aware of the steadily growing number of so-called "nature doctors" and quacks, ready to deprive them of their practice. In Berlin alone there were about 4,000 of such individuals, their number being the same in Saxony while all over Germany there have been registered over 11,000. According to professor Much's calculation in Germany 50% of the total number of patients have deserted their physicians, possessing diplomas, and gone to consult quacks.

This astounding phenomenon cannot be explained by accidental reasons and external circumstances nor can it be met by mechanical repressions of quacks or by making propaganda for scientific medicine among laymen. It is quite natural that every patient desires that the physician to whom he applies for help should not only make a diagnosis and treat the disease according to the most scientific methods but should also cure him. The dissatisfaction of many patients with the results of modern treatment may, undoubtedly, be justified.

For, the more thoroughly we analyse the successes attained up to now by medical treatment, the more convinced we shall be that progress in the conservation of health and the prolongation of life is not due to the art of medical treatment.

Three quarters of all the diseases which worry humanity, viz., infectious diseases are so far not being really treated at all: they are only being observed more or less indifferently by the physician-clinician and it is nature who manages them for herself. Let us consider the course of scarlet fever in our country and we obtain the following figures:

Year.	Number of cases.	Percentage of deaths.
1920	16664	13.5%
1921	28164	13.9%
1922	14717	13.2%
1923	15746	10.8%
1924	18030	8.7%
1925	25210	9.5%
1926	37780	9.4%
1927	36250	9.1%

Although, between 1920 and 1927 no new efficient method of treatment has been applied the lethality of scarlet fever decreased steadily; the same phenomenon has been observed in Austria, in Holland and in other countries (A. G. Parsons).

In Austria and in Holland the lethality of scarlet fever (expressed in percentage) was as follows:

In	In Austria	In Holland
1919	4.5%	2.0%
" 1920	5.2%	2.1%
" 1921	3.0%	1.4%
" 1922	2.4%	1.0%
" 1923	2.4%	0.8%
" 1924	0.7%	1.0%

Equally small is the influence of medical treatment on lethality of typhus.

In Poland (according to Sterling-Okuniewski) lethality of typhus was found to be:

Among Christians		Among Jews (Szwajcer)	
At Warsaw	20%		
At Lublin	13.14%	5.3%	
At Piotrkow	18.0%	4.82%	
		7.0%	

while patients of the two confessions have been treated by the same physicians and on the same lines.

Even the apparently most scientifically justified treatment by means of specific sera did not give the expected results. As an example let us take the most efficient of these sera, viz., the

anti-diphtheria serum. Between 1905 and 1914, i.e., during the period of the greatest development of serotherapeutics of diphtheria, there died at Berlin (according to Dejkwitz) out of 100 persons suffering from diphtheria:

At the age of 1 year	...	...	42.7%
Between the age of 2 and 4 years	...	...	17.6%
" " 5 " 9 "	...	...	9.4%
" " 10 " 15 "	...	...	6.2%
" " 15 " 30 "	...	...	3.3%
" " 30 " 50 "	...	...	4.8%

It looks as if the lethality of diphtheria depended not so much on the treatment as on the age of the patient.

In London the lethality of diphtheria was (Graham Forbes):

In	on the average	
1897—1903	13.7%	
" 1904—1910	8.88%	
" 1911—1917	7.09%	
" 1918—1924	6.98%	

The above figures indicate that for the last 15 years the mortality from diphtheria has not decreased.

The Health Commissioner of Chicago states that this year, in the hospitals of that city, there have been prevalent malignant cases of diphtheria which, when given an adequate dosage of antitoxine, failed to respond to the treatment. In view of this fact antitoxine has been furnished without charge to all physicians in order to immunize children who had, so far, been in good health.

The German physician Dejkwitz writes lately in his article, which has the very significant title "Prophylaxe oder Therapie": "In spite of the existence of the specific serum, mortality from diphtheria, in general, reaches everywhere 10 per cent. This fact should be specially emphasized. If the results of our therapeutics, even of therapeutics directed against the cause of diphtheria, are less than we expected and if, so far, there are no prospects of our finding better means of curing diphtheria as well as other diseases of children, a discussion should be opened whether, in the present state of science, it is possible to organize a campaign against morbidity and mortality from acute infectious diseases of children, by applying special prophylactic means to those who are in good health: I think that there is no other way along which this campaign can be conducted."

Can we actually cure smallpox? The discovery of Jenner has with one stroke delivered humanity from this frightful plague and has saved physicians trouble which would most frequently be useless. Let us only compare two countries, England and Poland, with regard to their respective statistics of smallpox. In England vaccination against smallpox is not compulsory while in Poland it has been made so since 1919.

The number of cases of smallpox:

	<i>In England.</i>	<i>In Poland.</i>
In 1923 ...	3,504	502
" 1924 ...	3,797	861
" 1925 ...	5,354	77
" 1926 ...	10,155	69
" 1927 ...	14,767	35
" 1928 ...	4,377	3 (till the end of March).

[Rapports Epidémiologiques Mensuels de la Section 'Hygiène du Secrétariat. (Société des Nations.)]

We should remember that according to Szulc in 1882 there died of smallpox at Warsaw 1,375 persons and that deaths from smallpox in that year represented 10 per cent of the total mortality.

At present in England cases of smallpox are very mild, though this may, of course change at any time. Combating of smallpox according to the general principles applied to infectious diseases (i. e. hospitalization, compulsory isolation, in special smallpox houses, treatment, loss of salaries, etc.) cost England at present over 40 million pounds a year. It is difficult to imagine a more useless and less justified expense.

The unfortunate Semmelweis saved from death more mothers than all the most ingenious accoucheurs and obstetricians taken together. Before the famous Tarnier managed to overcome the immense difficulties put in his way by the physicians of Paris and made full use of the principles of antiseptics and aseptics in the Paris Maternité the mortality of women bearing children in that institution reached 5—10 per cent and therapeutics then as now were unable to cope with that real scourge of young women, fit for life and for work.

As early as 1893 this mortality had fallen to 0.42 per cent and in 1904 it was 0.07 per cent.

Professor Pinard, a pupil of Tarnier, says in his reminiscences of his master: "Between the years 1870 and 1880

although women in child-birth were not yet being treated, the disease was however, no longer being inflicted upon them, simply because prophylactics had been applied. In this case as in others, the power of the physician in the art of preventing diseases has been shown whereas the same physician is often unsuccessful in applying a treatment."

It is sufficient to recall the simple treatment applied by Crede to the eyes of newly born infants and compare it with the hopeless treatment of ophthalmia neonatorum. Our Szokalski remarks on that disease: "We may ascertain that over two-thirds of all the cases of blindness which are considered to be innate are actually due to ophthalmia neonatorum." In the days of Szokalski cases of ophthalmia neonatorum were very frequent and constituted 4.2 per cent of the total number of cases of conjunctivitis. All the above facts enable us to realize the importance of preventive methods in medical practice.

Preventive methods and preventive treatment play a most important part in the anti-trachoma campaign. I shall quote here the remarks made by Dr. Zachert on some asylums for children in the Voievodeship of Cracow which he has visited himself: "In asylums which are located in suitable spacious quarters, are well equipped and have washstands with running water or have a sufficient quantity of wash basins, where each child has a separate towel and sleeps in a separate bed, and where everything is kept clean and in good order the percentage of children suffering with trachoma is very low (it does not exceed 4 per cent). On the other hand in asylums located in too small unsuitable quarters and badly equipped the same percentage always exceeds 20 per cent. Later on the observations of Dr. Zachert have been confirmed by other physicians who did similar inspections on the territories of other Voievodeships. In another place Dr. Zachert says that "trachoma is a very long-lasting and persisting disease and therefore the treatment of trachoma is a very difficult and ungrateful task."

If, further, we consider tropical diseases, as for instance, yellow fever we see that the work of the American physicians Reed, Finlay and Gorgas has led to some preventive methods which have entirely expelled this plague from the Antilles islands. Before the application of these preventive methods the treatment of yellow fever yielded no satisfactory results and mortality from yellow fever reached 75 per cent.

I do not think that I need quote any more similar examples

The greater and the more splendid the apparatus of research devised for medical purposes and the greater the production of remedies in chemical factories, the more striking were the comparatively negligible effects produced by these excellent and precise instruments and medicines. This tragic discord between the means and their effects became gradually clearer and clearer to physicians as well as to patients. It is hardly possible to give a better definition of the situation than has been done by the French people who say of the physician that: "he seldom cures, sometimes relieves, but always comforts and encourages."

The real cause of a moral dissatisfaction of physicians with themselves and of the society with their physicians, as well as of a general decline of the prestige of the physician is, probably, to be found in that specific mentality of the majority of physicians who have in view the treatment (often only very little efficient) of the sick only and neglect the care of the persons who are in good health and ignore the influence of social conditions on the origin and on the course of the disease.

Kautsky says that: "A definite crisis in medicine is being observed at present. This crisis not only affects the foundations of medical science, but also has a deep influence on medical practice from the moral as well as from the financial point of view. This crisis may be defined as crisis in confidence and it threatens to render still more difficult the financial situation of the practising physician who has already suffered from war and from inflation. It is not reasonable to shut eyes and to ignore this fact, and to blame the unsufficiently civilized masses for not putting on a higher level the scientifically well educated physician than the ignorant quack. We must take into consideration the fact that a great part of people do not find in physicians those attributes which attract them to the quacks."

As we see from the above the sociologist Kautsky and the physician Liek agree perfectly in their judgment on the present situation.

Sympathy with the sufferings of the patient is the actual source of the skill of the physician, it is the most noble stimulus for his activities, but in our days it does not suffice. The great progress of preventive medicine puts before the modern physician the necessity of watchful and thoughtful care of the healthy citizens who are threatened with suffering and with death if he does not warn and protect them from the danger.

Let us ask ourselves quite frankly if this idea has sufficiently penetrated into the mentality of the physician-practitioner

and if this duty which is far more important than the treatment of the sick and, from the social point of view uncomparably greater, is being duly carried out?

Sir Arthur Newsholme, the famous contemporary English physician, insists in one of his latest works that every family doctor should, at the same time, consider himself to be and fulfil the duties of a health officer with respect to the families who are under his care. The well known American practitioner Dodson says that "the family doctor may better serve his clients by preventing diseases than by treating them when they are sick." The Danzig surgeon Liek asks "whether public health would not stand on a higher level if we applied our art and our efforts to prevent diseases rather than to treat them (sometimes not successfully) when they occur?"

Let us consider some numerical data taken from the English, American and Polish statistics.

Sir George Newman, Chief Medical Officer of the Ministry of Health in England, gives a list of diseases recorded among insured persons in representative areas, rural and urban, in 1924, in England. The number of cases of illness recorded was 107,796. The chief causes of sickness recorded are set out below (per 1,000 of total).

Diseases of the respiratory system (pneumonia)	... 211.9
Influenza	... 130.5
Diseases of digestive system	... 118.7
Injuries and accidents	... 104.9
Rheumatism and Lumbago	... 93.4
Abcess and other septic conditions	... 76.0
Neuralgia and headache	... 49.7
Diseases of nervous system and special senses	... 45.4
Skin diseases	... 36.7
Diseases of genito-urinary system	... 25.3
Anæmia	... 21.0
Organic heart disease	... 13.5
Tuberculosis, all forms	... 11.3
Malignant disease	... 1.9
Other diseases	... 59.8

Newman has calculated that 76 per cent of the above cases belong to the category of preventable diseases.

In our country the Ministry of Labour and of Public Welfare have published a report on the activities of the Polish Sick Insurance Cash in 1925 and in 1926. The report for 1925 gives numerical data concerning 159 offices of the Sick Insurance Cash. In

1925 there have been recorded 3,048,397 cases of illness which occurred among 2,764,025 members of the Sick Insurance Cash. In the report for 1926 the respective figures are: 4,834,465 cases of illness among 3,366,012 registered members and their families. The above data are given below in tabular form per 1,000 of total.

	1925.	1926.
Diseases of the digestive system	... 216'6	231'0
Diseases of the respiratory system	... 136'8	133'6
Diseases of nervous system and special senses	... 119'8	122'5
Skin diseases and abscess	... 95'8	95'3
Accidents	... 54'5	52'2
Influenza	... 48'2	50'6
Rheumatism	... 45'5	31'1
Diseases of genito-urinary system	... 31'9	36'0
Organic heart diseases	... 31'0	32'1
Diseases of the bones	... 24'7	33'1
Tuberculosis, all forms	... 23'6	27'8
Venereal diseases	... 11'8	13'9
Malignant diseases	... 1'9	1'5
Scarlet fever	... 1'2	1'8
Other diseases	... 127'7	114'2
Diseases of the puerperal state	... 29'0	23'3

Applying Newman's method of calculation to the data of the Polish Sick Insurance Cash we obtain the following results, *viz.*, in 1925 there have been over 63 per cent and in 1926 over 64'5 per cent of cases which may be referred to the category of preventable diseases.

Professor Winslow, Director of the School of Hygiene at the Yale University, has calculated the percentage of preventable diseases from the number of deaths reported in the Registration area of the U.S. of America in 1909. This percentage was 55.8 per cent. Since then many important new discoveries have been made in the field of preventive medicine. This work has been specially encouraged by the great war which is also responsible for the high percentage obtained in Newman's calculations.

Let us consider some more data taken from Polish statistics. Owing to the initiative and energy of Dr. Batko, District Health Officer at Chrzanow, there have been medically examined in 1926—27 12,585 "healthy" school children.

The following results have been obtained (per 1000 of cases examined)

Anæmia	... 328'4	Rickets	... 67'4
Lousiness	... 148'0	Trachoma	... 57'2
Tuberculosis and		Skin diseases	... 35'8
Scrofulosis	... 43'8	Injuries	... 8'6
Heart diseases	... 41'0	Ruptures	... 6'0
Goiter	... 139'2	Other diseases and	
Eye diseases		defects	... 79'8
(except trachoma)	... 104'8		

The percentage of diseases and sufferings of these children which may be entirely cured is approximately equal to 79 per cent. What is the actual meaning of all the above figures? In Poland, for instance, in 1925 among the members of the Sick Insurance Cash and their families there could have been 2,000,000 cases of illness less if prophylactic care had been extended over the healthy individuals, *i.e.*, if Newman's scheme had been realised, *viz.*, "the first duty of medicine is not to cure disease, but to prevent it. To prevent or to avoid such disease is to lengthen the period of life and make it happier and more effective."

The great war has clearly shown what are the results of neglect of the health of man. The great war has changed many ideas and has torn away the mask from many sacred effigies of the pre-war world. Newman ("Public Opinion in preventive medicine") says that between November 1st, 1917 and October 31, 1918 there were 2,425,184 medical examinations of recruits. Of this number 36 per cent., only were found to be capable of carrying arms. The remaining 64 per cent amounting in all to one million and a half in the aggregate, did not attain this standard, and upward 40 per cent presented marked physical disabilities and were described as category C 3. The above data furnish a survey of the state of health of the population in England from the point of view of the defence of the country. If such is the situation in England what would it be in our country where tuberculosis carries off at least twice as many victims and where at schools we have over 5 per cent. of children suffering with tuberculosis, besides a whole army of children who are threatened with tuberculosis.

Quite recently Dr. Z. Domanski, the well known Director of the Health Department of the Voievodeship of Nowogrodex, has published the results of a medical examination of recruits from the county of Nowogrodex in 1928. Of the total of young men examined:

- 22.7% were perfectly fit and healthy;
- 28.1% were fit and healthy but not perfectly so.
- 24.2% were referred to category "B" because of some failure or defect in the physical development.
- 11.0% were referred to category "C" owing to pulmonary diseases.
- 16.6% were incapable for military service.
- 3.4% were sent to hospitals for observation.

It is not at all astonishing that Dr. Domanski considers the above figures quite alarming for all the recruits are of the age of 20-21 years which is the age of the best and fullest physical development. It should be most seriously considered if all those millions of people should not be given proper attention and care for, in our present conditions, their "apparent health" represents only a period of time during which they are waiting for the unavoidable disease to come.

What is then the purpose of preventive medicine and what are its duties? Newman expressed it in the following way and his definition may be regarded as accepted universally.

THE OBJECTS OF PREVENTIVE MEDICINE ARE:

1. To develop and fortify the physique (we may add the psychic state as well) of the individual and thus increase the capacity and powers of resistance of the individual and the community.
2. To prevent or remove the causes and conditions of disease or of its propagation.
3. To postpone the event of death and thus prolong the span of man's life.

The above definition points out very clearly that with medicine alone humanity could never solve such great problems. Dr. Nowakowski is quite right in saying that the vast progress in medicine observed during the last decades has not sufficiently and definitely influenced the general mortality. More prominent results in that field are entirely due to prophylactics.

The medical profession have to face now the steadily growing movement of social and preventive medicine which is daily gaining better understanding and support of the public opinion.

Sommerville Hastings is perfectly right to remark that very rapidly one branch of medicine after another are partially or completely withdrawn from the ken of the general practitioner and have become part of the public provision for sickness. This process is bound to continue for two reasons:

1. Because it is part of the spirit of the age to provide for its needs by collective action.

2. Because in spite of some defects the public provision for sickness already instituted has, undoubtedly, made for the general good. Thirty five years ago 1 person in 7 died of tuberculosis in England and Wales; to-day only 1 in 14 so dies. During the last 20 years (1905-25) the infantile mortality-rate has fallen from 128 to 75 for 1,000 births. Between 1920 and 1926 the number of new cases reported at the clinics fell from 42,805 to 22,550 in the case of syphilis, and from 40,284 to 35,052 in the case of gonorrhoea. The percentage of school children found with defective hearing has, during the last ten years, been halved, etc.

The medical world seem to be overcome with this phenomenon just as it has been, many years ago, with social insurance in Germany and now in France. What is the attitude of the medical profession towards these new, most important phenomena?

In looking over the modern medical literature one readily sees that in England as well as in France and in Germany physicians are doing their very best (by means of various formulæ, resolutions and discussions) to reserve for themselves the sole right and privilege to treat the sick leaving preventive medicine and medical care of the healthy individual various institutions of social hygiene. They forget that in the same way as social insurance has been created by politicians and leaders of the social movement without the participation of physicians, at present, social hygiene is being created by sociologists, social workers, philanthropists and specialists in social welfare while physicians have been given only the role of technical workers (not the most important ones) in the new institutions where the public health nurse is gaining more and more influence, very often, even a decisive one.

The French physician Destouches, from his personal observations made in the United States of America tells us what an excessive growth of the influences of nurses in public medicine actually means: "The authority of the physician is questioned there on every occasion, it is denied, very often disregarded and annulled. At the same time there developed, as nowhere else in such a degree, even not in Central Africa, an exceptional medical fetishism, a morbid and fighting quackery which flourishes and spreads beginning with osteopaths and chiropractors and reaches finally the overcrowded shrines of Christian Science. Considering facts of such a nature, even if the nurse is not responsible for this

credulity and superstitions of the American society, one is inclined to doubt whether her influence on the education of the masses is at all efficient. No doubt that nurses are needed; their activities, however, should be considerably limited and directly guided by physicians whereby the right of initiative should not be granted to them."

A one sided, devoid of criticism, following of a routine medical treatment which is usually only mechanically understood and is the consequence of medical studies at the Universities which are not adapted to modern requirements, is the cause of the fact that also from this field physicians are driven out, as the case is for instance in Germany, by a powerful number of quacks and the activities of physicians in the Sick Insurance Cash awake a more and more growing dissatisfaction. Boards of the Sick Insurance Cashes are not alone to blame for the above state of matters, for it lies, entirely with the physician to accept or to protest against one or another method of dealing with medical treatment. It is quite clear that if matters stay as they are the medical profession will never again regain its prestige and lose it all the more. No kind of complaints nor even the most numerous professional medical organizations will be able to improve matters, as it was the case with great organization of Syndicates of Physicians, in this country which failed to improve matters and to prevent mistakes. The number in this case means little. If there is lack of a deeper idea there is no spirit which would initiate and encourage an action, for, experience has shown that organization of unions of physicians having for aim financial interests exclusively, does not reach the desired purpose. Neither the powerful "Leipzig Union" nor the still stronger "Hartmannbund" have managed to save physicians from loss of their authority in society in Germany. The tendency to limit the number of students in medicine will not reach the point which was put forth by the initiators of that movement, for, the missing physicians will be readily replaced by quacks, "nature doctors", Tibetan doctors etc. On the other hand it is quite obvious that without the active and conscious participation of the bulk of physician-practitioners preventive medicine will never reach all its aims. Edward Jenner, the modest village physician who is the father of modern preventive medicine, is a symbol of the close connection which exists between practical medicine and preventive medicine.

Sommerville Hastings states that to the medical profession two courses are open: "it may resist the inevitable till the last moment, have some ill digested and imperfect scheme thrust upon

it, or it may profit by the experience of the past and seek to mould public opinion so that when the new order comes the general practitioner may have an honoured place in it as the natural centre around which the whole scheme revolves."

The Austrian physician Daser in his description of social insurance in England says: "Those adversaries among physicians who are waiting for the great building of modern social-medical insurance to be destroyed, should be told that they will wait in vain. This movement is too powerful and too general and the handles of the clock cannot be moved back. They should be advised to take more interest in this matter than hitherto and to begin active cooperation because only then the medical profession will retain due influence and the whole movement will follow such a course that our population will gain the greatest profit and the medical profession will not suffer."

Almost simultaneously the French physician Schreiber writes; "The general practitioner must meet the needs of the community or of the individual in the way of preventing diseases. If he wishes that this important domain does not escape from him. An open opposition or even indifferent neutrality would be all the less comprehensible as the financial interests of the medical profession are parallel to the requirements of the society. The practising of preventive medicine can only be profitable to a practitioner who is called up for regular examination and treatment, in case of necessity, of a large number of people who, so far, especially in the country, used to appear in the physician's office only in case of extreme necessity. It is not sufficient that the practitioner should be a convinced follower of preventive medicine and should propagate it actively. He should be well prepared to estimate its directions and apply its technique at times a very complicated one. Preventive medicine calls for training. Therefore it is desirable that all faculties of medicine have it introduced into their programs as a special subject."

Let us hope that the problems of preventive medicine will gradually gain better and better understanding both to the advantage of the society as well as of the medical world as a whole.

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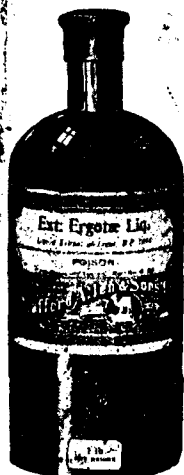
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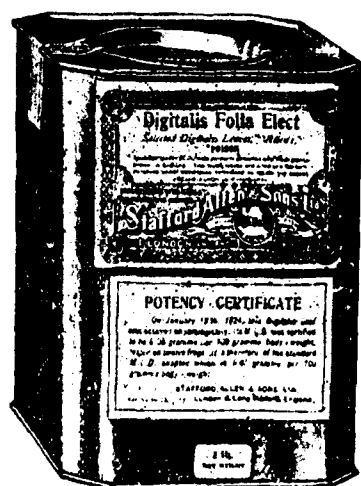
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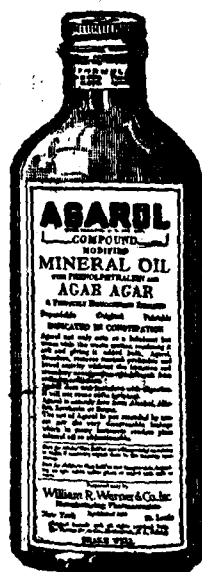
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PROGNOSIS IN RECTAL CANCER

BY

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The improvements in the treatment of rectal carcinoma during recent years have been very considerable, and it is very important that those who have to deal with such cases should have their knowledge brought up to date as to the possibilities of what can be achieved by the various methods of treatment in these very distressing cases.

Factors in Prognosis. There are three factors which have the very greatest importance in estimating prognosis. These are: age of the patient, the stage of the disease when first seen, and the position of the growth.

To deal first of all with the question of age. There is no doubt that carcinoma behaves very differently at different periods of life. In young people the tendency is for the disease to grow extremely rapidly and at an early stage to spread to other tissues. One may say that in such patients the disease has a tendency to fulminate, whereas at the opposite end of life we find the disease extremely chronic and growing very slowly. I have seen patients as young as 8 with cancer of the rectum, but fortunately the disease is rare under the age of 40.

The stage of the disease when first seen is probably the most important factor of all, and it is here that we have the greatest chance of improving our present statistics, as I shall be able to shew presently. That is to say, that if the disease is diagnosed early, and has not invaded surrounding tissues, the prognosis with operation is good, and gets progressively worse as the disease is found to have advanced.

Thirdly, we have the position of the growth. There are three main positions. An epithelioma of the anus, an adenocarcinoma of the rectum itself, and an adenocarcinoma of the rectosigmoidal junction. In a case of epithelioma the prognosis is good provided the diagnosis is made early. Fortunately this is usually the case, owing to the fact that the growth draws attention to itself and can easily be seen. Growths in the rectum also have a good prognosis, provided they are detected early and suitably operated on.

Growths at the rectosigmoidal junction have not such a good prognosis as in the cases of growths in the rectum. The reason for this is that they can only be removed by a much more serious operation, and that it is more difficult to remove the secondary glands and tissues in immediate contact with the growth.

Prognosis in Operated Cases. There is still rather a general belief that the prognosis in such cases is bad, and that although a few patients may be benefited by operation the majority die from early recurrence in spite of operation. I hope to shew that this very pessimistic view is not justified in the light of modern statistics.

Cases of epithelioma and cancer of the rectum can, in these days, best be dealt with by what is known as the perineal operation with a permanent colostomy, and I propose first of all to give you the figures to shew what may be achieved by this method of treatment. My most recent figures were those published during last summer. There were 242 cases of cancer of the rectum operated upon by this method. These do not include cases of carcinoma of the rectosigmoidal junction which have been dealt with by the abdominoperineal excision. The period covered by the series is naturally a long one, and although the mortality figures are calculated on the whole 242 cases, the recurrence figures are only worked out upon those cases which were done more than five years ago, since the more recent ones are obviously not available. In discussing the prognosis we have to take into account the operative mortality, and I am glad to say that at last we have been able to reduce the operative risk in cases of the rectum to quite satisfactory figures. There were 117 private cases with only 4 deaths, an operative mortality of 3.4 per cent. This, considering that we have to deal with patients up to about 76 years of age, often with concurrent disease, is probably as low as can be hoped for. Counting hospital cases as well, there were 242 cases with 21 deaths, a mortality of 8.6 per cent.

This figure, of course, is only arrived at by very careful management, the most important factors being the anaesthetic, designed so as to produce a shockless operation, doing the operation in two stages, the colostomy a week or ten days before the excision, and careful team work on the part of everybody concerned. Both I and my assistant and nurses have had considerable experience with these cases, and it is only by great care that we have been able to get the mortality as low as this. The chief cause of mortality used to be sepsis. By careful technique this has been practically eliminated, and the main causes of mortality at the present time are post-operative infract and heart failure.

In the case of growths at the rectosigmoidal junction which have to be dealt with by abdominoperineal resection we have not been so successful in reducing the mortality. Considerable improvement has occurred, but it is doubted whether with so serious an operation the mortality can be kept much below 25 per cent.

Recurrence. There were 130 cases operated on five years ago or over. These work out as follows:—

Cures on a five-year basis	... 57 cases
Recurrences	... 57 "
Died from other causes during the five years	... 8 "
Untraced cases	... 8 "

If we subtract the untraced cases and those that died from other causes it gives us a percentage of cures of 54.8 per cent.

If we examine the figures in a little more detail several interesting points emerge. All the cases were originally divided into three classes: (A) favourable cases where the growth was small and had not invaded the muscular coat and no glands were involved; (B) cases where the muscular coat was involved, but where the growth was not unduly fixed and there was no extensive involvement of glands (C) bad borderline cases, with a large fixed growth and evidence of extensive involvement of glands. Out of a total of 242 cases 83 were A cases, 116, were B cases and 43 were C cases. An analysis of these three classes as regards recurrence shows very interesting results. The percentage of cures in the A cases on a five-year basis was 66.6, in the B cases 39.2 and in the C cases 43.7. This shews that with favourable cases where the growth is operated upon at any early stage the percentage of cures on a five-year basis is quite high. The figures in the C cases are doubtless misleading, since they are probably too few, but one very important point is demonstrated—namely that such cases are well worth operating upon.

I have made an attempt to trace the after-history of 50 of these cases who survived the five-year period, and the annexed table shows what happened to these patients:

Table of 50 cases traced beyond the five years showing the number of years that have elapsed since operation

Case	Years
1	22
1	16
1	15

Case	Years
1	13
2	12
5	11
5	10
6	9
8	8
5	7
15	6

Conclusion. The figures show that when an operation is performed for cancer of the rectum under the most favourable conditions and the growth is diagnosed at an early stage the prognosis as regards cure is good. The mortality in private cases is 3.4 per cent. and the percentage of cures on a five-year basis in early growths is 66 per cent. while the average of cases as they present themselves is over 50 per cent. These results are, of course, only obtained by considerable experience in operations on the rectum and where the case is handled to a large extent by team-work.

LEPROSY IN THE MADRAS PRESIDENCY

BY

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The writer has been asked to write an article on leprosy for "The Antiseptic" and as this paper is published in Madras he has taken the above as his subject. The writer does not claim to have much special knowledge about leprosy as it affects the Madras Presidency but he has a few suggestions to put forth as to what means may be taken to combat the disease.

In the 1921 census we find the following note:—

"The distribution of the lepers is shown on the map which indicates that Ganjam, North Arcot and South Arcot are the places where leprosy is most prevalent. There are two groups of districts which supply the majority of the lepers returned; the first group consists of the Agency division and the districts of Ganjam, Vizagapatam and Godavari; and the second consists of Madras and Chingleput with North and South Arcot. In all these districts the number of lepers exceeds 40 per 100,000—a proportion which is not reached in any other district in the Presidency. The Deccan division has fewer lepers than any other part of the Presidency. There are only three districts in which the number of lepers returned at this census is considerably in excess of those

returned in 1911—these are Vizagapatam, Salem and Madura. On the other hand there is a considerable decrease in the number returned from Nellore, Bellary, Tanjore, Tinnevely and South Kanara. But it is generally accepted that the returns of leprosy are less accurate even than those of the other infirmities; so detailed comment on these statistics is not likely to lead to any useful result. " (See pages 145-146)

The Godavari district is given as having between 50 and 60 lepers per 100,000 of the population but from investigations that I have made personally in that district there is no doubt that this is an absurdly low estimate.

An article appearing in the December 1928 number of this journal mentions that 1 in 20 of patients appearing at a dispensary in the Cochin state is "a leper unsuspected by himself or by others or even by some inexperienced medical men" and yet the census for Madras gives the incidence of leprosy in the neighbouring district of Malabar as between 30 and 40 per 100,000 or 1 in 2500.

Obviously if anything is to be done to deal effectively with leprosy in the Presidency and in the neighbouring highly infected states the first thing to be done is to make an accurate survey and find out

1. In what districts, taluks, towns and villages leprosy is most prevalent.
2. Among what castes and classes of the population it is most common.
3. What are the reasons for the greater prevalence in certain places and among certain kinds of people.

The long duration of leprosy and its dependence for increase and spread upon the general health of the population and other local conditions makes it highly important that this whole matter should be investigated. The prevalence of such predisposing causes as syphilis, malaria, helminthic infections must also be looked into.

Such a survey cannot to any great extent be conducted by the ordinary public health officers. Special doctors must be appointed, who have had special training in leprosy work and who are able to give their whole time for several years.

The following abstracts from the Annual Report of the British Empire Leprosy Relief Association for 1927 gives a rough idea of how such surveys have been successfully carried on in other parts of India.

"The method employed is to choose a suitable thana or police area in a highly leprous district and establish head-

quarters at the centre of this thana. Villages are visited and with the help of village authorities, non-leprosy cases are sought out. Lantern lectures are delivered at night explaining the nature of the disease and the means which should be taken for prevention. A treatment centre is started and held twice a week, the rest of the time being used to complete the survey by house to house visiting. In some of the centres as many as 200 patients were attending within a fortnight and further survey was rendered easy by the help of grateful patients who welcomed the doctors to their villages and gave them all the help possible. Thus not only was a census of leprosy taken, but incidentally treatment centres were initiated and a large amount of propaganda work was carried on. Doctors from the neighbouring villages have also been found to attend and in one place the Civil Surgeon brought a number of his medical officers to attend the clinics and learn the methods of diagnosis and treatment.

It is generally found that the survey of one thana occupies one month and when the survey officers pass on to another place the district authorities supply a doctor who had been trained in leprosy work to carry on the clinic. A list of lepers in various villages is supplied to this doctor and he is able to supplement the survey by noting down the names of new patients who appear for treatment."

The areas surveyed and the proportion of the population examined are still too small to enable any general conclusions to be based upon them: nevertheless they tend to confirm the belief expressed in the last year's Report that there are at least half a million people in India suffering from leprosy.

It was observed that if a village consists of people of one caste the number of lepers is very small; where two or more castes are gathered in a village, but each caste occupies a separate quarter, the amount of leprosy is greater: but the highest incidence is in villages where different castes live side by side. In the wild uplands of Singhbhum, Ranchi, Hazaribagh and the north west of the Sonthal Parganas the aboriginals, who live a free and natural life, are found to be almost free from leprosy; but as one passes down from these uplands and jungle tracts towards the plains, and the aboriginal comes in contact with more advanced civilization and mixes with the semi-aboriginal a veritable hot-bed of leprosy is formed. In such areas as Bankura, Manbhum and the southern part of the Sonthal Parganas sexual promiscuousness and venereal disease, famine and bad food become important factors which predispose to the disease and the better class Hindus who live in these areas are often infected by house servants and other employees drawn from these semi-aboriginal low castes; but causes vary to a certain extent in different areas. Improved communications and the increased ratio of births over deaths lead to the

emigration of leprous villagers and thus are formed new centres of leprosy in previously uninfected areas."

The above association has sent its survey party to Travancore where they are at present making investigations. From May onwards for 4 or 5 months they hope to work in the Madras Presidency and it is hoped that it will be possible to arrange for a corresponding party of doctors who will work along side of them, learn their methods and be prepared to carry on a more detailed and prolonged survey after they have passed on to another province.

After all prevention is better than cure and if this is true of diseases in general it is more particularly true of a disease like leprosy which is so difficult to cure and which has such distressing accompaniments.

The survey referred to above is obviously the first thing to do, and it must be carried out along lines similar to those mentioned. Compulsion or lack of tact in doing such work would defeat its own end.

But survey is not sufficient. The doctors must be trained as they have had no opportunity in their medical curriculum for studying leprosy. The subject is complicated and difficult to acquire from books, and it is important that concentrated courses be given by experts at district or sub-divisional headquarters where it is possible for all doctors to attend. This method has been adopted in Bengal and great interest has been aroused in the districts which have been visited.

Leprosy is undoubtedly on the increase in some parts and is possibly on the decrease in others. As far as we can learn from the work of the survey party improved communications are tending to cause a low average—increase on the whole. If the present situation of leprosy is that it is increasing only slowly or is nearly stationary while practically nothing effective is being done to combat it, while very few doctors know how to diagnose or treat it, while there are next to no facilities for treatment and while the people at large know little about preventive measures surely with doctors everywhere trained in the latest methods, with private and public facilities for treatment and with the spread of knowledge concerning the disease, we can expect a rapid diminution in the incidence.

THE ACUTE ABDOMEN IN EARLY LIFE FROM THE PHYSICIAN'S STANDPOINT

BY

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So much has been written from time to time on this very important subject by surgeons that little remains for them to say regarding it. Much more valuable, however, at least to the general practitioner, is the discussion of the subject from the physician's point of view. This is all the more important, when we bear in mind that it is the family Doctor and not the surgical specialist who sees these cases first. In fact he sees them usually when they are in the most favorable condition for operation. Not so the surgeon who, unfortunately, frequently has them handed over to him for operation when it is too late, or when the risks of operation have become greatly increased. In this short paper, therefore, I intend to summarise some personal experiences of this condition both in private and in consulting practice in the hope that my remarks may prove of value to the general practitioner in recognising such cases earlier, and in convincing him of the great importance, of early surgical interference. Time and again I have seen young lives sacrificed because they were sent too late to the surgeon for operation. Such an occurrence is a veritable tragedy, which in the majority of cases can be avoided were greater care displayed in the examination of them, and if a consultation with a surgeon were insisted on without unnecessary delay. This is true in the case of adults, but it is infinitely more so where infants and children are concerned.

In order to understand the acute abdomen it is necessary in the first place to make a running commentary on the symptoms which may be presented to us in this condition. Perhaps the commonest symptom of all is *pain*. In the adult patient pain is investigated by enquiring as to its site, nature, persistency or intermittency, relation to food or not, and as to whether it developed suddenly or not as well as whether it is increasing in severity. In the young child answers to such questions are usually unobtainable. The most we may be able to make out is that the

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parent tells us the child says its "belly is sore." When we try by careful palpation to locate the pain as often as not the patient will mislead us. Pain, therefore, is not a very helpful symptom though it is suggestive and, therefore, must be carefully noted. It must not, however, be overlooked that pain in the abdomen does not necessarily mean disease within the abdomen. Abdominal pain in children is got in influenza, pneumonia, empyema and spinal tuberculosis. I have frequently been able to exclude abdominal disease by finding one of these conditions present. The following cases illustrate this:

Case 1. Male. aet. 4½. Had been ill for two days. Onset with vomiting. When seen in consultation was complaining of pain in the right iliac fossa. Temperature 104°. 2 Fahr. Respirations 60. Right lower lobe dull with fine crepitations. This was a typical case of lobar pneumonia.

Case 2. Male. aet. 6. Had been acutely ill for 36 hours, complaining of pain vaguely referred to lower abdomen. Left side of chest was dull, with distant bronchial breathing. Temperature 99°. 6 Fahr. Respirations 46. An exploratory needle shewed pus in the pleural cavity.

Case 3. Male 6 and his brother 3½ both complained of pain in the neighbourhood of the umbilicus. The other members of the family had recently suffered from influenza. Examination of the throats of these two children revealed an intense pharyngitis with some enlargement of the tonsils (I have met with several similar cases during epidemics of influenza amongst children).

Next to pain, comes *Vomiting*. This is a symptom which suggests at once to the lay mind, and often to the medical attendant, some disease of the gastro-intestinal tract. In children, however, vomiting is by no means always due to the presence of abdominal lesions. It is common in acidosis, as well as in pneumonia in the early stage and also in many other extra-abdominal conditions. Even when associated with pain it does not necessarily imply that the mischief is located in the abdomen. My experience, however, leads me to the conclusion that if a child has been vomiting severely for more than twenty-four hours and is complaining of abdominal pain a consultation with a surgical colleague becomes imperative. It is sometimes forgotten that repeated vomiting may, of itself, produce pain in the epigastrium. It is, therefore, very important to find out when the pain began, and if possible to exclude its presence in the epigastrium only. I well remember such a case in which a little girl of six was seen by

me in consultation. She had been vomiting for three days, and for the last forty-eight hours she had complained of pain "in her stomach." Her breath had an acetone odour. The pain seemed absent on pressure, and she said she felt in the upper part of the abdomen. As there were no other abdominal symptoms, and she seemed very drowsy I gave it as my opinion that the condition was one of acidosis which proved to be correct.

As a symptom *constipation* is not always of much value. In the acute abdomen of the child diarrhoea is quite as common, at least in the early stages when the diagnosis and treatment are of most importance. A child with a tuberculous abdomen may be acutely ill, and yet when seen the bowels are moving four or five times a day. Shortly after he may be sent to hospital because of intestinal obstruction. We must not, therefore, wait for the onset of constipation in such cases before seeking a surgical opinion if we suspect, after examination, that acute abdominal mischief is present. In some cases, too, we are told, on the authority of the child's own statements, that the bowels are moving regularly whereas, there may have been no stool passed for some days. Constipation, therefore, may prove to be a misleading symptom rather than otherwise. In a great many instances, however, we can recognize its presence by palpating the colon, especially the descending part when it may be found loaded with more or less hard masses of faeces. It is remarkable how long some children will go without a motion, and yet make no complaint. Amongst children living in boarding schools constipation is a frequent source of worry to the doctor in attendance. It may make him suspect acute abdominal disease. The following case is typical in this respect.

Case 4. Male 10 years. Had been ill for two days. Complained of headache and nausea, marked anorexia and some pain over the whole of the lower abdomen. Temp. 101°. 2 Fahr. No history could be obtained as he was always considered to be perfectly well and healthy. There was no history of constipation, but palpation over the whole extent of the colon revealed that the latter was loaded, and it also gave a dull note on percussion. There was considerable tenderness round the periphery of the abdomen. Castor oil was ordered, which was retained but produced no result. He was then given a warm olive oil enema which was followed by three large motions. Within twenty-four hours the temperature was normal, and all his symptoms had disappeared.

Tenderness is very often a more valuable guide to the diagnosis than actual pain. The little patient will not complain of this, but

careful observation will reveal wincing or a change in the facial expression when the tender area is palpated. Repeated examinations may however, be necessary to locate the most definitely tender area or spot. It is not at all necessary, as a rule, to press firmly or deeply to make out such tenderness. Very gentle pressure usually elicits it when this valuable symptom is present. By means of this symptom I have frequently been guided to suspect the presence of appendicitis or of tuberculous abdominal glands when otherwise the diagnosis might have been rendered much more difficult and obscure. The great value of this symptom lies in the fact that it can usually be made out, when present, without interrogating the patient who cannot possibly mislead the observant examiner on this point.

A sign which the surgeon often makes use of is *rigidity*. In the very early stages of the acute abdomen, this sign is often altogether lacking. This is often the case in appendicitis occurring in the young. Sometimes a much more useful sign is localised *oedema* of the abdominal wall which may be overlooked if not kept in mind.

The value of *pulse and respiration rate* and even of *temperature* as evidence of the acute abdomen is comparatively unimportant. The temperature may be practically normal in a bad case of appendicitis, and the pulse rate may not be interfered with even in a severe lesion in the early stage at any rate, while respiration is rarely seriously affected. If we were to rely on these evidences alone, therefore, we would frequently be misled in making a diagnosis.

The *attitude* of the child in bed is not necessarily reliable. Drawing up of the legs is by no means always present, and even when this sign is met with it need not imply abdominal mischief. Moreover a child with an acute abdomen may be found lying on his side.

Examination of the urine may give us valuable evidence in some cases, and may enable us at once to exclude the diagnosis of acute abdominal mischief. If albumen is found in an acid urine in an infant or child who is running a high temperature pus should be looked for as well as *B. Coli*, as the case is then likely to be one of acute pyelitis.

Finally no examination of the patient is complete until the *chest and spine* have been carefully investigated, more especially in cases complaining chiefly of abdominal pain. In certain in-

stances it is well also to include the *throat* in one's examination of the patient, as in some cases acute throat infections are associated with acute abdominal pain.

To give a complete list of those conditions which may give rise to the clinical features of the acute abdomen is practically impossible, but the following should be kept in mind:—

A. Intra abdominal conditions:

1. Appendicitis.
2. Tuberculous Abdomen.
3. Intussusception.
4. Peritonitis.
 - a. Pneumococcal.
 - b. Streptococcal.
 - c. Tuberculous.
 - d. Gonococcal.
5. Intestinal obstruction from any cause, e.g., adhesions, atresia, stenosis, strangulated hernia.
6. Ulcer of stomach or Duodenum.
7. Congenital dilatation of the Colon.
8. Acute pyelitis.
9. Round worms. Thread worms in the appendix.

B. Extra Abdominal Conditions:

1. Pneumonia.
2. Empyema.
3. Throat affections.
4. Henoch's Purpura.
5. Tuberculosis of the spine.
6. Acidosis.

Some of these common enough conditions are apt to be forgotten about. In fact a few of them seem to be quite unknown to the general practitioner, probably because attention is seldom directed to them in text-books or lectures.

Now when face to face with a case presenting acute abdominal symptoms, before examining the patient we must enquire about the following:—

1. When did the symptoms come on? 2. In what order did they develop? 3. What is the nature of the vomitus, and how frequent? 4. Has the vomiting any relation to food or drink? 5. What is the condition of the bowels? 6. Does the patient complain of pain in any particular part of the abdomen or does it change its position? 7. Is the urine normal and is there any pain in passing it? 8. Is there any cough? 9. Does the patient complain of pain in the throat or seem to have difficulty in swallowing?

Intelligent answers to these questions will give the physician no little help. While asking them he should carefully observe the patient's facial expression and attitude in bed. Then temperature, pulse and respiration should be noted in turn. Nothing should be omitted which may be helpful apart from the physical examination of the patient which must then be systematically proceeded with.

The abdomen must be examined by inspection, palpation and percussion in turn. Before doing so the examiner must see that his hands are quite warm, and that the patient's abdominal muscles are thoroughly relaxed. Cold hands applied to the abdominal walls will produce a false sense of rigidity and boarding which may not really exist, and this may prove very misleading. On inspection absence of movement or limitation of movement of the whole or some one part of the abdomen may be observed. Palpation may give very valuable evidence. There may be local boarding or rigidity of the muscles. Then again, there may be definite local tenderness. Oedema too or even local swelling may be made out, and sometimes fluctuation. Pain at certain points may also be detected by palpation. On percussion dullness may be obtained. Thus by physical examination of the abdomen much useful information may be obtained, which, combined with the symptomatology of the case may lead to a definite diagnosis of the condition present.

MATERNITY AND CHILD WELFARE, WITH SPECIAL REFERENCE TO LEGISLATION

BY

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It is now just quarter of a century since the Maternity and Child Welfare campaign was inaugurated in England by the passing of the Midwives Act of 1902, and the celebration of the SILVER JUBILEE of the *Antiseptic* offers a fitting occasion to review what has been done in the course of that campaign, both in England and in India.

Attention had been drawn in England to the high rate of infant mortality by means of the falling birth rate, during the latter years of the 19th century. Efforts were already being made to start special centres for infants, to pay house to house visits and to teach mothers the care of the baby. Voluntary workers originated these efforts and carried them on for years before their good effect was realised, and they were adopted by Local Bodies and by Government.

By the end of the nineteenth century modern nursing was well developed in England and many trained midwives were also available. Unfortunately there were also many untrained midwives, of the kind popularly known as 'Mrs. Gamp,' who were ignorant, unacquainted with antiseptics and were responsible for much spoilt midwifery and injury to young infants. The poor people, being also ignorant, clung to these 'Gamps,' who were cheaper than the trained midwives. Hence the latter were often unable to make a livelihood and their usefulness was much hindered.

In England the medical profession were freely called in to midwifery cases and fully realised the evil done by the rough attendance. Hence, when the Midwives Act was brought in, it met, on the whole, with the support of the medical profession, although it was realised that the interests of the midwives would flourish at the expense of those of the medical profession.

Briefly, the Midwives Act laid down, that a Register of all practising midwives should be kept and that after a period of

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7 years, no one should be admitted to the Register who had not a satisfactory certificate of training. It provided for a Central Midwives Board to lay down rules for training, examination, and practice of Midwives and empowered the Board to decide all cases arising out of the infringement of the rules. The supervision of the midwives was to be done by Local Authorities in different parts of the country.

This meant, that at the beginning, every woman who brought evidence of being a *bona fide* or real midwife was registered. In this way many untrained women came on the Register. This was only fair, for many of them were hardworking and well meaning. But after 7 years no more untrained women were admitted, and gradually the old, untrained women either took a training or disappeared from practice.

The Midwives Act was amended in 1918 when midwives were empowered to call in doctors when necessary, the fee to be paid by the Local Supervising Authority.

It was again amended in 1926, when provision was made for the registration and inspection of Maternity Homes. It had by this time become evident that many cases of labour could be best attended in institutions, and that it was better to have the patients in small institutions near their homes rather than in large maternity hospitals. It was now made illegal to carry on a Maternity Home unregistered, and definite rules were drawn up for their administration.

The next piece of legislation in the interests of mothers and infants was the Notification of Births Act, which was passed in 1907 and required that births should be notified within 36 hours. Registration of births had been in force for many years, but was only required within 6 weeks of the delivery, so that much valuable time might have elapsed before the Health Officer or the Visitor heard of the birth. This Act was permissive in 1907 and was made compulsory in 1915.

The Education Act of 1907 introduced the medical inspection of school children, which has greatly improved the health of children over five.

The Insurance Act of 1911 introduced Maternity Benefits for the wives of men of the working classes, or for women workers. Hitherto, these women had had the greatest difficulty in making

both ends meet. They had no margin over the necessary daily expenditure to feed and clothe themselves and their children. Yet nearly every mother, with pathetic self-sacrifice, would manage to put aside at least sixpence a week from the time she knew of her pregnancy. This, even if not called out by emergencies, was all too little for the baby's clothes and the midwife's fee. The poor mother had too often to get up on the 3rd or 4th day to do her housework, and look after the children, while lacking all the little comforts and extra diet so needful. Under the Insurance Act, she receives £2—enough to provide a trained midwife, to get extra diet for herself, clothing for the child and perhaps a 'mothers help' to see to the house for a few days.

The next important Act was the Maternity and Child Welfare Act of 1918. The house to house visiting, the organisation of Infant Welfare Centres and the teaching of mothers, already mentioned, had been extended and developed during these years. In addition to voluntary workers, municipalities and county councils had taken it up. The new profession of 'Health Visitor' had been started. The good results as regards the child were visible everywhere and the infant mortality had already been reduced. The urgent necessity for such work was brought home to the people by the war, when troops were so badly needed and it was found that a large percentage of the volunteers had to be rejected as unfit. In some cases the boys were unfit owing to unsuitable antenatal conditions, or they had become unfit owing to neglect of skilled care and attention after birth. Yet Local Bodies had no power to spend money out of the rates on Maternity and Child Welfare work and could only employ Health Visitors by calling them 'Sanitary Inspectors.' The Notification of Births Act, although it gave impetus to the employment of Health visitors, did not provide for their pay, but the Notification of Births (Extension) Act of 1915 gave definite powers to the Local Bodies to levy money from the rates for Maternity and Child Welfare work. As time passed the expense became heavy and Treasury (Government) grants were first given in 1914.

The Maternity and Child Welfare Act greatly extended the activities for which these Government grants were available. They could now be obtained for Inspectors of Midwives, for Health Visitors and their work, for the teaching of mothers, for hospital treatment of mothers after confinement, for hospital treatment of children under five, for the feeding of poor mothers, for creches, nursery schools, etc., etc. It was provided that any municipality

or charitable organisation carrying on such work could get a refund of 50% from Government at the end of the year, or in other words, Government would pay half the cost of all such efforts for mother and child.

The Venereal Diseases Act of 1917 had an undoubted effect in reducing infant mortality. Government grants, similar to those given for Maternity and Child Welfare, were given for treatment centres and special arrangements were made for expectant mothers. The result of these and other measures has been, that the incidence of new cases of venereal disease in England has diminished by one half.

Puerperal fever became notifiable in 1899 under the Infectious Diseases (Notification) Extension Act. It has not, however, proved very successful, probably owing to the difficulty of being certain if a fever following delivery is 'septic'.

The Ministry of Health in London now has an organised department for Maternity and Child Welfare, controlled by a medical woman, who is assisted by other women medical officers. The effects of the different legislative measures are carefully watched and great pains is taken to consider the best means of further reducing maternal and infant mortality. Reports dealing with the questions of Maternal Mortality and the training of medical students and midwives in obstetrics have been issued from this department. A number of reports have been issued by the Medical Research Council on the diseases of pregnancy and the conditions of child life.

As a result of these measures and the energetic work which has accompanied them, infant mortality in England has decreased from 154 per 1000 births in 1900 to 70 per 1000 births in 1926, while maternal mortality has decreased from 4.81 per 1000 births in 1900 to 3.87 per 1000 births in 1926. The improvement, as will be noticed, is greater in the infant than in the maternal mortality.

* * * * *

Let us now consider the progress of Maternity and Child Welfare in India during the past 25 years.

By the close of last century a good deal had been done in the way of training midwives and efforts had been made in some places, especially by women medical missionaries, to teach the indigenous dais. An organised effort was made in the last direction in 1903, when the Victoria Memorial Scholarships Fund was

founded by Lady Curzon to encourage the training of indigenous dais throughout India. This, like the Midwives Act in England, may be looked upon as the beginning of organised effort in India.

About 1911 Lady Willingdon raised funds and opened Maternity Homes in Bombay, and in connection with them a system of house to house visitation and voluntary Health Visitors. A few years later Lady Lloyd collected large sums and the Bombay Infant Welfare Society was founded. In 1914 an important scheme for Maternity and Child Welfare was organised in Delhi and a Training School for Health Visitors was opened there in 1918. The Lady Chelmsford All India League for Maternity and Child Welfare was inaugurated in 1920. Further schemes were started in Madras, Calcutta, Rangoon and elsewhere. A National Baby Week was organised by Lady Reading in 1924, which has been widely adopted as an annual event. As a result Maternity and Child Welfare schemes are increasing in number and are often organised by Local Bodies as well as by voluntary organisations. The Red Cross, since the termination of the war, has taken up the work vigorously.

It will be seen there is one important difference between the activities in England and the activities in India. In England, in addition to voluntary effort, the history is one of continued legislation and large annual sums spent by Government. In India, it has been one of voluntary effort, started by women medical missionaries and the wives of officials and gradually becoming adopted by Local Bodies. Up to now, Government has not come forward to help voluntary and municipal effort by legislation and the assistance it has given by money is of a small and sporadic nature. There is nothing like a definite promise to encourage such work by a 50 percent grant. Nor has any Government made a special department of Maternity and Child Welfare nor appointed medical women organisers.

At the present time the situation in India is very much the same as it was in England in the beginning of the century, with the difference that education is more backward, medical relief much less common and the economic condition of the masses poorer.

The poor cannot afford the fees of the trained midwives and are often too ignorant to desire them. Hence the untrained dai delivers most of the mothers and is responsible for a high toll of

maternal mortality and infant deaths. Trained midwives are neither registered nor supervised and too often forget their training and sink more or less to the level of the untrained woman. Mothers are ignorant of the principles of infant rearing and all classes of people fail to realise the importance of ante-natal clinics and ante-natal research. Maternity and Child Welfare work is hampered for want of money. The women of the working classes have no funds to provide themselves with proper appliances at home for a safe and cleanly delivery, and if all could be persuaded to come to hospital, the hospitals would soon have to close their doors for want of space. Many a woman who does come to hospital goes home on the 5th or 6th day because there is no one to look after the house and children in her absence. Women mill-hands and labourers keep on in weariness and sickness to the last, because the children would starve without their wage. Venereal disease works its will among the innocent mothers and babies, and there are few indeed special clinics supplied with modern drugs and appliances. Maternity Homes, opening up in the large towns, are unregistered and unsupervised. Midwives and dais cannot call in a medical practitioner when necessary (except in connection with a very few municipal schemes) hence even after a difficult case is recognised, there is much delay before any relief can be got.—in fact, it is not uncommon for women to die undelivered, especially in the smaller places.

It is not easy to get at the maternal mortality in India, but the reports of the Medical Officers of Health for Bombay, Calcutta and Madras for the year 1926 put it down as respectively—12, 28, 21, and 16 per 1000 births. A rough calculation will shew that if the rate of maternal mortality is even as high as in Bombay throughout India, something like 100,000 women must die annually from this cause.

In refraining from taking action, Government has no doubt been influenced by two factors, the desire not to go ahead of public opinion, and the feeling that Maternity and Child Welfare should not be pressed at the expense of such urgent public health questions as the prevention of plague, malaria, etc. But as regards the former it is a fact that bold legislation may advance public opinion. It is a question whether all the legislative enactments of recent years in England would have been carried through had they been put to the country; they were carried through Parliament and the benefit was soon seen. As regards the proper place for Maternity and Child Welfare in Public

Health we must take people as we find them and there is no doubt that large numbers of the public, who look coldly on schemes for the prevention of malaria and plague, will be moved to enthusiasm for schemes for infant welfare. Government, by offering definite help for the inauguration of new schemes and the extension of existing ones, would tap many sources which would not be available for plague or malaria, however necessary and valuable such work is.

In India, in the past, successful work has often lapsed because the person who originated it and kept up local enthusiasm left the station. This would not have happened had the centre been in receipt of a Government grant and in communication with a well organised Child Welfare Department.

It is the interest and enthusiasm for Child Welfare of the more enlightened public which offers most hope for the future. Central charitable organisations are forming, or are already formed, in the larger Provinces, and are beginning to realise their responsibility for the mofussil as well as for the towns. In the Punjab this Central organisation, if not actually a Government Body, is at least closely connected with it. In the United Provinces, a medical woman, a Government servant, organises much of the Child Welfare work and gets generous financial help from Government. It appears as if it would not be long before Government assistance in all the Provinces takes a wider and more generous form than at present. A Bill for the registration of Nurses and Midwives was passed by the Madras Legislature several years ago, and it is said a similar measure will shortly be brought before the Bombay Legislature.

Let the public ponder these matters and see the great need for progress—not ill considered, erratic changes, but ordered progress, such as can be secured by legislation carefully planned in order to meet the special needs of the country and the people.

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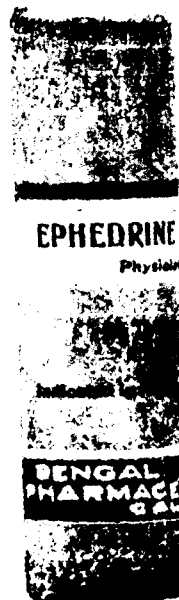
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X-RAY IN THE DIAGNOSIS

OF

ABDOMINAL PAIN

BY

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The various pathological conditions giving rise to abdominal pain are so very numerous, and the clinical pictures they present are so very similar to one another, that it is very difficult at times to diagnose them clinically. The symptoms described by the patients are often vague, the cardinal points required for differential diagnosis are often lacking in the patient's history, and the clinical similarity of different Pathological conditions is sometimes so close that it puzzles even a good Clinician, and may lead to a wrong diagnosis. Like pathology and bacteriology and often even more so, X-ray is of great help in clearing up the diagnosis of many such cases. Thus a case diagnosed as that of stone in the Kidney, proved on X-ray examination to be one of Osteoarthritis of the Lumbar Spine, and the referred pain was due to pressure of one of the osteophytic growths on the Ureter. Another case, which presented a typical clinical picture of Gastric Ulcer, revealed a stone in the Left Kidney under X-ray examination. A stone in the Right Ureter at the tip of the Transverse Process of the 5th Lumbar Vertebra was found to produce all the typical symptoms of chronic appendicitis. In a case which gave a classical history of Duodenal ulcer, a Skiagram revealed Gall-stones and a distended Gall-bladder and Hepato-fixation of the Pylorus due to perigastric adhesions. Again when a patient complains of pain and swelling in the Right Kidney region, it is very difficult to say whether the tumour is in connection with the Kidney, Liver, Gall-bladder, Duodenum, Stomach, head of the Pancreas, or the Ascending Colon. It is X-ray alone which can give us a definite diagnosis in such cases. It would be of interest therefore to the Clinician and Surgeon, to be familiar with the X-ray findings of some of the important pathological conditions associated with abdominal pain. We intend to describe and discuss a few such conditions, wherein Roentgenography is especially useful for diagnosis.

Gastric ulcer.—The X-ray findings in a case of Gastric ulcer are characterised by,—

- (1) Hypertonicity and hyperperistalsis.
- (2) Slow or rapid emptying of the stomach-contents, depending on the duration, site, and extent of the lesion.
- (3) A "niche" in the outline of the shadow at the site of the ulcer with a persistent spastic indrawing or "incisura" in the greater curvature opposite the ulcer.

An ulcer with some scar-tissue formation, when situated near the Cardiac end of the stomach, produces a typical Hour-Glass appearance due to spasm. An ulcer in the body of the stomach produces a typical "niche and incisura" appearance. An ulcer situated at the Pars Pylorica of the stomach is accompanied with markedly prolonged stasis and dilatation of the stomach. A penetrating ulcer presents besides the other characteristics a tiny bead of Barium protruding from the lesser curvature opposite the spastic indrawing in the greater curvature, whilst a perforating ulcer is revealed by the presence of a gas-bubble above the protruding bead of Barium. Ulcers of this type usually show a small speck of Barium shadow persisting at the site of the ulcer even when the stomach is almost completely emptied. But sometimes these characteristics are lacking and the presence of an ulcer has to be inferred only from hyperperistalsis, stasis of stomach contents, and persistent stoppage of peristaltic waves at the site of the ulcer which is generally found to be tender to pressure.

Carcinoma of the stomach: The usual characteristics of this are:—

- (1) Irregularity in the outline of the stomach-shadow.
- (2) Sluggish, irregular, reversed or absent peristalsis.
- (3) Rapid or delayed emptying of the stomach, depending on the situation and duration.
- (4) Loss of flexibility of the stomach-wall at the site of the lesion.

When the lesion is situated near the cardiac end of the stomach the first mouthfuls of Barium appear in irregular jets and are delayed at the Cardia, and the deformity in the shadow of the rigid fundus is not changed as usual with deep inspiration. Large growths in the body or (antrum) produce a ragged annular defect in the outline, which is constant at all times, peristalsis being absent at the site of the lesion and irregular, sluggish or absent

elsewhere. In Syphilis the Roentgenographic appearances are similar, but the patient is not so exhausted as might be expected from the extent of the lesion. Perigastric adhesions and extra-gastric tumours may produce similar defects in the outline of the shadow, but these conditions can be easily differentiated by the absence of gastric stasis. A diffuse Scirrhus Carcinoma of the body reveals a smooth rigid outline with a gaping Pylorus, absence of peristaltic waves and a contracted rapidly emptying stomach. A Pyloric Carcinoma is revealed by a funnel-shaped shadow at the Pyloric end with a rapidly emptying stomach and absence of dilatation as opposed to chronic pyloric ulcers, which are always accompanied by dilatation. The lesion in Pyloric Carcinoma is usually much larger than what is apparent from the Skiagram.

It is at times very difficult to determine whether an ulcer of the stomach is simple or malignant, but a diagnosis may be arrived at by noting the following points.—

- (1) The appearance of the crater is much larger when it is of malignant nature.
- (2) Peristalsis is absent, sluggish or reversed in malignancy whereas it is simply exaggerated in simple ulcers.
- (3) Presence of stasis and dilatation which is more marked in cases of simple ulcers.

Duodenal ulcer.—A duodenal ulcer is otherwise easy to diagnose clinically, but sometime perigastric adhesions due to chronic Cholecystitis and even appendicitis produce very similar symptoms. The X-ray findings of Duodenal ulcer are characterised by:—

- (1) Persistent deformity in the outline of the Duodenal Bulb.
- (2) Hypertonicity and hyperperistalsis of the stomach.
- (3) Rapid emptying of the stomach contents.
- (4) Tenderness to pressure at the site of the ulcer.

The Duodenal cap is normally seen as a triangular shadow above the Pyloric end of the stomach and connected to it by a narrow streak of Barium. A Post-pyloric ulcer produces a typical coral-shaped deformity of the Duodenal cap. Many other conditions, such as Gall-bladder disease, Pancreatic disease, extra-

gastric tumours and appendicitis may cause a deformity of the Duodenal cap but it is not usually coral-shaped and a diagnosis of Duodenal Ulcer should not be made unless the stomach is hyper-peristaltic and empties rapidly, and there is tenderness to pressure at the site. An ulcer may be present even when there is no defect in the filling up of the Duodenal cap and should be diagnosed by the other characteristics noted above especially if there is tenderness to pressure.

The second and third portions of the Duodenum are not normally visible in an X-ray examination with Barium-meal as the food passes forward very rapidly there, but when there is an ulcer and obstruction due to adhesions or Pancreatic disease, the Barium is seen to be arrested there and pendulum like movements of the Barium-mass with visible and reverse peristalsis are observed.

Cholecystitis:—Gall-stones and Gall-bladder disease can be easily diagnosed when a typical history of Biliary colic associated with jaundice and clay-coloured stools is present. But often such history is not forthcoming and a definite diagnosis can be arrived at by thorough Roentgenography alone. Unfortunately, as Gall-stones are not opaque to X-rays unless they contain a sufficient amount of Calcium, only about 20 to 25 per cent of the cases show definite ring-shaped shadows of Gall-stones under X-ray examination. Again when shadows of Gall-stones are present in a Skiagram, it is sometimes very difficult to distinguish them from Stones in the Kidney, though the chief distinguishing points are:—

(1) Gall-stones cast ring-shaped shadows as opposed to Kidney stone shadows which are uniform in density and different in shape.

(2) The shape of the organ in which they are contained, when the Kidney outline or the Gall-bladder are faintly visible in a Skiagram.

(3) Their relation to neighbouring organs, especially to the stomach filled with Barium.

(4) X-ray findings after Pyelography or administration (oral or intravenous) of Sodium Tetra-iodo-phenolphthalein, which is a dye secreted by the Liver and renders the Gall-bladder and Bile-ducts opaque to X-rays. The latter is not however absolutely without harm and should be administered with great caution.

But chronic Cholecystitis may be diagnosed only from the appearances of the stomach after a Barium-meal. The distended Gall-bladder produces by pressure a smooth rounded sickle-shaped depression in the outline of the stomach near the Pylorus and a filling defect in the Duodenal cap due to pressure or associated spasm. In chronic cases perigastric adhesions are formed and the Pylorus is drawn over to the right side and fixed to the under-surface of the Liver and Gall-bladder, and the stomach assumes a more or less transverse position. A diagnosis of chronic Gall-bladder disease may be given only from these data even in the absence of any gall-stone shadow.

Pancreatic Disease:—Enlargement of the Head of the Pancreas generally produces distension of the Gall-bladder by obstructing the Common Bile Duct and obstructs the passage of the food through the second and third portions of the Duodenum occasionally, so that the Barium-meal is seen there in pendulum-like masses. A patient, male, aged about 40, had persistent jaundice and a soft moveable tumour with rounded edges in the Right Hypochondriac and Lumbar regions. But the most typical feature of this case was that there was no pain. X-ray showed an enormously distended Gall-bladder, causing displacement of the stomach by pressure. The X-ray diagnosis was given as Carcinoma of the Head of the Pancreas or of the Bile Ducts. An operation was performed and Carcinoma of the Head of the Pancreas with an enormously distended Gall-bladder was found.

Appendicitis:—The next and one of the commonest causes of abdominal pain is appendicitis. Owing to the great number of other conditions which simulate it, an appendix should seldom be operated upon unless the diagnosis is confirmed by X-rays. The X-ray findings of an inflamed appendix are characterised by

(1) A residue in appendix, even after the Cecum and ascending Colon are empty and persisting for more than 32 hours.

(2) A tortuous and beaded appearance of the appendix sometimes showing adhesions.

(3) Stasis in the Cecum, terminal coils of Ileum and also in the large intestine.

(4) Tenderness to pressure at the sight of the appendix.

The other X-ray findings associated with an inflamed appendix are (1) Hypertonicity and hyperperistalsis of the stomach with rapid emptying in a few cases; (2) deformity of the Duodenal cap due to reflex spasm; (3) fixity of the Cecum due to inflammatory adhesions.

Sometimes the appendix fails to fill owing to spasm of fibrous contractures, but a diagnosis can be arrived at by noting Ceacal fixity and stasis and the other characteristics mentioned above.

Mucous Colitis.—Chronic appendicitis is often associated with colitis and patients operated upon for Appendicitis often return for symptoms of Colitis. Every surgeon should therefore ascertain if the chronic appendicitis is associated with colitis and advise after-treatment accordingly. The chief characteristics of Colitis are:—

(1) At the site of lesion in colon narrow streaks of barium are seen when Barium meal reaches that part.

(2) Large Intestines are seen to be tubular after the administration of Barium-enema and the haustrations that are normally seen are absent.

Adhesions of the Colon to the Hepatic or splenic Flexures or of the Transvers Colon with the Mesentery are sometimes present and should be carefully looked for in cases of obstinate constipation. Strictures caused by Tuberculous, Syphilitic, Dysenteric or malignant disease can well be diagnosed by X-rays. An ulcer of an inflammatory nature will show a very narrow chink of Barium due to reflex spasm at the site and dilatation with hyperperistalsis in the proximal part of the Bowel. Such a stricture will have to be diagnosed from an obstruction due to Carcinoma of the Bowel, which likewise shows a narrow chink of Barium, but the outline in the latter case is irregular and ragged showing as if it were indented with fingers whereas a spasmodic narrowing due to ulcer has quite a smooth regular outline and may change as the spasm passes away.

We have so far considered the chief causes of Intestinal and Biliary Colic. We now turn to renal colic. The common varieties of renal calculi are fortunately opaque to X-rays and show well in good Skiagrams. We have already considered the chief characteristics of the Roentgenographic appearances of Renal Calculi while discussing the Differential Diagnosis of Gall-stones, and it is not difficult to detect their presence when

the Kidney outline is faintly visible in a Skiagram, as it should be in all Skiagrams from which definite diagnosis is made. Pyelography is also of great use in detecting stones in the Kidney, and Ureters, but it should not be undertaken without the co-operation of an expert surgeon.

It must well be remembered in diagnosing the cause of abdominal pain that various diseases of the Spine produce reflex abdominal pain by pressure on the Nerve-roots.

The chief of these are:—

(1) Tuberculous disease of the Spine, characterised by diminution of the intervertebral spaces and destruction of the bodies of vertebrae.

(2) Spondylitis Deformans characterised by presence of osteophytic growths especially at the site of attachment of the ligaments.

(3) Kyphosis, Scoliosis, and Lordosis of the Spine.

(4) Aneurysm of the Descending Aorta causing destruction of the bodies of the vertebrae, the intervertebral spaces remaining intact.

(5) Fractures, dislocations, Tumours, etc. of the spine.

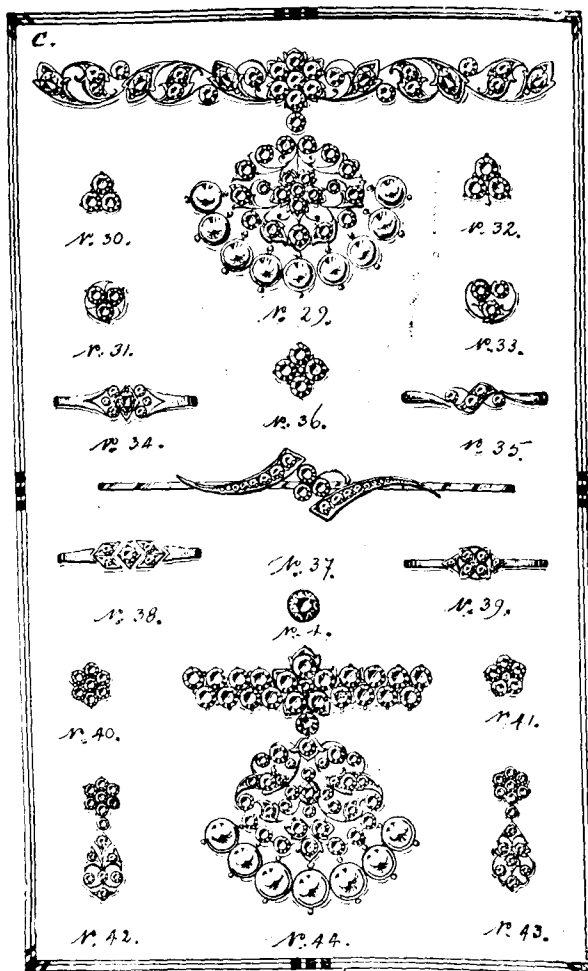
We have so far considered some of the most important Pathological conditions, associated with abdominal pain. There are many others of equal interest but we cannot discuss them here for want of space. It will be seen from what has been said so far, that X-ray is of immense help in arriving at an accurate diagnosis in many puzzling cases and in the modern days of rapid scientific advance, every case should have the advantage of getting the clinical diagnosis confirmed by a thorough X-ray examination, before submitting to the risk of an abdominal operation. Every case of abdominal pain should be thoroughly examined under X-rays to exclude every possible organic cause, before being stamped and treated as neurasthenic or Hysterical. It is well to remember however that there are some sort of cases which cannot yet be diagnosed by X-ray examination and that the interpretation of all Skiagrams is not infallible. For Skiagrams are after all Shadowgraphs, composed of shadows of different densities caused by structures differing in their opacity to X-rays and the skill in their interpretation lies in co-relating the appearances to Pathological changes in internal structures and the Clinician, the Surgeon, and the Roentgenologist must henceforth co-operate to make rapid advancement in the realm of Roentgenographic research.

DESCRIPTION OF X-RAY PLATES.

- Fig. I. Hour-glass Stomach due to old gastric ulcer.
- Fig. II. Ulcer at the Pyloric end of the Stomach. Note the dilatation of the stomach.
- Fig. III. Photo of the same patient as in Fig. II, taken 18 hours after Barium-meal. Note the residue, still persisting in the stomach.
- Fig. IV. Carcinoma, pyloric end of the Stomach. Note (1) the irregularity in the outline of the Pyloric end of Stomach and (2) absence of dilatation and peristalsis of the stomach.
- Fig. V. Old Duodenal ulcer with cicatricial contractions. Note the (1) 'Coral-shaped' deformity of the Duodenal cap and (2) hyperperistalsis of Stomach.
- Fig. VI. Cholelithiasis with perigastric adhesions. Note (1) the displacement towards the right and Hepato-fixation of the Pyloric end of the stomach. (2) Sickie-shaped depression in the outline of the stomach at the Pyloric end. (3) and two gall-stones (Faint shadows indicated by the arrow.)
- Fig. VII. Deformity in the outline of the stomach due to pressure of the Hepatic Tumour on the lesser curvature.
- Fig. VIII. Enormously distended Gall-bladder, displacing the Stomach downwards and to the left.
- Operative findings:—Carcinoma, Head of Pancreas, causing obstruction of Common Bile Duct.*
- Fig. IX. Appendicitis (chronic). Photo taken 32 hours after Barium-meal. Note. (1) the tortuous, beaded, and kinked appearance of appendix and (2) persistence of residue in it even after cæcum and Large Bowel are empty.
- Fig. X. Malignant Tumour of the cæcum and Ascending colon. Note. (1) the irregular outline of the cæcum (2) and narrow irregular chink of Barium above the cæcum.
- Note also the associated mucous colitis in Transverse and Descending Colon, shown by (1) the long streaks of Barium and (2) absence of haustrations.
- Fig. XI. Obstruction of the Descending colon due to pressure of a mass of Tuberculous mesenteric glands. Note (1) Stasis and dilatation of cæcum and transverse colon and (2) displacement of the Transverse colon to the right side.
- Fig. XII. Stone in the Pelvis of the Left kidney.



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RECENT DEVELOPMENTS IN THE SURGERY OF THE GASTRO-DUODENAL REGION

BY

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The Gastro-duodenal tract which is important surgically includes the stomach (especially the Pyloric half) and the first part of the Duodenum. This tract forms the main region where the most important changes in the process of digestion take place. Every important pathological condition in this tract has some direct or indirect connection with the process of digestion.

The first step in digestion is a matter of hydration of food through the action of ferments in an alkaline or acid medium. The tonicity of œsophagus depends upon the innervation of the Vagus. The nerve is stimulated by the action of eating as is shown by the action of eating on circulation.

Upon relaxation of the cardia (which occurs when food reaches the end of œsophagus) there is a momentary inhibition of the movements of the stomach. Therefore gastric distress accompanied by over-tonicity of stomach is promptly relieved by swallowing of food.

The Stomach-Cardia is at the left border of the sternum behind the 6th & 7th costal cartilages and its superior border corresponds posteriorly with the 2nd, 3rd or 4th lumbar vertebra. Normally the lower border of the stomach is 2 to 3 cm. above the umbilicus.

The mucous membrane is covered with columnar epithelial cells which are mucus secreting goblet cells. Substance of mucosa is made up of peptic glands. The small Pyloric vein marks the junction of Pylorus with Duodenum.

Nerve Supply—Intrinsic—Meisner's plexus and Auerbach's plexus extending between the outer longitudinal and the inner circular layers of stomach, œsophagus and intestines. *Extrinsic* is from three sources. (i) from the bulb reaching the stomach through the Vagi. (ii) from the Sacral Nerves. (iii) from the Sympathetic.

Auerbach's plexus is called myenteric plexus. This inaugurates the peristaltic wave in œsophagus, stomach and intestine. Effects of myenteric reflex, is to produce a zone or ring of contrac-

tion immediately below which there occurs relaxation of muscle. The walls of the stomach should be in a state of tonus, for the myenteric reflex to act. The peristaltic wave starts near the pylorus or midway between Pylorus and Cardia, at different stages of digestion.

Vagus produces the tonus. So vagus prepares the way for peristalsis. The stomach contents contribute by making possible intra-gastric pressure. The interaction of internal pressure, and tonus excites the myenteric reflex and the peristaltic ring. Sympathetic nerves antagonise the action of the Vagus.

Physiologically, the stomach is divided into two parts. (i) The larger towards the Cardiac end—serves as a receptacle of food held under pressure through the tonicity of muscle. Little digestion occurs in this part except that which is produced by the action of ptyaline by its amylolytic power. (ii) Lesser part of the stomach towards the Pyloric end—which soon after ingestion of food takes on active peristalsis. Its contents soon become acid. The gastric juice accumulates there and mixes with the chyme and softens the solid food, and discharges through the Pylorus the soluble portion. Half an hour is required for a solid meal to be acidulated. Pylorus opens under duodenal reflex—acid chyme going into duodenum closes pylorus, but when it is neutralized by alkaline bile, Pylorus opens and more chyme goes out. Stomach normally gets empty four or five hours after an ordinary meal.

Gastric Secretion—It consists of hydrochloric acid, water, ferments, zymogens, mineral salts and mucous. Pepsin and renin are secreted by chief cells. HCl by parietal cells and mucus by goblet cells.

Gastric juice secretes by (i) stimuli of psychic-centre. Impulse is carried through the Vagus nerve. Food like meat, broth, etc., excites secretion. The secretion depends upon the mechanism of a chemical signal and only in part on vagus and autonomic (Sympathetic) stimuli. Some hormones, lying in the mucous membrane of the pylorus also start gastric secretion. The function is more dependent upon nerve control, than the pylorus, even having an element of cerebrospinal or voluntary nerve control.

To test the gastric contents Ewald's Test meal is given. It consists of 90 grms. of white bread and 300 c.c. of water. Contents of the stomach are withdrawn after an hour. Normally 30 to 80 c.c. are detained. Anything above 200-300 c.c. is abnormal and may indicate hypersecretion, lack of motility and Pyloric obstruction. The colour of gastric contents with Ewald's test meal is whitish. Green colour is due to Chromogenic bacteria and not to

bile. In hypersecretion it may be thin turbid fluid containing no solid matter.

Chemistry of gastric contents—(i) Acids—Hydrochloric acid, Lactic acid, Butyric acid and Acetic acid, (ii) Ferments and Zymogens—Pepsinogen, precursor of pepsin secreted by the cells of glands in the Fundus. This is found in the quiescent stage of the stomach. In the active stage pepsin is found. This is active only in acid solutions. (iii) Renin and its Zymogen (iv) Mucus, sometimes (v) Blood,

X-Ray Examination—The Duodenal cap is a small shadow above gap formed at the pyloric site.

Pyloric spasm. In the antrum Pyloric towards the Pyloric ring the shadow is thinned out irregularly furrowed and lined by longitudinal rugæ of the mucosa. *Obstruction of the Pylorus* is shown by Bismuth appearing pressed into antrum Pylori ending abruptly at the sphincter. Duodenal cap is absent.

Cholecystitis. Antrum Pylori may show over-filling and no bismuth escapes.

Overtonic stomach—Little or no peristalsis; stomach is elongated.

Atonic stomach—Lower end is distended. The bismuth is not held well in the stomach but sinks down to a lower level. There is scanty filling of the Duodenal cap.

Gastric ulcer—There is persistent spastic bi-loculation formed by a narrow band of contraction; that involves the greater curvature and leaves the lesser curve which is held in place by gastro-hepatic omentum without a dent. This is diagnostic when accompanied by a point of circumscribed tenderness. It is more significant if the contraction occurs at the same place incessantly. It disappears on the injection of atropine. There is a small distinct shadow on the lesser curvature at the site of the ulcer separated from the main shadow of the stomach giving the effect of a small diverticulum. This is opposite the contraction in the greater curvature and is due to weakness in the muscles caused by the ulcer.

Duodenal Ulcer—The stomach rapidly empties the bismuth into the duodenum. The duodenal cap is contracted and has a worm-eaten appearance. Duodenal surface of the pyloric sphincter is irregular.

Cancer of the Stomach—Position of the stomach is irregular and unnatural. Peristaltic waves halt at the beginning of the tumour. The shadow is irregular undulated and sharply defined. Certain regions of the stomach appear cut out. The border of the shadow is thin with ragged torn edge or worm eaten.

SPASM OF THE PYLORUS

Normally contraction of the Pylorus is a result of reflex. When gastric juice is sufficiently acid after taking food, the acid chyme squirts into the Duodenum. Through the action of the Duodenal reflex this acidifying of the contents of that organ stimulates the pylorus to contract. This remains closed until the chyme which enters the duodenum becomes neutralized. The pylorus then opens and squirting of acid chyme again starts. When there is an obstruction in the intestines or some irritating region, inhibition of the Pylorus occurs,—pyloric spasm. This causes dyspepsia, nausea, vomiting, etc. Gastric stasis occurs.

The irritation that produces the spasm may reside in the pylorus itself—ulceration or inflammation, or it may be due to disease in other parts of the intestinal canal. Pyloric spasm is always associated with hyperchlorhydria. When it is functional it is due to vagotonia. Gastric hormone may be responsible for this. In spasm due to vagotonia injection of atropine may help.

Treatment—Plain unstimulating diet. Over-acidity is neutralized and spasmodic condition overcome by sodium bromide etc. Milk of magnesia and cerium oxalate are very useful. Adrenaline given subcutaneously relieves the pain.

GASTRIC AND DUODENAL ULCER

Morbid Anatomy—Gastric ulcer is often multiple while duodenal ulcer is usually solitary. Gastric ulcer of recent formation is usually small in size but later on it may involve a considerable portion of the organ. Chronic gastric ulcer may attain very large dimensions. Similar is the case with duodenal ulcers. The majority of the ulcers of the stomach are situated in the pyloric region and on the posterior surface of the organ, nearer to the lesser curvature. The usual seat of the duodenal ulcer is the first part of the duodenum close to the pylorus.

According to Moynihan there is no special ulcer either pyloric or juxtapyloric. An ulcer is either gastric or duodenal. A duodenal ulcer is almost always half an inch or more from the pyloric opening and a gastric ulcer is very rarely within an inch and a half or more from the pylorus. "A pyloric stenosis is really duodenal stenosis."

Ætiology—Meat eating cannot be said to be an important item in the ætiology of gastro-duodenal ulceration as in the case of appendicitis, as it is found as commonly among vegetarians as among meat eaters. Gastric ulcer is more common in women, while duodenal ulcer is more common in men.

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Autodigestion—There is inherent in the gastric mucosa, a resistance to the digestive action of its own secretion. A single round area might lose its resistance to gastric juice and may be the starting point of an ulcer. Disturbance of Internal Secretion inhibits the local production of antipepsin and gives rise to cyto-toxic substances.

Arteriosclerosis and obstruction to circulation—Thrombosis of vessels leading to hæmorrhagic necrosis in the presence of active gastric juice may lead to ulcer.

Lymphangitis—As a result of lymphangitis and arteritis, the nutrition of tissues is depressed and ulceration might form. Lymphatic tissue is most common at the pylorus where also ulceration is most common.

Contraction of the walls, and infolding of the gastric mucosa, take place to a limited degree in the region of the mucosa between Pars Pylorica and lesser curvature where ulcer is most common. So lack of infolding of the mucosa, may be one of the causes.

Bacterial infection—Such as mouth infection or infection from the gall bladder or appendix. Toxins in the blood also are held responsible.

Hyperchlorhydria—and hyper-secretion are contributory causes but not the essential causes.

Epigastric Hernia—is sometimes said to be the cause of gastric ulcer through the intervention of the nervous system.

Nervous and Neuropathic Influences—Gastric ulcer is apt to occur in the Hysterical. Dermatitis Multiformis which is related to the nervous system may cause ulcer. Idiopathic hæmatoma Auris is found in the insane appearing in the concha. Othæmatoma is found in those suffering from central nervous disease in which the sympathetic system is much involved. A similar process may occur in the stomach.

Injury to the Vagus—below the diaphragm is followed by ulcer.

Ulcer has been formed in animals by hypodermic injection of *Pilocarpine* and *Physostygmine*. Atropine which inhibits the vagus should occupy a more important place in the treatment of ulcer and its prevention when there exists local irritation like appendicitis, Cholecystitis, etc., which might cause vagal irritation and spasm.

Trophic Neurosis is one of the causes. Lack of the normal immunising antibody of the tissues and their subsequent digestion are the causes of ulcer. Vagal irritation is a contributory cause.

Duodenal Ulcer—In addition to some of the causes given, above the following are believed to be some of the causes which contribute to the formation of Duodenal Ulcer.

A terminal branch from the Hepatic Artery without any connections supplies the first part of the duodenum. Any pathological condition which causes thrombosis of this terminal branch will bring on necrosis of the portion of the duodenum supplied by it, thus forming the basis of an ulcer.

Acid chyme—On opening of the Pyloric sphincter constantly squirts on the anterior wall of the first part of the duodenum thus irritating it and causing ulceration.

SYMPTOMATOLOGY

Gastric Ulcer usually starts with symptoms of disordered digestion which are gradually replaced by paroxysmal pain.

Pain—This constitutes the first in order of occurrence and also the most frequent symptom. It is paroxysmal. It commences from five to twenty minutes after the ingestion of food and reaches its maximum at the end of about two hours after which it gradually declines and finally disappears at the conclusion of the period of gastric digestion. As a rule the pain is localised to the epigastrium in the median line of the abdomen about one inch below the tip of the ensiform cartilage. Pain in the back also may exist at any spot in the vertebra usually between the eleventh dorsal and first lumbar vertebra and slightly to the left of the median line. It may radiate up the sternum towards the shoulder. It is always increased by pressure. Mental emotions and intellectual overstrains are apt to excite an attack; so also sudden impairment of the general health due to some illness.

The pain is supposed to be due to (1) direct irritation of the ulcer by the ingested food (2) movements of the organ occurring after meals. (3) Presence of an abnormally acid gastric juice.

Vomiting—This symptom is less constant than pain. It may ensue as soon as the pain becomes severe thus reducing the pain or it may occur between meals. When an ulcer is at the Pylorus causing it obstruction the vomiting is excessive in quantity, sour smelling containing an excess of hydrochloric acid and is repeated at irregular intervals.

Hæmorrhage—(hæmatemesis and melæna). Every case of gastric ulcer is accompanied by some oozing and the blood is eliminated by the bowel in a condition so changed as to escape recognition on casual examination of the fæces.

Sudden profuse hæmorrhage might occur in a chronic case by the destruction of one of the larger gastric vessels. It is usually preceded by a severe pain occurring after a long interval. It occurs as a rule shortly after a meal. Sudden exertion, increased blood pressure due to heart or kidney diseases may be the contributory causes. The patient becomes anæmic, restless, thirsty, cold and prostrated. Pulse is quick and jerky. There is giddiness and noise in the ears. Urine is pale, abundant and contains albumen.

Perforation—It may occur quite suddenly or may be preceded by premonitory symptoms like increase in the pain, vomiting, or hæmatemesis. There is severe prostration with pain, feeble pulse, dry tongue and suppression of urine sometimes. It is quickly followed by symptoms of peritonitis.

Disorders of digestion—The most prominent are (besides pain) discomfort after meals, flatulence, acidity, nausea and constipation. These are due to Chronic gastric catarrh and acidity.

Physical signs—The presence of a tender area in the epigastric region just below the tip of ensiform cartilage. Two or three teaspoonful of salt dissolved in a tumblerful of water or dilute HCl. (4%) swallowed by the patient gives rise to pain especially, when given on an empty stomach.

Local tumour like feel may be obtained in a chronic ulcer when excessive thickening of the tissues around the ulcer has occurred.

Examination of contents of the stomach—The amount of hydrochloric acid is increased.

In Duodenal Ulcer—The pain occurs two and a half to four hours after a meal and radiates to the right costal arch over the upper part of the abdomen and back and is relieved by food—the so-called "Hunger pain". Vomiting is not very common. Seasonal variations of pain and variation according to place are more common in duodenal ulcer. Other symptoms are common with those of the gastric ulcer.

DIFFERENTIAL DIAGNOSIS

Hyperacidity—The pain excited by ingestion of food develops after one or two hours after the meal. The intensity extends over the whole of the abdomen and chest. Regurgitation of acid fluid might occur. These attacks are temporarily relieved by draughts of warm water or milk or carbonate of soda. Vomiting is rare, hæmetemesis never occurs and localized pain of ulcer is absent.

Biliary Colic—The symptoms only appear at intervals and occur independently of meals. The pain is more severe and commences abruptly. Its chief site is right hypochondrium and just above the umbilicus. Pressure affords some relief. Vomiting does not afford relief and hæmetemesis never occurs.

Abdominal Crisis of Tabes—Occurs when the stomach is empty and at irregular intervals. Knee jerks absent, etc.

Cancer of the Stomach—Debility, loss of flesh etc. precede the local phenomena. The epigastric pain is lancinating in character and constant and less dependent upon the nature of the food. Nausea is most frequent in Cancer and vomiting increases the pain. Profuse hæmetemesis is rare but small quantity of black blood mixed with mucus is frequently observed. Anorexia is an early symptom. Tumour in epigastrium is more frequently felt. Free HCl. is rarely observed in stomach contents. Leucocytosis rarely observed in cancer while it occurs in ulcer. Milk diet increases the pain in Cancer.

Chronic Appendicitis—The pain extends more downwards and there are symptoms of irritation of the intestines and the colon. Tenderness is most marked in the right iliac fossa.

Treatment—Medical Treatment has certain limitations and should not be persisted indefinitely. Before operative treatment is undertaken any infective condition of the mouth should be treated.

Gastro-enterostomy once upon a time was supposed to be the operation for gastric ulcer. It does relieve the symptoms to a certain extent but nowadays it is not considered to be the ideal operation as it does not give permanent relief especially when the ulcer is situated away from the pylorus. This combined with Balfour's cautery is more useful. Sometimes gastro-enterostomy in Y is combined with Jejunostomy to give complete rest to the ulcer.

For Gastric Ulcer—Partial gastrectomy combined with anterior no loop method of gastrojejunostomy gives the best results.

For Duodenal Ulcer—The following three methods have been advocated (1) Excision of the ulcer; (2) Anastomosis of the Stomach to the Duodenum; (3) Anastomosis between the stomach and jejunum.

1. *Excision of the Ulcer*—This is possible when the ulcer is small in size situated on the anterior surface and single.

2. *Anastomosis between the stomach and the Duodenum*—The objections to this operation are—that one has to cut through a septic ulcerating surface. The ulcers are usually callous œdematous and adherent to neighbouring parts so that mobilization of the Duodenum is not possible or easy. In favourable cases the results are excellent.

3. *Gastro-jejunostomy*—"When properly performed on suitable cases few operations are so completely satisfactory as gastro-enterostomy." (Moynihan). The following precautions should be taken before and during the operation of gastro-enterostomy. Some days before the operation the patient is given glucose by mouth and rectum in 15 per cent solution with carbonate of Soda never with salt."

During operation the following precautions are essential; (1) The finest absorbable catgut should be used for the serous suture. (2) Development of a hæmatoma should be avoided along the suture line at the time of operation. (3) Bruising of the parts by the clamps employed at the operation especially by the jejunal clamp should be avoided.

A little over 1 per cent of cases treated by gastro-enterostomy are found to develop jejunal ulcer. The causes are supposed to be failure to take the above precautions and deficient after treatment of the case. Persistent hyperacidity of the stomach should be counteracted by suitable medical measures and dietary. Recrudescence of old infection in the mouth or abdomen like septic teeth, infective gall bladder or appendix should be stopped.

After gastro-enterostomy in Duodenal Ulcer, the ulcer itself should be treated by cautery or by infolding the Duodenum and burying the ulcer in it. This gives the best results and lessens the chances of the formation of jejunal ulcer.

SOME SUGGESTIONS ON THE DIAGNOSIS OF EARLY TUBERCLE

BY

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The aim of treatment in any disease is to bring about a cure. The basis of all successful treatment is early diagnosis. The latter is especially true of pulmonary tuberculosis which is a disease of long duration, presenting a varied picture in its pathological aspect, and presenting a symptom-complex requiring a careful study. Diagnosed early therefore, pulmonary tuberculosis is a curable disease; diagnosed later the odds are, as a rule, against the patient. It is unfortunate that most cases of this disease in our country do not present themselves for treatment until a chance for a real cure is past. Indeed, if we were to investigate critically the histories of patients suffering from this disease it will reveal a woeful number of missed chances both on the part of the patients and the doctors.

The patient hides his head in the sand and fails to seek the advice when he knows he ought to, because in his heart of hearts he has already made the diagnosis, but, fears to face its confirmation. Consumption is so much feared in this credulous country that no patient is said or believed to be suffering from it unless and until he becomes bedridden and emaciated—becomes a really true picture of consumption in its last stages.

There is a general feeling that for a 'non-tuberculous' to be labelled as 'consumptive' is more calamitous than for a consumptive to be declared as 'free from consumption.'

It is not realised that the hygienic-dietetic treatment of consumption, even if wrongly diagnosed can do the patient little harm; it may, on the other hand, do a lot of good to his general health.

A very important reason of failure on the part of a doctor is the failure to recognise the fact that early disease manifests itself almost always in the form of symptoms. Too much reliance should never be placed on physical signs in the diagnosis of early disease. In many cases of early disease the stethoscope may prove absolutely useless and if undue importance is given to its findings it may become a dangerous instrument. Many a time it

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has been found that for want of sufficient stethoscopic evidence other obvious and even glaring warnings have been overlooked. To base a diagnosis on stethoscopic evidence alone, therefore, is nothing short of cruel wrong done to the patient. I have seen several cases of active disease, which for want of definite physical signs in the lungs have been treated for Malaria, enteric fever, influenza or anything but consumption. I cannot too strongly emphasize this fact on the medical profession. Many blunders are made on account of it.

The symptoms of the disease vary in different patients. It is not necessary that the patient must have cough or spit blood or have pleurisy or lose weight in order to have the disease. This is based on old ideas of the disease, long disproven. Careful study has shown that the symptoms are variable and that in one patient one group of symptoms may manifest themselves while in another patient other group may manifest. The golden rule to remember is that there is no golden rule for the diagnosis of early tubercle. Each case must be judged on its own merits.

Frequent and protracted attacks of cold and catarrh should not be taken lightly. Colds that are drawn out week after week, especially if frequently repeated, sometimes constitute the most conspicuous feature of tuberculosis. This likelihood is strengthened if one has formerly enjoyed a relative freedom from it. Many of the so-called colds and many supposed attacks of what is called 'flu' are not always what they seem but may actually be waves in the course of the disease. It must also be remembered that colds lower the resisting power of the body and render the soil fertile for the growth of the tubercle bacillus. Not only, therefore, does tuberculosis favour the development of colds and the cold in turn favours the extension of the parent disease but tuberculosis itself often has periodical outbursts closely resembling true colds.

Hæmoptysis is a frequent but not an invariable symptom of phthisis but it is frequently ignored and futile attempts are made to explain it away. Many patients deceive themselves and, not infrequently, medical men are themselves deceived by imagining that the blood is coming from the throat or the gums. If blood is coughed up it may be safely assumed that it is coming from the lungs, no matter how small the quantity. The occurrence of hæmoptysis immediately before or after a cough should be considered as pointing to some mischief in the lungs and due attention be given to it. If there is any one symptom of early tuberculosis that should always be interpreted in the interest of

the patient, it is the spitting of blood. It need not be preceded or followed by other symptoms pointing to pulmonary tuberculosis.

Sometimes in women, blood spitting takes place at the time when menstruation is expected. This leads to the erroneous belief that the bleeding is only Nature's way of compensating for the absence of the usual monthly flow. The fact is which must not be forgotten, that true and simple vicarious menstruation is rare and bleeding from the lungs seldom occurs at the time of the expected monthly flow, save when these organs are attacked by the tubercle bacillus or unless some other serious condition exists.

Pleurisy is another important symptom ignored by the profession. Pleurisy coming by itself, for known reason, is almost invariably tuberculous in origin and due weight should be given to it. Pleurisy is a metastatic infection from some other focus in the body (usually in the lungs) which must be active, otherwise, the metastasis would not occur. It should therefore be treated seriously.

If instead of calling pleurisy by its simple name, we would call it by its true name 'active tuberculosis of the pleura' we would have far more respect for it and often give our patients the advantage of diagnosing a tuberculous involvement as soon as it manifests itself.

The psycho-pathology of tuberculosis, so important from the point of view of diagnosis in the latent and early stages of the disease has not so far received that consideration which it deserves. It shows that there is a psychical state which may be fairly referred to as specially characteristic of tuberculosis.

In many cases the disease manifests itself in the form of what may be called Neurasthenia or psychasthenia or hysteria. The tubercle toxins which are given off from the semi-quiescent foci, so frequently present in early life and adolescence, are responsible for these states. The cerebral cells are bombarded and intoxicated by them.

The reaction on the part of the patient is shown by the nervous instability and premature sense of physical fatigue and as there is nothing to call attention to the lungs it is no wonder that diagnosis of Neurasthenia is made. Tuberculosis should therefore, always be suspected as one of the etiological factors in neurasthenia coming on in early life.

The reflex disturbances arising from this tuberculous toxæmia are generally noticed in the digestive system and flatulence and heartburn are common accompaniments. The patient may also

complain of vague abdominal pains, feeling of distension, constipation, nausea, vomiting, etc., etc.

All these symptoms are classified by the unwary doctor under that vague and ambiguous term 'dyspepsia' and the unfortunate victim is drugged with all sorts of things resulting in secondary dyspepsia and the patient becomes the worse for taking the drugs. It has been aptly said that the phthysical patient literally fights for his life in his stomach and if this is thrown out of gear his chances of recovery are very much affected.

The development and persistence of dyspepsia of varying severity in a young and otherwise apparently healthy person, without any definite cause, should therefore, be regarded with suspicion.

Among other reflex disturbances arising from this tuberculous toxæmia may be mentioned pains of varying severity in the chest and shoulders, intercostal neuralgias, myalgias, etc., etc., which are mistaken for the so-called 'rheumatism' or 'neuritis'.

Evening rise of temperature, progressive loss of weight and of strength are among the most important early manifestations of the disease. Fever is an indication of the greatest importance for no active tuberculous process can take place without the occurrence of some pyrexia. The pyrexia is, as a rule, of an intermittent character, being normal in the morning and raised in the evening. Sometimes, though very rarely, the process is reversed. If there is any suspicion of tubercle the temperature should be taken every two hours so that there can be no missing of any rise, in it at any time of the day. In the early stages the patient may not be aware of slight rise in temperature and it is only by the use of the thermometer that this can be known.

The temperature in tuberculosis is toxic as well as due to the absorption of other proteins from the inflammatory process in the lungs themselves. It may be due to the increase in the metabolic activity resulting in increased heat production but is due more to the interference in the heat elimination brought about by the stimulation of the sympathetic nervous system resulting in vasoconstriction.

The temperature should be taken properly and the early morning temperature when the patient wakes up should not be ignored. The temperature at this time of the day should be between 97.0 to 98.0F. in the mouth. If it is found to be over 98.0F. at this time it is probable that active disease is present.

The normal daily variation in temperature is about one to one and a half degrees and unless the morning temperature is below 98°F the patient is probably suffering from constant temperature.

It is not only necessary to consider the maximum temperature but the early morning temperature should also be considered for the diurnal variation is of value in determining the stability of heat regulation.

In women, the premenstrual rise in temperature in normal health should be borne in mind. This normal premenstrual rise is due to the ovarian activity at this period.

The symptoms of pulmonary tuberculosis may be divided etiologically into three groups:—

(1) Those of Toxic Group:— due to central stimulation of the sympathetic nervous system.

(2) Those of Reflex Origin:— due to peripheral stimulation of the pulmonary ends of the Vagus and the Sympathetic systems.

(3) Those due to the tuberculous process 'per se' in the lungs.

Symptoms due to Toxæmia	Due to Reflex cause	Tuberculous process
(1) Malaise (2) Feeling of being run down (3) Lack of endurance (4) Loss of strength (5) Nervous instability (6) Digestive disturbances (7) Loss of weight (8) Increased pulse rate (9) Night sweats (10) Temperature (11) Blood changes	(1) Hoarseness (2) Tickling in larynx (3) Cough (4) Digestive disturbances (5) Loss of weight (6) Circulatory disturbances (7) Chest and shoulder Pains (8) Flushing of face (9) Apparent anæmia	(1) Frequent and Protracted colds (2) Haemoptysis (3) Pleurisy (4) Sputum (5) Temperature

By understanding the causes underlying these three groups of symptoms we can nearly always pick up one or more belonging to each group when early tuberculosis is present. This combination will give us sufficient evidence on which we can base our probable diagnosis. And when considered along with the tuberculin test which should give a marked and prompt reaction there should be little doubt in our minds even in the absence of definite physical signs in the chest.

INDIAN DIETARY

BY

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The diet of an Indian consists principally of *bhat* or boiled rice, a little *dal* (made by boiling pulses) and some vegetables. The majority of the Indians, particularly the Hindoos, are vegetarians although they consume milk or its preparations such as *dahi*, curd or *channa*, etc.

The accustomed diet of *dal-bhat*, as it is popularly called, is almost invariably defective in quality and excessive in quantity. In the husking and polishing processes the rice is deprived of its most important parts—the vitamins, and the *atta* is ground fine and white. In the preparation of food the potatoes are peeled and then spoiled by cooking as by boiling the vitamins which are essential to good health are destroyed. In a dietary therefore much depends on the method of cooking. In ordinary cooking about 20 to 25 per cent. of the nutritive value of food is lost. The rice water that is generally rejected has a high nutritive value and it is a mistake to throw it away.

Our diets, be it based upon rice, or *atta* are all one-sided or ill-balanced. The habit of not only to eat too often of one thing, such as rice, but also to eat too much of it is not to be commended as it tends to clog the body with a quantity of starch which it cannot digest.

The fixing of a proper dietary is a very large and difficult problem, and in doing so, one has to take into consideration the question of digestibility and absorption of the various foodstuffs entering into the dietary as well as, the effect of cooking, and also, of the varying conditions of life, customs, seasons, climate, etc. The size of a diet is closely connected with the absorption of the food. The less bulky a diet is, the more readily it is digested. If the size of the diet is big, digestion is interfered with because (1) the digestive juices, particularly of the stomach, cannot properly get into the food and act on it, (2) the large bulk of the diet irritates and sets up rapid peristalsis or movements of the bowels with the result that sufficient time is not given for both digestion and absorption, and (3) fermentation is set up with its attending symptoms. A bulky diet is also apt to bring on dilation of the stomach, but this does not ordinarily take

place to any great extent as the stomach gradually adapts itself to the increasing bulk of food.

The stomach of an average Indian can hold about $2\frac{1}{4}$ pounds or say about a seer of food at a time. But the usual weight of the daily diet of an Indian is roughly about 6 pounds and this quantity is generally introduced into the stomach in three instalments. Many Indians live on two meals a day and in this case the whole bulk has to be pushed through in two instalments only, and this naturally leads to an increase in the size of the stomach and disproportionate development of the abdomen. This is particularly the case with the children of the poor who generally develop what is popularly known as the "pot bellies" due to their excessive consumption of an ill-adjusted diet of *dal* and *bhat* or simply *bhat*, in order to make up for the deficiency of other ingredients, particularly proteins in their dietary.

In a purely vegetarian diet of an Indian consisting as it does, of cereals, pulses, etc., the absorption of nitrogen is hardly 55 per cent. as compared to 85 per cent. among the Europeans or others who consume meat. The explanation for this is that the size of the diet of the Indians very often interferes with both digestion and absorption. Colonel David McCay, formerly of the Calcutta Medical College, had shown by experiments carried on among the Bengali prisoners that a reduction in the bulk of food brought on an increased rate of absorption of it.

The jail diet of Bengal consisted of rice 26 ounces, dal 6 ounces, vegetables 6 ounces, mustard oil 64 ounce, condiments and anti-scorbutics 26 ounces each and salts 9 ounce. Its proximate value was proteins 93.31 grammes, carbohydrates 693.33 grammes and fat 30.49 grms., and its heat value 3,500 calories. It was found by Colonel McCay that 7.85 grams. of nitrogen or only 53.66 per cent. of nitrogen of the diet was absorbed. He then reduced the rice to 19 ounces, other ingredients remaining as before, and it was then observed that the absorption of nitrogen was raised to 8.47 grms. equivalent to 68.33 per cent. of nitrogen of the diet. In this way he found out that 18 ounces of rice was the optimum amount from the point of view of absorption. By similarly varying the amount of *dal* 5 ounces were found to be optimum. The effect of replacing half the quantity of rice by wheat *atta*, sufficient to replace the nitrogen lost by the reduction of rice, was to raise the absorption of nitrogen from 7.43 to 10.63 grammes daily.

It was also found experimentally that a diet consisting of 13 ounces rice, 3 ounces dal, 6 ounces fish, and 6.5 ounces of wheat *atta*, etc., gave 85.5 per cent. of nitrogen absorbed—equivalent to

about 12 grams. nitrogen per day. This showed conclusively that an Indian can assimilate proteins as much and as readily as an European. An ounce of animal protein is equivalent to 30 ounces (about a seer) of milk, 24 ounces of dahi, $2\frac{1}{2}$ ounces of curd and 4 to 6 ounces of fish or meat.

Experiments carried out in the prisons in Bihar and Orissa showed that 12 ounces of rice to be the optimum amount yielding 10.05 grammes of nitrogen metabolism. Similarly 9 ounces of wheat *atta* or 10 ounces of makai *atta* were also found to be the optimum quantity. All these go to point out forcibly that the size of the diet of an average Indian requires to be regulated and also reduced that the carbohydrate element in the dietary should be cut down, especially in the case of the upper and middle class people, who do not ordinarily take any physical exercise.

The key note of a successful diet is variety and it is from the right variety that the body can obtain all the various constituents which are essential for normal nutrition.

It is of late becoming increasingly difficult to get pure or genuine foods and the adulterated stuff that is consumed by the people especially by the poor on account of its cheapness is to my mind responsible for much of their malnutrition and ill-health. It is hardly possible now-a-days to secure pure ghee in the market.

A good or well-adjusted dietary should therefore consist of the various proximate principles of food viz., proteins, fat, carbohydrates, and mineral salts in adequate proportion, and also vitamins which are present in abundance in green vegetables, germinating cereals, and fresh milk and fruits. Besides these some indigestible residue or ballast such as cellulose, leafy parts of vegetables, etc., are required for helping in the regular evacuation of the bowels. A healthy diet should comprise of rice or *chapaties* (bread made from wheat *atta*), milk, oil or ghee, fish or meat, fresh vegetables, fruits, etc.

I do not think it will be out of place to say here a word or two about the dietary of scholars. I regret to say that this has been found to be very defective almost everywhere, and much of the ill-health, stunted growth and defects in the development both of the body and intellect is due to this cause. An ill-nourished or badly fed child is incapable of concentrating his mind to his lessons, or to take part in any game or exercise, or even work in his class without getting readily overfatigued or exhausted. Such boys are unable to take full advantage of the education provided for them and generally become very dull.

They also suffer from other conditions, e.g., bad teeth, defective eyesight, adenoids, etc. The diet of school children therefore requires to be carefully investigated with a view to improving it. A growing child requires more food than an adult in proportion to his body weight. It is very desirable that milk should form a part of the dietary not only of children but also of adults, but unfortunately its price and also its availability stand in the way.

A properly fed and well-nourished body has extra-ordinary powers of resistance to disease, whereas a badly balanced diet, deficient in vital elements, as is in general use, is the direct cause of many diseases, such as beri-beri, epidemic dropsy, scurvy, etc., and is the most potent cause of general ill-health and debility, and the most common predisposing cause of all other diseases.

The quantity of any one article of diet of a staple nature, such as, rice, atta, dal or meat should be kept small and balanced by the addition of fresh fruits, green vegetables and milk, so that the total diet will contain a balanced combination of the essential proteins, carbohydrates, fats and mineral salts together with an ample supply of the essential vital elements.

The report of the Public Health Commissioner with the Government of India for 1926 states,—"

"Diseases due to defective nutrition are year by year assuming greater importance and it is now realised that malnutrition forms the basis on which many diseases are more readily grafted. Low economic and social conditions, food deficiency or an ill-balanced dietary act and interact particularly on the depressed classes and affect the physical and even the psychological characters of people of India and render them liable to a variety of diseases which at first sight have no obvious relation to any of these conditions taken separately. As an instance of this the relation of stone in the bladder to vitamin deficiency or other dietary defects is an interesting one and several observers have noted the occurrence of kidney and bladder stone in animals kept on an ill-balanced diet". A diet survey is now being carried on by the Government of Bengal and it is hoped that this would lead to some interesting results. It is also desirable that other Provinces should carry on researches in the question of dietary.

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**PRELIMINARY NOTE ON A CASE OF DERMATO-
MYCOSIS WITH MULTIPLE VERRUCOSE OR
ULCERATED PATCHES**

BY

COL. J. FROILANO DE MELLO, M.D. (Oporto) D.T.M. (Lisbon)

(Director-General of Medical Service in Portuguese India;
Prof. of Parasitology and Director of Medical
College of Nova-Goa)

and

DR. ARNALDO RODRIGUES

(Voluntary Assistant to the Bacteriological Laboratory)

M.S., from Orda (Bardez), male 18 years old. Heredit. nil. Brothers in perfect health. Measles and scabies in childhood. No heredo-syphilis, no heredo-tuberculosis.

History of the disease. Clinical Description. The first lesions of the actual disease appeared 8 years ago on right thigh and, 2 months after, spread on the left leg. The lesions on hands are much more recent.

The general aspect of the patient is of physiologic misery and his development that of a child of 14 years.

The lesions are extremely polymorphic: vegetative patches having capricious outlines and varied dimensions, ulcers of more or less irregular contours, pustules some of which tending to cicatrization after a long evolution, others spreading more and more till the formation of large vegetative and verrucose patches, more or less impetiginised, more or less covered with crusts, either dry or of diptheritic character.

Among such a polymorphism we were fortunate enough to find the type of the initial lesion which corresponds perfectly to the description given by the patient or his mother: a small isolated papulo-crustaceous patch, 8 m.m. diameter is seen on the left malar region. It seems a verruca at first glance. Taking out the crust, an excavated ulceration can be seen covered by a semifluid purulent couche. The anatomo-pathological evolution of the lesions is: Papule, vesicle, ulcer, invading the dermic and the hypodermic tissue, bleeding abundantly and covered by purulent layer which dessicates forming a more or less thick bloody crust.

The initial lesion, when the ulcer is formed, generally does not increase; but new similar patches are formed and their

coalescence together, with the miliary abscesses which are developed around give the large placards shown in the photographs (Fig. 1 and 2).

The crust is strongly adherent and gives much pain when it is taken away. The surface of the ulcer, when cleaned, form the purulent couche, is fungoid and bleeds abundantly.

Here and there some more or less pigmented scars of cicatrization are noticed where all trace of hyperkeratosis has disappeared.

Topographically the patch shows three concentric zones: the central one, covered or not by a crust according to its evolutive stage, the second constituted by a violet bluish zone surrounding the former and the third one, peripheric, belonging to the normal cutis, showing some degree of telangiectasia.

The photographs give a perfect idea of the distribution of such lesions over the different parts of the body.

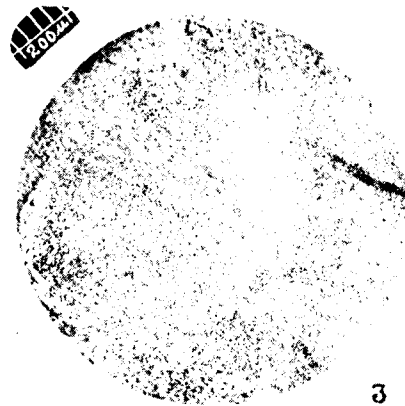
The organs are normal. Urine without albumin or sugar. Sediment constituted by phosphates and hyppuric acid. Hæmoglobin 70%. Red corpuscles 3200000. White cells 23000. neutroph, 71. 4%, Lymphocytes 21. 2%, Monocytes 3. 8% Eosinophyles 2. 8%. Myelocytes 0. 8%. R. Wassermann negative. Stools with cysts of *Amœba Coli*.

Histopathology. The dermic papillæ show a strong leucocytic infiltration constituted by neutrophyles. No mononuclears, no giant cells. Pycnosis of the nuclei, vacuolisation of the connective cells. The interpapillary region showing the same strong neutrophyle infiltration and abnormal vascularisation with hæmorrhages. Two kinds of foreign elements to which reference is made below. Prof. Khanolkar from the Seth Gordandas Sunderdas Med. College to whom I wish to express here my best thanks, kindly prepared for us some microphotographs (fig 3-6) and sent the following report:

"The epidermis is of a very unequal thickness, being very thin on the summits of the dermal papillæ. The epidermal prolongation are on the other hand elongated, enlarged and branched with the formation of lateral lobes or processes.

The superficial layers of the epidermis are lacking over a wide extent of the tissue and the granular zone is ill formed and indistinct. The polyhedric cells of malpighi are swollen, œdematous, and show migrated polymorphonuclear leucocytes in the interstices. The cells of the basal layer are swollen and in

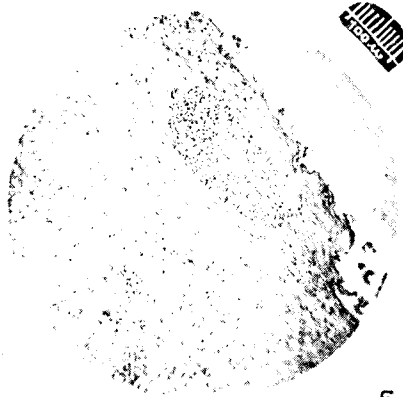




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8

DERMATOMYCOSIS—F. DE MELLO & A. RODRIGUES 429

places show evidence of degenerative changes as a result of the subjacent inflammatory process.

In one place a small localised pustule filled with polymorpho-nuclear leucocytes is seen developed in the epidermis.

The superficial portions of the dermis show evidence of an inflammatory process which does not tend to localise in separate focii or nodules. The inflammatory process has the following characteristics:

"The blood capillaries are congested, dilated and their lining endothelium is very much swollen and shows signs of proliferation. The extravascular oedematous tissue consists of a rich exudate composed of the following elements:

(a) Swollen, elongated fixed connective tissue cells with big, clear oval nuclei and some well formed fibroblasts.

(b) Large numbers of normal and degenerating polymorpho-nuclear leucocytes.

(c) Few eosinophiles and small mononuclear cells and plasma cells.

All these cells seem to be disposed without any apparent order, and there is no tendency to the conglomeration of epithelioid cells or to the formation of definite follicles. There is no evidence of caseating necrosis, or of giant cells.

Sections stained with Trichromique of P. Masson (1912) or with van Gieson do not reveal any marked increase in the fully formed fibrous cells and those stained with Orceine do not show any special change in the amount or character of elastic tissue.

In sections stained with Eosin-Gram Weigert and others with Ziehl-Neelsen long rod shaped organisms (20-40) are seen interspersed in the dermis. Those organisms are disposed in small filaments singly or in groups of two or three. The organisms retain the Gram stain and are acid fast, with the staining methods employed above they show small clear areas in the filaments which do not take the stain."

Parasitic Elements. The examination of the pus, crusts and smears of the ulcer show two kinds of elements.

(a) Some acid fast filaments of different sizes, 8 to 40 microns long, 1 to 1.5 micron large, generally uniform, having sometimes granular condensations on their protoplasm which stain more deeply. As far as it can be ascertained by such examination these filaments belong to a *Microsyphonia*, probably a *Nocardia*. They

are isolated or in groups, rarely some short rods of the same nature are phagocyted by the monocytes.

Every essay to isolate this agent in different media, including Petrof, Dorset etc. by aerobic and anaerobic methods, failed completely, neither the inoculations on animals of the diseased material were able to reproduce this fungus. In some tubes such filaments were detected together with the other agent or with contaminating bacteria, and showed the same characters as noticed on smears.

As it can be easily understood we are not in a position to make any definite statement on the roll of this fungus, whether a common saprophyte (many saprophytic *Nocardia* have been found by all authors and by one of us (F. de M.) in varied lesions, specially in sputums) or a pathogenic agent (it is well known that many vegetative and verrucoid lesions are recorded in the mycological literature as produced by *Microsporynes*).

(b) Some mycelial and oval elements belonging evidently to yeast like fungus.

Every culture was positive and the yeast isolated showed the following characters.

(1) Whitish growth on glucosed and maltosed Sabouraud, yellowish on simple agar, dry ceraceous whitish growth on glycerinated potato, slight veil and trouble on bouillon with little white sediment on the bottom, idem on vegetable bouillon, milk coagulated and slightly peptonised, slightly yellowish growth on Gorodkova.

(2) *Sugar reactions*: Ferments maltose with acidity and slight gas, does not ferment any other sugar (saccharose, dextrine, galactose, insulin, lactose, levulose, manuite, arabinose).

(3) *Mycological Characters*: No asci; yeast like cells of different sizes, some of them with 8 microns diameter. Binary and lateral multiple gemmation. Mycelial filaments septated and giving origin to groups of conidia possessing a disjunction apparatus.

These characters allow us to classify our yeast in the genus *Monilia* Persoon 1797. *sens strict.*

(4) *Inoculation of the yeast on animals.* (1) *Rabbits*: Highly pathogenic. The *intravenous inoculation* kills the animal within 36 hours, with congestion and degeneration of liver, lung hyperemia, hæmorrhagic infarctus on kidneys meningeal congestion. The fungus was isolated by retroculture from the blood of the heart. The *subcutaneous inoculation* kills

the rabbit within 8 days, with almost the same microscopic lesions. The fungus is found in the smears of all organs where miliary abscesses produced by pure culture of the yeast are found specially on kidney. (fig 7)

The sections of the organs on this case showed; strong neutrophile infiltration and hæmorrhages in all organs. Kidney with destruction of the glomeruli. Nuclear pycnosis everywhere.

(2) *White rats*. The *intraparitoneal inoculation* kills the animal with peritonitis. The subcutaneous inoculation reproduced within a month the same ulcerated lesion as found on the patient (fig 8)

Diagnosis: *Ætiologically* we find in this dermatomycosis two types of fungi; one, acid-fast belonging to *Microsporynes* on whose relationship to the disease we are not able to make a definite statement; the second, a highly pathogenic yeast, belonging to the genus *Monilia S. str* which seems to be the principal, if not the only, cause of the disease.

Roughly considered and taking as proved that the yeast is the cause of the disease, we are dealing with a case of *Blastomycosis* and I insist on the word *roughly*, because the problems connected with *Blastomycosis* and yeasts are so complex that cannot be discussed in a short preliminary note.

Among the clinical types of cutaneous Blastomycosis hitherto described by the authors we can point out:

(a) *Type Busse-Busckke*; Presence of subcutaneous and deep abscesses and gummata on bones, periosteum, articulations and internal organs. The skin is not primarily affected, verrucoid patches not present. Pyohemia, systemic invasion.

(b) *Type Curtis* giving a myxomatous tumour, the relation of the yeast (*S. tumefaciens*) to the affection has not been definitively stated.

(c) *Type Escomel*. Chronic evolution of ulcero-vegetative patches on skin and specially on mucosæ (mouth, nose, pharynx etc). Histologically tuberculoid nodules with numerous parasites on the centre surrounded by large epitheloid cells named *blastomycotic cells*.

(d) *Type Gilchrist*. Raised roundish or oval patches with a verrucoid or framboesiform surface resembling *tuberculosis verrucosa cutis* or framboesia. Miliary abscesses around the nodule. Leucocytic infiltration, giant cells. This type has the following varieties:

(1) affecting usually the skin, but may in later stage affect the mucosæ and internal organs—*Gilchrist type S. Str.*

(2) affecting solely or principally the oral or nasal mucose-*Lutz-Spendore type*.

(3) affecting the tongue and causing the *macrogrossia blastomycetica*.

(e) *Type wernicke Ophul*, known also as *Californian type*, *Coccidioides type* or *Blastomycosis ulcerativa profunda seu mutilans*. The disease is progressive and incurable. Verrucoid lesions resembling tuberculides and large and deep ulcers are present. The agent has very special characters and was classified as a special genus named *Coccidioides*.

(f) *Type Kartulis or Gluteal Blastomycosis* presenting a diffuse induration cribated by sinuses excreting pus. The disease is chronic.

(g) furunculosis blastomycetica (h) intertrigo blastomycetica designations explaining perfectly the etiology and the pathologic anatomy of the lesions.

As can be easily seen, our type is very close to the Gilchrist type but shows the following capital difference; absolute absence of giant cells and of monocytic infiltration.

Treatment. Every local treatment has hitherto failed. High doses of potassium iodide (till 18 gr. per day), and intravenous injections of lugol have also proved a complete failure. A treatment by violet rays is going to be tried, if the patient allows it, as annoyed with his stay in Hospital, he is gone away, promising to return.

Many points in this study require further investigation. For this reason the article is only a *Preliminary note* written with the purpose of showing to the professionals in India how large is the field in this country for a systematic research work on medical mycology. And, for the same reason, we will remain now on a pure anatomo-pathological ground classifying the disease of a case of *Dermatomycosis with multiple verrucose or ulcerated patches*.

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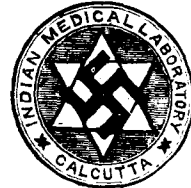
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ABDOMINAL TUBERCULOSIS

BY

S. SUBBA RAU, B. A., M. B. (M) M. R. C. S. (ENG)
D. P. H. (CANTB.)

Medical Officer in-charge, Victoria Hospital, Cantt. Bangalore

Surgical Tuberculosis is becoming more and more common of late years. Whether its incidence has actually increased, or whether the condition is better diagnosed, or whether patients resort to Hospitals more willingly now-a-days, is a matter that is difficult to decide. My own impression, however, is that the increase in the incidence of tuberculosis, both Medical and Surgical, is due to a change in our social conditions; and is mostly the aftermath of urbanisation of our rural population; the resulting insanitary conditions, overcrowding, inadequate supply of food and the want of proper control over our milk-supplies being some of the most fruitful causes of lowering vitality, and the consequent spread of tuberculosis.

Pathologists are more or less agreed that the bovine tubercle bacillus is responsible for Surgical Tuberculosis, whereas, the human variety of the bacillus is responsible for Pulmonary Tuberculosis. In Great Britain dairy cows have been found to be heavily infected with tuberculosis; but no one has as yet applied the "Tuberculin Test" to estimate the incidence of tuberculosis in our cattle in India, and an investigation in this direction would give us some clue about the part played by cow's milk in the dissemination of tuberculosis in this country.

Four important manifestations of abdominal tuberculosis are frequently met with; and they are:—

1. Tubercular Peritonitis with Ascites, (with or without enlargement of mesenteric glands).
2. Tubercular Peritonitis with adhesions.
3. Tubercular Cæcum.
4. Ulceration of the intestines, with cicatrization and consequent stenosis of its lumen.

These conditions may occur singly or in combination; and they are all characterised by the presence of miliary tubercles on the parietal and Visceral peritoneum in varying degrees. Out of the 250 consecutive abdominal sections performed in the 'Victoria-Hospital, no less than 24 or nearly 1 in 10 were for abdominal tuberculosis. Of these 24 cases, one half or 12 were of

the first variety, viz., tubercular peritonitis with ascites, 3 cases had adhesions, 7 were cases of tubercular cæcum and only 2 belonged to the last variety showing stenosis of the ileum. It is interesting to note that 15 of these cases were in women, and only 9 in men, showing the much greater prevalence of abdominal tuberculosis in women than in men. Nearly all the patients were between 20 and 30 years of age.

(1) Some of the cases labelled *ascites* and admitted to the wards turned out to be tubercular peritonitis. In these cases the ascites never reaches the same proportions as when it is due to other causes. Fluid thrill is not so very marked, nor is the abdomen so tense, although there is evidence of shifting dullness. The abdomen gives a peculiar pasty feel to the palpating hand. The pulse is quick, and there may be a slight rise of temperature in the evenings. The patient rapidly loses weight; and in some cases gives a history of diarrhœa.

(CASE. 1) A woman L was operated on for tuberculous ascites. One loop of ileum was so densely adherent to the parietal peritoneum that it was accidentally cut into, while incising the peritoneum; and the wound in the gut was however carefully sutured in layers. The omentum was found rolled up into a band. The surface of the intestines and even the liver was found to be studded all over with miliary tubercles. The fluid was all removed by means of sponges; and the peritoneal cavity was filled up with oxygen before closing the incision. The patient made a good recovery. The fever stopped; and she speedily gained in weight; and there has been no recurrence since.

(2) Sometimes a chronic peritonitis occurs, with the deposition of plastic lymph on the surface of the intestines. This plastic lymph gradually becomes organised into fibrous tissue forming bands or bringing about adhesions between neighbouring loops of gut; and in one case a complete sac was formed by it.

(CASE 2). Patient L, age 20, was operated upon for chronic intestinal obstruction. On opening the abdomen, a glistening white sac was found at the junction of ileum with cæcum. It was a complete adventitious sac evidently formed by the organisation of plastic lymph; and in it was incarcerated $4\frac{1}{4}$ feet of small intestines. The ileum above this sac was greatly hypertrophied and dilated on account of the obstruction in front of it. The sac and a foot of dilated gut above, or in all $5\frac{1}{4}$ feet of gut was excised; and lateral anastomosis between the ileum and ascending colon was performed. The patient made a remarkable recovery and was alive and well for 6 years, after which she died of pulmonary tuberculosis.



The illustration shows the sac carefully dissected out after removal. The letter S is placed on the inner surface of the adventitious sac, which could be dissected out only as far as its junction with the dilated loop of gut D. Beyond this the sac became continuous with the serous coat of the gut. The letter I indicates the five loops of incarcerated ileum.

(CASE 3). A patient S was admitted for chronic gastric dilatation and consequent dyspeptic trouble. X-Ray examination showed that the greater curvature of the stomach was near the pelvis. A diagnosis of pyloric stenosis was made, and it was proposed to do a posterior gastro-jejunostomy. But on opening the abdomen, the small intestines were found to be very friable and studded with miliary tubercles. Fluid was present. The stomach was displaced downwards and bound down by adhesions between the omentum, mesentery and intestines. The fluid was removed, adhesions were divided to mobilize the stomach, and oxygenation was done. The patient recovered completely and was hale and hearty when I saw him about a year after operation.

(3) *Tubercular cæcum*, closely simulates chronic appendicitis; and on more than one occasion a wrong diagnosis has been made; and on opening the abdomen a cæcum studded with miliary tubercles and surrounded by enlarged lymphatic glands has been discovered instead of a diseased appendix. In such cases simple oxygenation has produced remarkably good results. I have seen some of these cases two years after operation. The lump in the iliac region had completely disappeared and the patients were quite well.

(4) *Tuberculous ulcers* are very often single, and are most commonly found in the lower part of the ileum, especially near the ileo-cæcal junction. They extend along the blood vessels and lymphatics of the intestine, and surround its lumen. When these ulcers heal up by cicatrization, leading to stricture or stenosis of the lumen, the clinical picture is that of chronic obstruction with frequent acute exacerbations; colicky pain occurs periodically, confined to or radiating from the particular spot; and when the pain is referred to the right iliac region, the case may be easily mistaken for appendicitis.

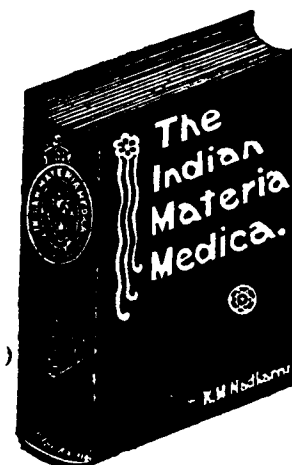
(CASE 4). A patient S, a young woman of 20 years, was admitted with a provisional diagnosis of relapsing appendicitis. There was some tenderness in McBurney's point, and on palpation a distinct mass could be felt rolling under the examining fingers. The abdomen was opened through a paramedian incision. The appendix was found to be slightly thickened and kinked, and it was removed in the usual manner. Subsequent examination revealed the presence of a hard cicatrized mass near the ileo-cæcal junction, the peritoneal surface being studded with miliary tubercles. The lumen was obviously stenosed, and the neighbouring mesenteric glands were enlarged. On account of the presence of dense adhesions, excision was out of question; and a lateral anastomosis between the ileum and ascending colon was performed. Oxygenation was done before closing up the peritoneum. Recovery was uneventful. The patient is quite well now and free from pain. The lump in the right iliac region has entirely disappeared; and the patient has increased in weight.

The method of performing oxygenation is very simple. A continuous catgut suture is employed to close the peritoneal incision. Before knotting the end of the suture, a tightly fitting sterilized glass nozzle is introduced into the peritoneal cavity at the lower end of the incision. The nozzle is connected by means of stout rubber tubing to an oxygen cylinder. The oxygen is now turned on gently. When the abdomen is well distended with oxygen, the nozzle is quickly pulled out and the end of the suture knotted.

Heliotherapy has been of very great service in the treatment of these cases both before and after operative measures, and all patients are advised on discharge to undergo heliotherapy daily for six months or even a year. The following case illustrates the value of heliotherapy:—

(CASE 5). A patient A, a young woman of 20 years, was admitted with obvious signs of tubercular peritonitis, with ascites. An immediate laparotomy was out of question on account of the presence of tachycardia, hectic temperature, persistent diarrhoea and great emaciation. The patient was given a sun-bath daily from 7 to 10 a. m., for about a month, her abdomen being exposed to the direct rays of the sun. The fever and diarrhoea greatly improved; and an oxygenation laparotomy became a possibility. About a month after the operation, the patient left the hospital greatly improved in health and general condition.

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CONTENTS:—Preface contains opinions of eminent Foreign Physicians re. wonderful efficacies of Indian Drugs & Medicines. In the **Introduction**, "Tridosha Theory" of Ayurveda is expounded by Mahamahopadhyaya Kaviraj Dr. Gananath Sen, Saraswati, M.A., L.M.S. which gives a clear idea of the fundamental principles of Ayurvedic Science; Indian & English Weights & Measures; Measures of Weight & Capacity of British Pharmacopoeia; Domestic Measures; Dosage; Time of Administration; Abbreviated Languages used for synonyms explained in full. Then follows **Part I:—Vegetable Kingdom** (1053 trees, plants, herbs, roots, fruits, nuts, vegetables, grains, pulses, spices, cereals, drugs, foodstuffs, condiments, dietetic articles etc.) **Part II:—Mineral Kingdom** (54 minerals & metals); **Part III:—Animal Kingdom** (51 animal products)—**most of which are easily available in one's gardens, roadsides, bazars, nay, even in kitchen stores!!!** Then follow Appendices & Indices:—Drugs according to their Therapeutic & Physiological Actions; Drugs & their Specific Uses in Diseases; Indian Substitutes for imported Foreign Drugs; Approximate percentage composition & calories & Vitamins in Foods & Dietetic Articles; Principal Forms of Ayurvedic Medication & Methods of their Preparation; Therapeutic Agents with their Definitions; Important Genera or Natural Orders, their English equivalents, distinguishing characters & typical examples; Index of Indian Preparations; Index of Diseases (with Sanskrit equivalents) and their Remedies; General Index of Synonyms, Alkaloids, etc. All Drugs have been treated alphabetically under following heads:—Botanical Names; Genus or Natural Order; Names in Sanskrit & Synonyms in Indian & Foreign Languages & Provincial Names; Habitat or Sources; Parts Used; Chemical composition or Constituents; Physiological & Therapeutic Actions; Variety of medical preparations with their doses; Numerous Allopathic, Ayurvedic, Unani, Siddha & Home Remedies, Prescriptions, Formulae, Recipes & Processes with methods of their preparation, tested and found efficacious by experienced and foremost Practitioners & Scientists of the East & the West.

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DEAFNESS, ITS CAUSES AND TREATMENT

BY

H. B. MYLVAGANAM, F.R.C.S., (ENG.)

[The Senior Surgeon and Sanitary Commissioner of Mysore, (Retd) Bangalore].

Deafness, in varying degrees, is a common disability met with all over the world, and though the science of Otology and its allied branches Rhinology and Laryngology have made rapid progress during the past quarter of a century yet its treatment remains to-day a difficult and an unsatisfactory problem confronting the ingenuity and skill of the Otologists. But the recent researches into the causes of deafness have placed us on a much surer ground than before and we are in a much better position to-day to tackle the problem more in the direction of prevention than of cure. Salvation lies in the correct appreciation of the causes at work from the very commencement and in curing such minor ailments as are commonly met with in the nose, throat and ear before extensive damage to the auditory apparatus has taken place. To ensure early diagnosis, and prevention, the general Medical Practitioner who sees such cases at an early stage, needs a working knowledge of these three branches of surgery, not so much to treat these cases himself as to direct his patients to seek expert advice and treatment. Unfortunately in India, the study of Otology and its allied branches has not received hitherto the same impetus as in Western countries, where every important Hospital is provided with a Special clinic for the treatment of these cases with ample facilities for research work.

Deafness, or defective hearing is not a disease *per se* but a condition created by many causes at work which either interfere with the function of the sound conducting apparatus or the perception faculty, lodged in the end-organs of the auditory nerve and in the brain centre. The auditory apparatus in man is a highly specialized and an intricate organ safely lodged inside a bony encasement in the skull and if any damage is done to any one of its component parts, it would be very difficult to replace or even to repair it and the function of hearing would also diminish proportionately. Damage to the internal ear where the end-organs of the auditory nerves are located is attended with a greater degree of deafness with tinnitus than damage to any other parts of the ear.

The auditory apparatus in man consists of 3 compartments, *viz.*, the external, middle and internal ears, each of which having a special role to perform and being in continuity with each other. The external ear with its pinna serves to conduct the sound waves to the tympanic membrane which forms a partition between the external and middle ears. In the middle ear is placed the chain of ossicles. The sound waves passing along the external ear impinge on the drum and set it into vibration. The energy of the ærial vibrations incident on the drum is transformed into a series of mechanical movements of the chain of ossicles by which the pressure within the internal ear is rapidly varied. This pressure is communicated to the fluid which bathes the terminations of the auditory nerve in the internal ear and the stimulus thus started in its end organs is conveyed by it to the auditory centre in the brain and sound is perceived in its pitch, quality, and intensity. Normal hearing, therefore, depends on the healthy condition of all these component parts and disease of any one of the links in this chain must necessarily produce defective hearing or total deafness in proportion to the extent of the damage.

Ætiology:—The external meatus may become obstructed with cerumen, foreign bodies, bony growths, or inflammatory exudation or it may be either absent or malformed. Deafness is caused in these conditions by obstruction to the transmission of sound waves to the tympanic membrane though it is not of a serious nature as bone conduction remains unimpaired. These cases are amenable to treatment except in the case of malformations such as collapse of the cartilaginous canal, congenital atresia or congenital absence of the canal as there is an associated absence of the middle and internal ears as well in these cases and deafness is due to the latter circumstance chiefly.

The middle ear may become involved in inflammatory conditions either catarrhal or suppurative. Each of these varieties is further subdivided into acute and chronic: Infection of the middle ear in the above lesions takes place chiefly *via* the Eustachian tubes, though infection *via* the lymphatics and blood channels is recognised. As a result of inflammation the following changes take place in the middle ear, *viz.*, Ankylosis or Necrosis of the ossicles, perforation, thickening, retraction or bulging of and calcareous deposits in the drum membrane, cicatricial bands extending to the ossicles and the wall of the middle ear, Ankylosis of the foot plate of the stapes to the oval window, atrophic changes in the middle ear, loss of tonicity of the stapedius and Tensor Tympani muscles, polypi, cholesteatoma, etc. Further,

infection of the mastoid antrum, mastoid cells and lateral sinus, septic meningitis and abscess of the brain—may occur in suppurative *otitis-media* and endanger life in addition to impairing hearing. Congenital defect or absence of the middle ear and otosclerosis give rise to incurable deafness. When any of the above pathological changes takes place as a result of catarrhal or suppurative inflammation of the middle ear, the normal tension existing between the drum, ossicles and labyrinthine fluid is disturbed and deafness is produced.

The Eustachian tube may become involved in catarrhal inflammation leading to thickening of the mucosa, cicatricial bands across its lumen, stricture, lymphoid hypertrophy within its lumen, and paralysis of the palatine muscles. The chief function of these tubes is to equalize the air pressure on the drum and to prevent it being pushed inwards by the external air pressure. Otherwise the normal tension existing between the drum, ossicles, and labyrinthine fluid would be disturbed and deafness and tinnitus would follow.

Affections of the epipharynx and fauces, such as adenoids, polypi, tonsillitis, suppurative and catarrhal inflammation, and post diphtheritic paralysis of the palatine muscles, give rise to deafness by the extension of inflammation along the Eustachian tubes into the middle ear. It has not been fully recognised by the profession that there is an intimate etiological relationship between enlarged tonsils and disease of the Eustachian tubes and the middle ear. Most of the diseased tonsils are flat and lie hidden behind the anterior pillars with their crypts filled with yellowish masses containing bacteria, pus and epithelium. These crypts offer a suitable habitation for the growth of bacteria, from whence their toxins enter the system *via* the lymphatics and vascular channels and cause mischief in remote parts of the body.

The internal ear may become the seat of disease and give rise to serious disturbance in hearing. Acute diffuse suppurative labyrinthitis, circumscribed and diffuse serous labyrinthitis endanger life itself if not operated upon early. Fracture of the petrous portion of the temporal bone, hæmorrhage into the labyrinth, atrophic changes in the nerve endings in the cochlea, syphilitic and tubercular diseases, excessive use of quinine, alcohol, tobacco and other narcotic drugs, otosclerosis of the cochlea, neuritis of the eighth nerve as in mumps, also produce deafness accompanied by tinnitus.

Deaf-mutism is a condition resulting from mal-development or disease of the auditory apparatus especially the labyrinth, during intra-uterine life or before articulate speech is learnt.

which are represented by 3 vibrating platinum lamellæ capable of producing sounds resembling those of human voice extending over 5 octaves and passing not merely through tones and semi-tones but through all the vibrations between 80—3, 500. The sounds created by this ingenious apparatus are rich in low, middle and high harmonics, devoid of shrill tones, and are transmitted to the ear by telephone receivers. According to the statistics of Dr. Maurice who has practised this method for several years and of Mr. Cathcart of London who has adopted the electrophonide method, during the past 10 years about 75-80 per cent. of successful results were recorded. Most of their patients' range of hearing greatly improved, tinnitus disappeared and artificial aid to hearing was discarded. In my own practice, the results so far obtained with the Kinesiphone, have been encouraging but the small number of cases so far treated does not permit me to express any definite opinion. The treatment is painless and devoid of any unpleasant sensation.

Artificial drums are useful in cases where the tympanic membrane is destroyed. Its indiscriminate use in all cases of deafness is to be deprecated.

Failing these methods of treatment, the only other resource left to us is to recommend the use of artificial aids, of which there are many in the market, constructed on the same principle.

[*The Methods of diagnosis have been left out by the author for want of space.* EDITOR]

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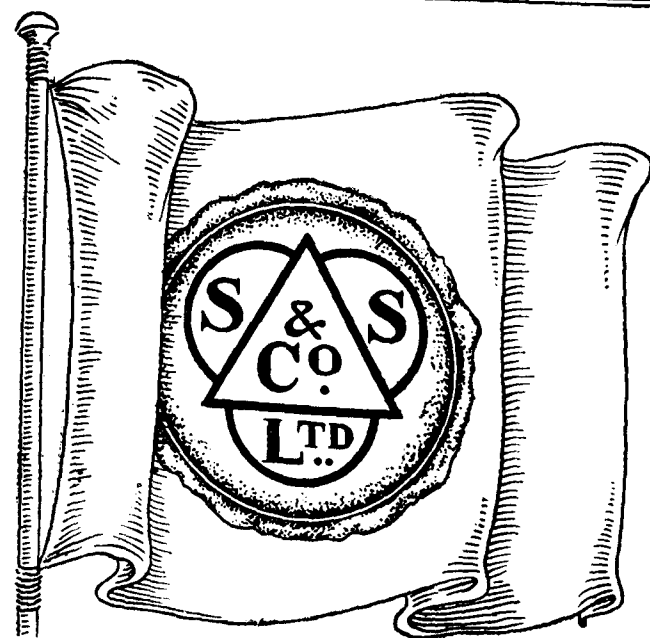
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BISMUTH IN SYPHILIS

BY

C. F. CHENOY, M.B.B.S. (BOM) D.T.M.—D.P.H. (LOND.)
 Fellow of the Royal Institute of Public Health (London)
 Civil Surgeon and Sanitary Officer, Aurangabad,
 (Deccan)

My observations made during treatment of over 2,500 cases with bismuth are really encouraging. In some cases bismuth was the only drug used, the result was published some time ago¹; in others it was used in combination with drug of the arseno-benzol series, in others, again, it was administered with mercurial preparations. During all these series of observations both insoluble and soluble preparations were tried. The soluble preparation after innumerable trials (thanks to Anglo-French Drug Co., (Estn.) Ltd., for a liberal supply) were discarded in favour of insoluble ones. The preparations largely used were Neo-trepol, Bismostab, Bicareol, Quinby, and Muthanol. The first three were the preparations which I have found very useful in the order mentioned, because they gave the most consistent good results with the least likelihood of upsetting the patient and being remarkably free from pain and toxic effects, were better tolerated than either by arsenic or mercury.

Action. It has been demonstrated by Levaditi that the members of nitrogen family of elements, i.e., those occupying group V of Mendelieff's periodic series—arsenic, antimony, bismuth, etc., namely they and their compounds or salts, only exhibit their parasitocidal properties after they have been activated upon by the tissues. Thus in case of bismuth, the action of cellular extract gives rise to a new compound "Bismoxyl". The substance in the extract which has the property of changing bismuth into Bismoxyl is termed "Bismogene". Again it has been shown that blood appears to be one of the few tissues incapable of producing bismogene wherewith to activate the elements to bismoxyl. Brain extract is most potent followed by the bismogene derived from muscle.

Chopra, Gupta, and Mullick report⁽²⁾ that they have been using a new aromatic bismuth preparation intravenously in treatment of framboesia syphilis, and filariasis. As above shown the therapeutic action of bismuth varies directly with the quantity of bismoxyl circulating in the body, i.e., the tissue metallic potential. The intravenous injection of bismoxyl itself into the

blood stream would be a sound principle; but the intravenous injection of any bismuth compound or salt appears to be wrong, for Levaditi (Recent Advances in the chemotherapy of syphilis) has emphasised that bismuth salts have relatively high toxic action when given intravenously. The only reason why salvarsan is given intravenously is on account of the great pain usually caused by intramuscular injection. There is no doubt, when given thus their action and therapeutic effect are much greater. The pain and discomfort are nil with bismuth, then, there is no reason why bismuth should be given by the dangerous and toxic route.

Bismuth Toxicology. (A) I. Loss of weight is a great factor. Some patients do lose weight and I attribute this to toxic effects, hence bismuth treatment is discontinued or stopped. Usually patients increase in weight, the skin shows marked smoothness and yellow tinge is mostly lost.

II. Loss of appetite is also another symptom and requires suspension of bismuth treatment.

III. Gingivitis—a blue line on the gum, is a warning sign to reduce the dose or increase the period of interval during treatment.

(B) If the kidneys are damaged it is best to withhold bismuth treatment, otherwise as shown by Critchley³—peripheral neuritis and albuminuria result.

(C) Faulty technique—if the bismuth enters blood vessels it leads to paralysis and death⁴.

Value of Bismuth. The relative values of the antisyphilitic triad expressed by Milian⁵—is as follows:—

Arsenic 10.
Bismuth 8.
Mercury 3.

From the above facts bismuth is found to be more rapid than mercury in its destructive action on *spirochæta pallida* in vivo, but it is not so rapid as the salvarsan group of drugs. After administration of a potent dose of salvarsan, a living *spirochæta* could rarely be found 24 hours later in surface lesion, whereas with a potent dose of bismuth it could be found for 2 days, i.e., 48 hours. In its effect on surface lesions of syphilis in all stages, however, bismuth is almost as efficient as salvarsan preparations, and is much more rapid than any of the mercurial preparation. The effect of bismuth on the seriological reactions in

all stages of syphilis is not less than arsenobenzols but more marked than of mercurials.

Clinical effect.

1. *In Primary lesions.* The action here as above mentioned is found to be slower than arsenic, but much quicker than mercury. In primary cases the sores usually take a better healing aspect with bismuth than with arsenic. Arsenic usually causes cicatrix and leaves marks behind but with bismuth these cicatrised patches are rarely found. The sores usually heal after second injection of bismuth, and rarely more than three injections are needed. The spirochæma findings usually were negative after a potent dose of bismuth after second day but with arsenic it is found negative within 24 hours. There is no doubt bismuth has a definite spirochæticidal action and this is supported clinically by the frequent occurrence of Jarish-Herxheimer reaction. This reaction has been also observed and reported by Sloth and Jeanselmi, Blamontis. Marie and Foucade,⁶ in Paris, produced Herxheimer and reaction with bismuth, provoking lightning pains in a tabetic case.

II. *In secondary lesions.*—(a) The secondary lesions of mouth and tongue respond particularly well to bismuth. The lesions generally cleared up after administration of 1g. of metallic bismuth. This is confirmed by Anwyl-Davies.⁷

(b) Cutaneous syphilides, mostly nodular and papular types and also squamous cleared up with 2 or 3 injections. Usually 1g. was sufficient but here the action is not so well marked as in lesions of mouth and tongue.

(c) In interstitial keratitis and in iritis—the result has been wonderful. This kind of treatment first drew my attention in a paper headed "Is parenchymatous keratitis curable?" appearing in *Le Scalpel*, January 26th, 1924. In cases of iritis, the zone of Circum-corneal injection was lost after the first injection. The muddiness of iris was lost after second injection. In cases of interstitial keratitis the ocular congestion is lost after the first injection and the intra-ocular pressure is relieved. In all, about three injections were necessary to find the eye in almost normal case. Not only is bismuth's action quicker but it does not expose the patient to grave optic lesions as with arsenic.

III. *Tertiary lesions.*—(a) Lesions of mouth, i.e. glossitis and chronic leucoplakia mouth and gumma of tongue responded much better with bismuth than these cases treated with arsenic. Anwyl-Davies⁷ also confirms this and is of the same opinion and he

thinks this is due, as these lesions are bathed in patients' bismuth-secreting saliva.

(B) Gumma of bones, testis and skin do not respond well. Whilst periostitis are quickly relieved with bismuth.

(C) *Neurosyphilis*—(1) In *Tabes*—bismuth is the only drug I have found which gives as good results as does any other form of treatment. It ameliorates the tabetic symptoms as shown by me in an article "Bismuth in *tabes*."⁸ Lightning pains, gastric crisis and incontinence of urine are mitigated. The "halo of meningitis" according to Col. L. W. Harrison vanishes. The tingeing, numbness and the constriction about the body are next in order to disappear. The bladder trouble, whether atony or spasmodic evacuation is relieved. The ataxia and inco-ordination is lost, but the pupillary changes and the deep reflexes are the last to recover.

(2) In cerebro-spinal syphilis—Smith and Forter⁹ found that symptoms were relieved by bismuth. In one of their cases of syphilitic meningitis, the case recovered rapidly and there has been no return of symptoms 11 months later. They confirm that bismuth is of value especially in relieving the subjective symptoms of syphilis of the nervous system, while in *tabes* it gives as much good results as any other treatment.

IV. *Advanced organic lesions*—Musser¹⁰ confirms that bismuth in certain selected cases of advanced lesions, especially cardiovascular syphilis, has greater value than salvarsan.

V. *Tuberculosis with Syphilis*.—Anwyl—Davies⁷ mentions that in tuberculosis department of St. Thomas' Hospital it was found that if arsenic was given even in small doses intramuscularly, the result was inimical to patient suffering from tuberculosis, i.e. the disease in lungs progressed rapidly whilst bismuth has no deleterious effect and usually checks syphilis, thus giving the patient a chance of recovery. I can confirm this and I am of opinion that not only does it check the spread of syphilis but also has a slow action on the disease.

VI. *In Congenital cases*.—The result with bismuth was very encouraging as shown in my article. In these cases Trepol was used and in those cases where children were breast-fed, the mothers were also given bismuth. The result was relief from symptoms and rapid healing. It was observed that children behave well and no toxic symptoms were found, as is so often the case with arsenic.

SEROLOGICAL REACTION

Most of my observation is only clinical though serological results were also followed. Being in districts I have no convenience to get the examination made. Usually patients are poor and cannot afford the high prices which are required for examination combined with cost for medicines. Those cases serologically followed, treated with bismuth, showed that bismuth acts on Wassermann and similar reactions quite as well as arsenic. Levaditi¹¹ is of opinion that bismuth reacts quite as well as arsenic and even better than arsenic. Anwyl—Davies⁷ sums up that bismuth results have no comparison with arsenic, as it is even inferior to mercury. Fournier and Guinot¹² report that bismuth has a marked effect on serological reaction, and this is also confirmed by Ahlswidi and Busche¹³ who after three years of experience with bismuth upheld that it has a lasting and powerful effect on the blood reaction.

THE PLACE OF BISMUTH IN THE TREATMENT OF SYPHILIS

There are two schools with quite different opinion. Levaditi and his followers firmly believe that bismuth is not a bit inferior to arsenic but shows its superiority for in some cases arsenic cannot be used as its action leads to uncalled for symptoms with great inconvenience to medical man and trouble for the patients.

The other school considers that the introduction of bismuth in the treatment of syphilis is second only in importance to the discovery of arseno-benzols, they regard it only as an adjuvant to the arseno-benzols but would certainly give it second place in treatment and relegate mercury to the third place. Time alone will settle this question. There is no doubt that both arsenic and bismuth are racing in the field of treatment, it only remains to be seen which heads the field and this question can only be settled by regular serological reactions and the length of time this reaction remains permanent.

Clinically as shown above bismuth "*per se*" is as effective as arsenic except in primary lesions where its action being slow just renders it somewhat inferior to arsenic. Levaditi says that if soluble compounds are used in place of insoluble compounds then its action is as good as arsenic. Again he argues that 24 hours difference does not harm a patient. I am of opinion why even give the patient 24 hours to exposure when arsenic can disinfect him within 24 hours. Clinically shown above I find bismuth is as good in syphilis as arsenic. In all cases except in

primary lesions, and even better than arsenic in cases of cardiovascular diseases, lesions of mouth, in tertiary (neurosyphilis) and congenital cases and especially those cases complicated with tuberculosis where arsenic is not only ineffective but by it the disease in lungs is rendered worst.

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CONCEPTION OF PARASITISM

BY

DR. P. V. GHARPURE, M.D., (BOMBAY)

Very few subjects are of greater importance in human medicine than the relation between man and other living entities. The present medical world has deservedly given this subject a very prominent place both in the understanding of disease and its investigation. It is hence, that I desire to lay a few lines here in this small paper for this special number.

Parasitism is a term employed in human medicine to denote a condition when man is possessed of a parasite, i.e., some other living entity feeds on human tissues, fluids, etc. or depends for its requirements on the existence of a human being, through a part or whole of its life cycle. In studying such a condition it is often pointed out and probably rightly that one must consider the whole of the human being and not localize one's attention to any particular part of the body that may apparently be the seat of parasitic invasion. This is obvious because of the fact that one has at the time of consideration the prominent idea of survival of the human race. At times one directs his attention to the parasite and studies how it behaves towards man whenever that is possible

but rarely the parasite by itself as an independent being. By far the greater attention is directed to its relation to man. A parasite in a diseased condition in man is under unnatural conditions from its own point of view, and some observations done on the life of such a parasite may not always be free from errors. The mere presence of a parasite in a body may not always mean that all possible inconvenience experienced by the host is due to the parasite; likewise not succeeding to demonstrate the presence of a parasite may not mean that one does not exist. It may be, that the number invading might be far too small, the size too minute or that the parasite might have once existed and perished leaving before the observer the later effects of its action when it lived or the effects of the products of the dead ones. It is probably due to such or similar consideration that we still have a large number of diseased conditions partly or wholly unexplained forming the classes of diseases of unknown origin. When one starts watching a parasite outside the human body may even be in an artificially grown condition—it shows what could be called a free or an extra-corporal life so far as man is concerned; even in this state it may many times go into another animal of a higher or lower order in zoology, hence it appears that there may be an entire class in zoology the members of which cannot have an independent life; independent of other animals or animalcules or plants i.e., they are throughout parasitic.

In man natural parasitism is not known in the sense that some parasite or other universally harbours the human race including the intra-uterine life. For the purposes of this writing I am not considering the parasitic view of union of the germ cells. All parasites therefore are introduced into man from without and then they grow, live and multiply in the human body even at the cost of its necessities.

From the moment a parasite is introduced in the body it takes varying lengths of time to settle down, or make itself comfortable, grow, metamorphose, multiply and get actually naturalized to the conditions obtained in the particular human being. If by accident or through some agency the same parasite from the first host is transferred to another of the same class, i.e., from man to man (e.g., malarial parasites from a case of malarial fevers transferred by a hypodermic injection of the infected blood into another man) it may start growing there straight off taking less time to settle down or may suddenly be destroyed. So that its life in the first host has not changed its physic or biology to an extent to neutralize it to all human beings: or in other words has failed to acquire immunity against natural conditions of man.

It eventually finds a new field to explore in every host it enters. These and similar phenomena are explained on the basis of resistance and virulence terms applied in relation to host and parasite respectively. If in a case it has succeeded in naturalizing itself to human beings in general it will successfully affect unlimited number of successive generations of man probably with greater rapidity and ease in successive instances. This phenomenon is explained on the basis of passage.

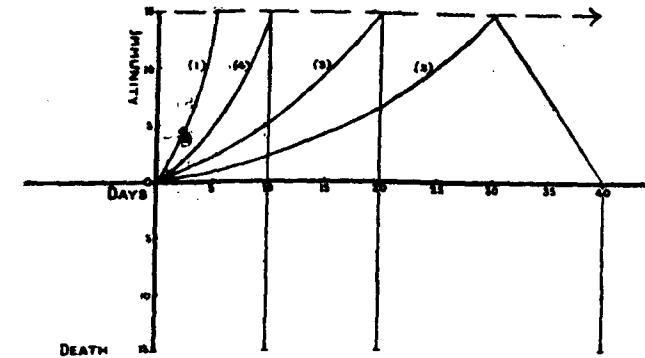
However this is not universal. Many a time the chances of the parasites living and thriving gradually get less and less until at last they all perish. The following facts will throw some light on these phenomena referred to:—

1. A protozoal parasite causing rat-bite fever in man is recoverable from a mouse of the type commonly found in Bombay—a small brown rodent, 50% of whom show these parasites. If this is introduced into white laboratory mice by a small hypodermic syringe in the peripheral blood, the same is demonstrable in the inoculated mouse after five or seven days. If the same infection is transferred from white mouse to white mouse the period of five to seven days remain constant. It may be that a mouse is an unfavourable host.

2. If on the other hand one transfers this infection from the mouse to a guinea-pig (a rodent of a different class) by the hypodermic injection of a dose proportionate to its weight and age the parasite cannot be recovered before the 29th day after the injection. If now this infection is passed from this guinea-pig to a succession of guinea pigs this period of 29 days gradually gets diminished until at last the 5th or 6th of this series shows the parasites within a week and further the guinea-pig dies within 10 days.

In (1) the white mouse merely behaves to the parasite like a culture tube, while in (2) (3), (4) the guinea-pig shows some inhibition or otherwise as a living being. One describes the period that passes from the moment of introduction of a parasite into its host to its producing harm (lesions of symptoms) or being demonstrated in abundance in the body of the host as the incubation period. One may express the same idea by saying that the parasite takes a certain length of time to get immune to conditions obtained in the host. This immune condition is gradually developed from the moment of introduction of it in the host and reaches its height obtained by the parasite may be true for the particular host it

attacks or may be true to the whole of the zoological order to which the host belongs.



A graphical representation of the above three paragraphs. The Vertical line denotes units and the horizontal one days.

If one can imagine a condition when the parasite once demonstrated in a host for some time and then disappearing one apparently will be incorrect to say that the parasite once immune to the host has been destroyed. It is possible that it is undergoing metamorphosis and is in a form which we are not trained to identify. Just as the human being is struggling for perpetuation the parasites are doing the same for themselves. They may at times after getting into a human host, pass into such other imperceptible forms or into forms that are indistinguishable from normal histological elements obtained in the human body; or to put it in different terms we may say that the parasites get masked or garbed and thus the present methods of investigation at our disposal do not enable us to trace them.

It may require some imagination to think that in diseases like the ones considered at present of unknown origin, the casual parasite invades much earlier than the commencement of symptoms. As is well known in all these diseases there is a fairly long incubation period. It is quite possible that after the parasite has invaded it naturalizes, lives, and suddenly changes the chemistry of the body that it dies and the altered chemistry and the products of the dead bodies of the parasites are the ones responsible for the lesions and symptoms, or that the parasites have such morphology that we cannot distinguish them from cells in the body or they may be so small as to get mixed up in the granules of the white cells.

During a very wide spread epidemic of Dengue in Bombay in 1922 I examined a large number of different cases making blood examinations and tissue study and inoculation into monkeys, etc., I could reproduce the same disease in a monkey in 5 days, with all its features. But nothing like a parasite was seen. Only once I found a motile filament twice the length of the diameter of a red blood cell which further investigations showed to be a filament from a leucocyte. Thus it will be seen that with the utmost care one is unable to demonstrate parasites when we have little doubt that they exist.

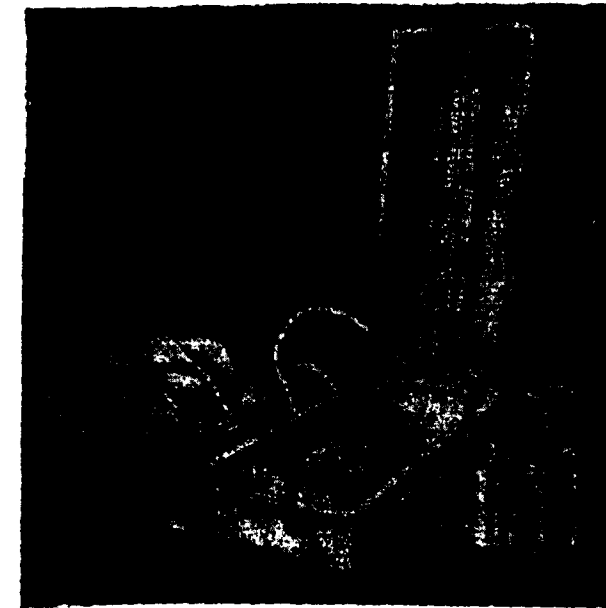
The present methods employed consist of studying the symptoms produced directly or indirectly by the particular parasite, studying the morbid changes macroscopically and microscopically during life of the host and at autopsy after the death of the host, and studying the life cycle of a parasite found in man or grown outside the body if that could be done. Little is known of the entire distribution of the various parasites in nature and still less about their exact generation. Even of the very common parasite like the malarial parasites investigators are busy in studying the different life cycles and some of them actually suspect that there may still be an unknown third cycle. If this is the case when we are considering a well known morphologically identified parasite what can one expect about others about whose forms and life there is not the slightest conception?

Our ideas of Bacterial and other parasites is evolved out of studies done by students of natural sciences and as investigators of this branch we must necessarily be possessed of a first hand and a first rate knowledge of the depths of biological sciences and laws. It is only possible to know whether a parasite found in man is transferred to man from somewhere else if we found other members of the world showing an identical one in them, i.e. the distribution in nature of all parasites is an essential feature of our studies. Still it is necessary to have a correct knowledge of parasites found on or in other animals (higher or lower) and plants.

The investigators of human parasitic diseases must be biologists and not only physicians if this problem of parasitic diseases is to be solved and pure scientific work alone is likely to throw proper light.

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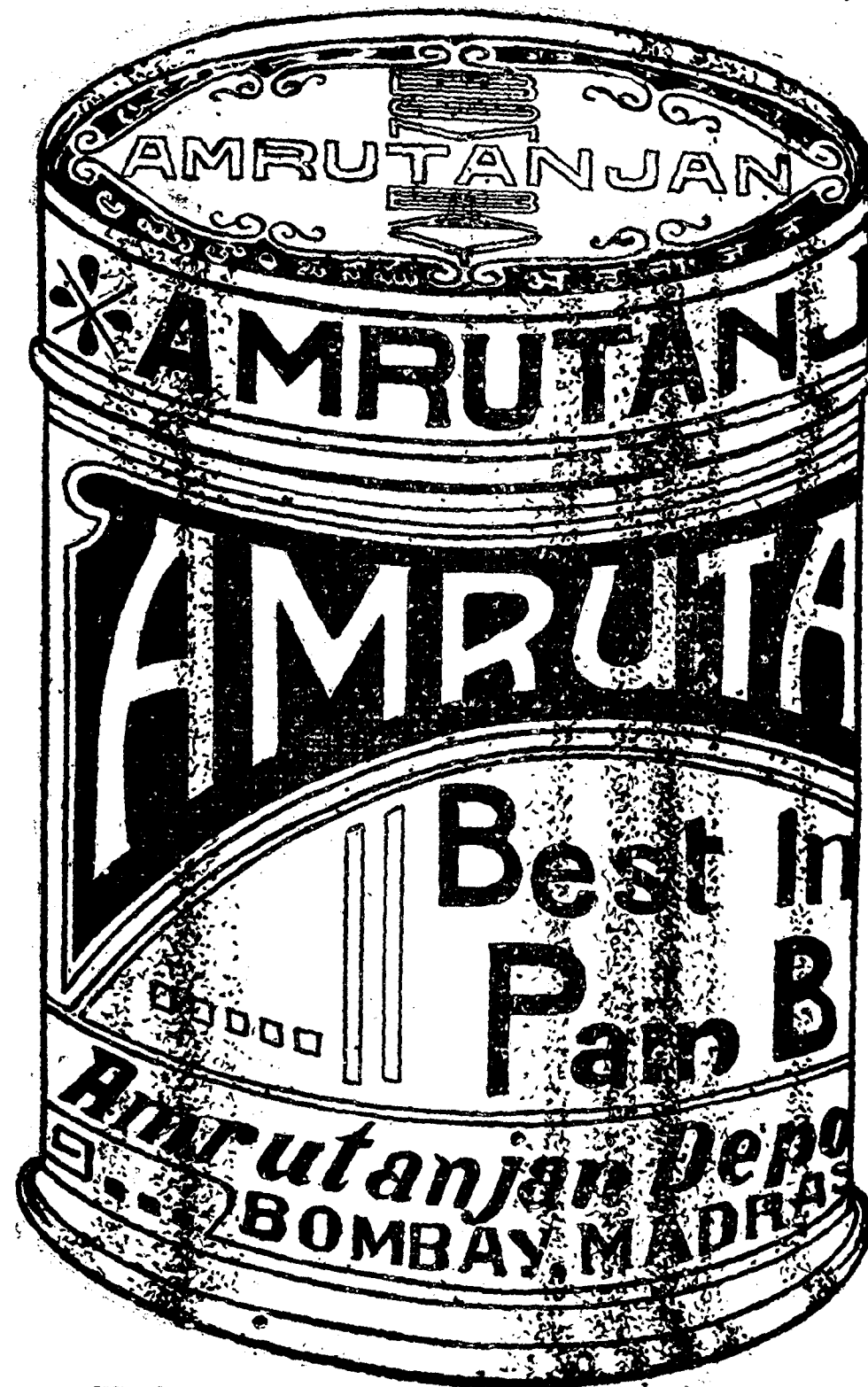
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WHAT IS FEVER? SOME PROGRESSIVE PRINCIPLES IN ITS TREATMENT

BY

D. R. DHAR, M. B., D. T. M. (CAL.), M. R. C. P. (LOND.)

Leaving aside the question of hyper-thermia caused by heat and pyretics, which is not the point to be discussed here, fever as indicated by a rise of body temperature, is an index to the fight going on in the human system as a result of infection. Infection draws forth many complex responses from the Laboratory of the human body which our crude methods at the present stage of knowledge measure in the development of agglutinins, bacteriolytins and increased activity of the phagocytes etc. In short one can say that the defensive work of the human fort is rather brisk during an invasion by bacteria.

Apparently there is some evidence to prove that fever is one of the defensive mechanisms of the body developed through the long processes of evolution. It is not the disease; the pathogenic organism is the invading enemy and fever is one of the many principal evidences of a defensive fight. It is almost sure that the temperature is at its highest when the virulence of the microbe is at its maximum. Hence the reason why we are alarmed at a very high temperature. But this shows that a contest is going on between the bacteria and the human system. Here it may be of interest to note that there are seen cases of fatal apyrexial attacks of pneumonia in alcoholics, diabetics and cancerous patients particularly at the last stages of their lives. Here the body is too weak, feeble and resourceless to make an adequate response to the infection, the latter conquering the former without a fight, hence the failure to produce a temperature.

The effects of a heightened temperature on the system are shared more or less individually by all the vital organs of which the heart, vasomotor system, lung, intestines, muscles, glands, metabolism in general, and other functions are particularly affected.

But one of far-reaching importance is the effect of continued high temperature on the skin and through it on the central nervous system. This effect can be realised when one's experiences of a heat wave in a summer night, resulting in restlessness and insomnia are recalled to memory. Briefly one can say that if uninterfered by cold sponging baths etc., this continued high

temperature in a fever patient causes restlessness by continually sending centripetal sensations of heat from the skin to the central nervous system, this if still left uninterrupted results in insomnia, delirium, terminating in coma and ultimate death. The share of a overwhelming toxæmia in hastening the above processes also should not be lost sight of. The importance of vasomotor failure in causing death in these cases of acute fevers, has been brought to the limelight by modern workers in these lines. Space won't allow full justice to be done to these rather newer problems of acute infections.

Coming to the treatment of fevers one can realise that there are two ways left to attack the problem, namely first, weakening and killing of bacteria, rapid elimination and neutralisation of the toxins, the second, increasing the body resistance, that is, the defensive forces of the body.

These can very well be considered under the headings.

- (1) Rest, (2) Diet, (3) Fresh Air,
- (4) External and internal hydrotherapy, (5) Drugs,
- (6) Care of some organs and systems, (7) Specific treatment,
- (8) Treatment of complications and grave symptoms as they arise.

Very briefly one will try to deal with the important points of the above broad headings. Here with a word of apology one would like to point out to the readers that the teaching of modern scientific medicine and the actual practice of it are very much at variance in our convention-ridden land. Only if we can follow and practise conscientiously the knowledge we have acquired, then alone much can be achieved in the domain of the treatment of acute fevers.

Rest:—Means something more than going to bed. The patient should be free from worries and must have absolute physical and mental rest. Strained position in a hard bed often gives rise to dreams and sudden starts during sleep; hence, these should be avoided. Proper nursing can also be included in rest.

Diet:—Modern tendency in fever hospitals of Europe is to give the fever patients liberal and high caloric diet which is fully justified by facts. Here one can emphatically say even on the face of what may be argued on the contrary that in Typhoid and other long continued fevers, in which the intestinal lesions so long prevented us from giving a liberal semi-solid and properly judged protein dietary produces and is still producing in fever Hospitals of Europe much better result than our old, conventional

conservative whey and barley water regime. As a matter of fact the latter form of dietary was in vogue in Europe about 25 years back and that system is still perpetuated in our country, whereas the newer ideas of dietary will probably be taken up by our country when it is already a 2 decades old affair and something newer has been taken up there in Europe and America. Smashed potatoes, yolk of eggs, boiled fish, custards, finely chopped meat, well boiled rice and fish or meat can safely be added to the dietary of our fever patients.

Some thought must be bestowed to the intestinal flora in selecting the dietary in certain bacillary infections of the intestine as in Shiga Bacilli infection only carbohydrate diet is one of choice. In conclusion one can say that every case must be thoroughly studied and individualised and a diet should be given by realising the underlying pathology and anomaly in metabolism in each individual cases.

Air:—Nature's one of the best weapons to combat infection is pure air. In our tropical country all our fever patients, nay as a matter of fact, all our patients, should be treated out-of-doors except during the days of extreme heat and rains. Among the most beneficial effects of fresh, cool air on the heated skin of the fever patients are to diminish the restlessness, raise the blood pressure and promote the secretions and excretions thereby easy elimination of the toxins is made possible, not to speak of its good effect on respiratory diseases.

Hydrotherapy:—Properly judged internal and external hydrotherapy are the main weapons in our hands to fight the infections victoriously. Here again the convention of our custom and usage ridden land, the timid half articulate objection of the relatives of the patient, and probably, above all, our want of courage and conviction makes the proper use of water impossible. Water is one of the best if not THE BEST agent for dilution and elimination of toxins of bacteria, the latter proving fatal, whenever accumulated to a point beyond which the system and its organs cannot tolerate. Then again one of the most important dangers, namely, that of the vasomotor failure in all acute fevers can not be better averted by any drug in the pharmacopia than by cool or cold bath. It is needless to say that to be of use the technic must be correct and begun quite early in the course of the illness. From personal experience in bath treatment of cases of typhoid fever, with high caloric diet well balanced by suitable proteins and plenty of water kept in fresh air and with a clean bowel and active kidney I can say that the old "Typhoid state" is almost unknown

and they make an uneventful recovery without complication, and with a very short period of convalescence.

It must be admitted that the above form of treatment makes so much demand of one's time and such care should be followed to individualise patients that it becomes too much for a ~~very~~ general practitioner. But it can be emphatically added from personal experience that such trouble is worthwhile for the serious cases of fever. Nothing one proposes to speak about drugs except the judicious use of alkalies and urinary antiseptics as the particular cases demand.

As regards the care of vital organs it would be the duty of the physician to know if there had been already existing damage to any organ, as, for instance, any incompetence of the valves of the heart, damaged kidney, lung etc. Naturally our prognosis of the case will vary accordingly. Certain fevers have got special predilection to damage certain organs and hence a careful watch should always be kept over them.

Specific treatment :—Under this head little need be said about the use of the specific antisera. It is well known that to be of maximum use these sera must be freshly prepared, and the antigen used for immunisation as much identical to the infection in question as possible and given early in disease, in adequate doses and administered properly. Here one cannot but recommend the use of the antisera produced in India, in view of some of the above facts. However potent the specific remedy might be after certain stage of the illness is passed it is of no use whatsoever. Hence the importance of early administration of these antisera. The route through which these remedies are administered and the dosage are very important factors in modifying the disease.

Trial is being given in some acute infections of a mixture of proportional doses of vaccines and sera according to the acuteness or chronicity of the illness with somewhat promising results.

Vaccines in very minute doses given early in fevers caused by specific bacteria seem to have some hopeful future.

But the point which has been very earnestly taken up by our colleagues in the west, especially in America, is about a more frequent use of transfusion of healthy blood in all cases of acute fevers specially in those who show any premonitory signs and symptoms or any other evidence of being of unusual severity. My argument in favour of its use can be well expressed in the words of William H. Park¹ "The Serum from many persons who have never had certain communicable diseases possess antibodies

against the micro-organisms causing these diseases etc. Our only explanation is that these persons at the same time had very light unrecognised sickness or that they were for a time healthy carriers of micro-organisms."

In clear terms Dr. Park lays down the above facts which support the principle of transfusion of blood in acute infections.

From experience in some of the best fever hospitals in Europe one can say that timely transfusion of healthy blood, is of very good efficacy in cases of acute infections. It must be given early as in the case of antisera. Proper grouping of the blood and other technics must be correct in order to derive the maximum benefit out of it. One is particularly surprised to see the very excellent curative effect of transfusion of healthy parents' blood to children ill of acute fevers, commonly found in children, such as, measles, whooping cough, broncho-pneumonia etc., particularly when they seem of any extraordinary severity. Often it has got to be repeated. In near future this is going to be one of the routine methods of treatment of fevers.

The use of convalescent blood as a curative and prophylactic has already been universally accepted. The experiments of Regan² in the above question in Mumps by Zingher³ and others in measles Ross Hund⁴ and others in Influenzal Pneumonia, Nicolle⁵ and Conseil in encephalitis lethargica, in whooping cough by Bleyer⁶ in scarlet fever by Reiss and Jungman⁷ and Koch⁸ are in support of the above statements. Any one who is willing to verify these will be struck by the beneficial effect of these forms of treatment. The intramuscular injection of 10 to 20 c. c. of healthy blood in the cases of an acute infection of children is also found of some use, when repeated daily it is of marked efficacy. The writer of this article is of opinion that in near future we might find a group of healthy young people having their blood properly grouped and immunised against specific bacteria ready to be used for the purposes of transfusion of blood. This might come in as a profession of young robust healthy people untainted with syphilitic or any harmful communicable infections. The immunised horses' serum which is far less potent as a specific remedy in comparison with immunised human serum, is likely to be replaced to a certain extent, if not completely, by human whole blood as the medical science and technics make further improvement.

Last but not the least, probably the most important item in the treatment of fevers is one for prevention. Prophylaxis is the aim of modern science. We know that once a pathological

change in structure of an organ has taken place we can seldom replace it, almost similar analogy holds good in cases of acute fevers. As a matter of fact we cannot say which of our fever patients will die and which will survive, but this much one can say that if proper prophylactic measures are taken then the healthy population can be saved. The triumph of bacteriology could have achieved much if only we would make use of the knowledge about the spread of diseases and their various methods of prevention partly through active immunity by vaccines and passive immunity by antisera and convalescent sera. So much demand is made on our expert knowledge of curing the ill that we often lose sight of the care we should bestow on the healthy.

In this connection one cannot help making a serious reflection on the scarcity of Isolation Hospitals in this country particularly in big cities where people live in millions in close proximity to each other and the chances of epidemics assuming a terrible magnitude are so great. In the country of our ruling class from whom the official medical men entrusted with the health problem of our land are recruited, there are a network of isolation hospitals per fixed number of population with the result that every case of contagious fever, which all the acute fevers are, more or less, to a certain extent, is promptly isolated and thus the epidemic stifled and smothered at the very outset. But what has the "state" or Government done for our infection-ridden country need better not be mentioned. How long we are going to be left like this only Providence can say.

But our private efforts must be more vigorous. The newly formed medical Conference of Indian practitioners should think seriously about these problems.

Dissemination of knowledge about health matters is also very badly lacking. Private practitioners must think and pause a while to remedy and mitigate these evils.

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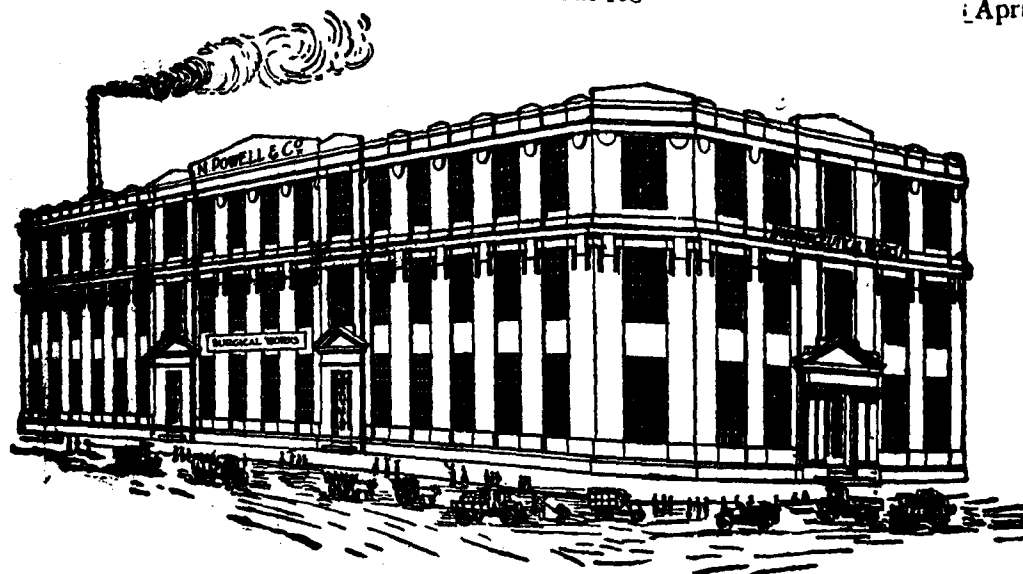
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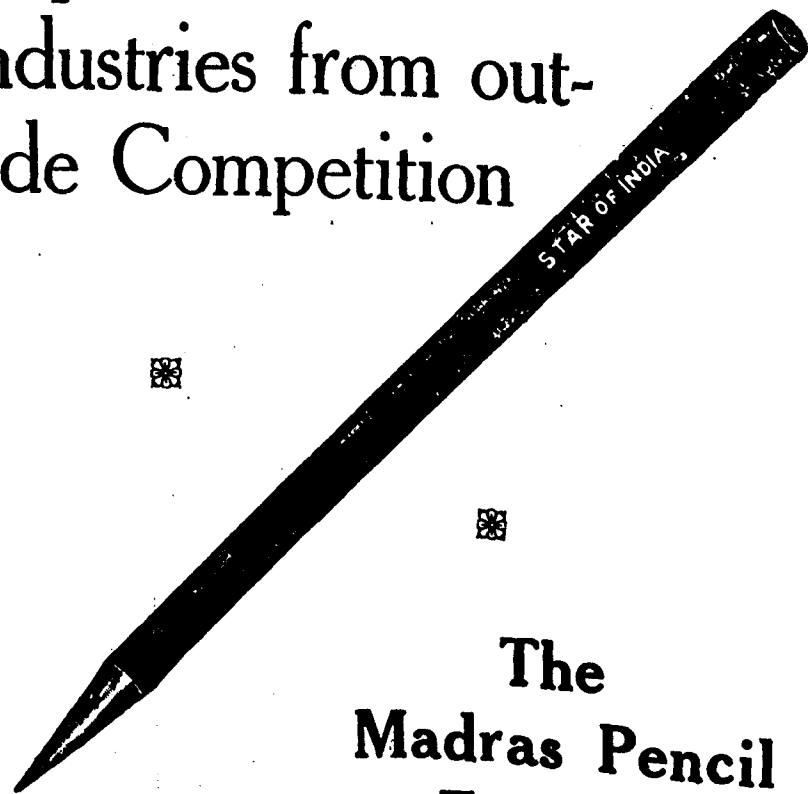
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VACCINES IN OILY SUSPENSION

BY

MAJOR LABERNADIE M. D., M. S. P. E. (PARIS)

*Chief of the Laboratory of Researches and Visiting Physician to
the Colonial Hospital, Pondicherry*

It is useless to insist upon the formidable development which Bactériothérapie either curative or preventive (vaccines) has made in modern therapeutics.

There is no infectious disease whose known microbial agent has not been utilised against it and most often with success. Except the cases wherein the microbe acts above all by its toxins, specific Bactériothérapie has been in general a positive conquest of the Medicine.

We must pay homage to laboratory men, who have for a long time toiled without ceasing, and often obscurely, to improve the methods of culture, sterilisation, suspension, and dosage, to make the microbes harmless to the organism, while at the same time preserving their antigenic properties, and to utilise and regulate, in short, their noxious power with a beneficial aim.

One of the first problem was—"primum non nocere"—sterilisation. We must in fact be quite sure that the microbes to be injected are dead so that they do not happen to increase the state of infection. It is easy to kill the microbes, but to carbonise them is of no avail whatever. It was soon noticed indeed that we must not demolish their molecular frame on pain of obtaining no more any active effect. It was necessary to find either the optima temperature, or, a little later on, the antiseptic optima concentration, which would kill the microbe by altering in the least possible way the structure of its albumines.

As regard the question of dosage, they succeeded more easily in fixing the favourable quantity to be injected,—pretty strong to be active, pretty weak in order not to fatigue the patient.

As for the vehicle, they remained naturally for a long time with the normal saline solution by reason of its isotony which favoured the rapid absorption of microbial bodies and their passage in the general circulation where they ought to bring on the apparition of specific antibodies.

But little by little they have come to understand that this easy absorption accounted also for the apparition of accidents and shocks arising sometimes in the course of bactériotherapy.

These accidents are due to a massive introduction of microbial bodies and these shocks to the introduction of their albumens that have been modified and dislocated by the lytic action of the water wherein the microbes were in suspension. On the other hand, hydro-vaccines are sometimes painful and caustic owing to a residual toxicity adhering to certain microbial bodies.

But could any excipient be had other than the normal saline solution?

It is to Major LeMoignic (retired) of Paris that the honour accrues of having invented after long researches, a vehicle which avoids all such inconvenience. He has since many years already brought to light an oily mixture whose advantages are the following:

(a) The toxicity of the microbial bodies so embalmed is annulled; hence absence of inflammatory local reaction.

(b) There is no microbial lysis in this oily mixture; hence no modification in the albumens and therefore no protein shock.

(c) The reabsorption of the lipo-vaccines is very slow; instead of a bulky introduction of microbes in the general circulation there is on the contrary slow absorption, hence, progressive production of solid antibodies.

From this last advantage it follows also that the total number of necessary injections is by far less than when it relates to hydro vaccines.

* *

* *

* *

We are going to give as an example the mode of preparing T. A. B. Lipo vaccines (anti typhoid + para A + para B) It was indeed about these microbes that Major Le Moignic studied first of all, after so many other scholars!

Is it necessary to recall to mind here the fruitful researches of Dr. Wright who was the first to apply, just in India, on a grand scale, the anti-typhoid vaccination to human beings? The spirited campaign made in England against the new method, the "virulent" article in the Morning Post pointing out the pale and "emaciated look of the vaccinated men on board of the "Dunstar

(1) It relates to vegetable hence reabsorbable oils; it is known on the contrary that mineral greases remain at the point of injection (paraffinomes, vaslinomes.)

(2) From Dopter and V. de Lavergne—Epidemiologie (Bailliere).

Castle" the interpellation in the parliament, the hostile opinion of the Medical Advisory Board and the prohibition which Wright underwent for applying his method?

In 1904, however, the College of Physicians expressed a favourable opinion and vaccination revived again not to be stopped any more.

In France, the vaccines of Vincent (in ether) was largely used even before the war.

At the International Medical Congress of London. (1913). W. Leishman, expressing the general opinion wanted that vaccination should be made compulsory for soldiers and sailors; and this was adopted in France by a law in March 1914.

During the great war, thanks to the vaccination, the rate of typhoid and para-typhoid fevers in the armies fell down much below (7 times) that of the civil population in time of peace, and we know what scourge these deadly diseases were formerly for the armies in the field.

However we cannot pass over in silence the local and general reactions which the hydro-vaccines provoke and as the anti-typhoid vaccination was the first in the order of the day it was there that Major Le Moignic began to study and got at the following preparation:

To emulsion the cultures on agar, after 19 hours in the incubator, in sterile saline water. After centrifugation and drying, oil is added to the bottom and the mixture is sterilised at 57° centigrade for Eberth and 60° centigrade for Para A and Para B with addition of eugenol. Then they dilute the whole with an oily mixture which contains by each c.c.

2 mmgrs Eberth (2600 millions)

1.75 mmgrs Para A (2275 millions)

1.75 mmgrs Para B (2275 millions)

A single injection is enough to confer a more durable immunity than that due to hydro-vaccines.

More than two million people (civil and military) have been up to this day so vaccinated in France and in the armies of U.S.A and Greece and have allowed to ascertain that these injections are less painful and less irritating and that there is only 4 per cent of feverish reactions instead of 10 to 15% with hydro-vaccines.

The preparation of other lipo-vaccines is analogous to that of T.A.B. whether they are simple as :

Anti-gonococcus
Anti-staphylococcus
Anti-streptococcus
Anti-pneumococcus
Anti-plague
Anti-cholera
Anti-phagesenic

or compounds as :

Anti-pyogene (staphilo + strepto + Pyocyanic).
Anti-enterococcus + B. coli.
Anti-influenza (Pneumo + staphilo + strepto + Pyocyanic).
Anti-B. Coli + B. Paracoli

Anti-pyorrhea
Anti-phagedanic

Useless to say that many strains of each microbe involved were mustered.

* * *

Apart from the lipo-vaccines to be used against epidemic diseases we see in this enumeration the daily use that can be made of the others in the practice or at the hospital.

Thanks to these vaccines, we have very successfully treated pulmonary and intestinal affections and the complications of gonorrhœa.

We should point out more particularly the use and the good effects of :

(a) Anti-pyogene lipo-vaccine in the suppurations that are established or dreaded, that can be operated upon or not.

(b) Anti streptococcus lipo vaccine applied systematically to all the women in labour that come to the hospital after having undergone the manœuvres of empiric matrons in town. In these cases puerperal fever breaks out very rarely ; at all events we have never had any death to deplore.

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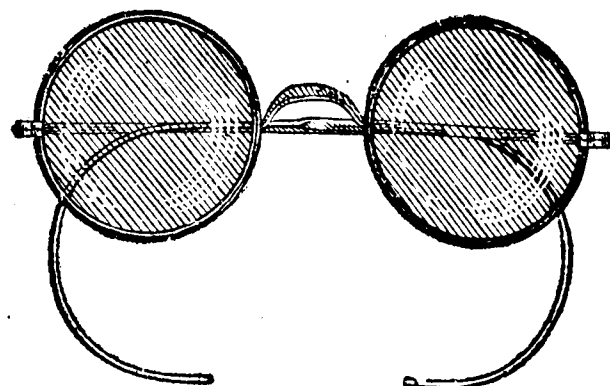
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MODERN DEVELOPMENTS IN METHODS OF TREATING SENILE CATARACTS

CAPT. V. D. NIMBKAR, F. R. C. S. (Ed.)

Honorary Surg. Gov. Oph. Hosp. Madras

Cataracts, errors of Refraction and Trachoma are recognised as the three main pillars of ophthalmic practice in India, and in contributing my mite, towards the celebration of the SILVER JUBILEE of a popular medical journal like the *Antiseptic*, I can think of nothing more appropriate than to give a survey, which owing to limitation of space, will of course have to be broad, of the developments during the last quarter century or so, in the methods of treatment of senile cataract. the first and foremost of these.

"No kind of MEDICINAL TREATMENT is effectual against cataract. * * * A cure of Cataract can only be secured by operative means"; and such like used to be the beginnings of chapters on treatment of Cataract in the best of text-books on Ophthalmology; but a cursory view of the vast literature on the subject of the period under consideration, embodying the experiences of men whose evidence there is no reason to doubt, makes one feel convinced that the text-books of the future will have to classify the treatment of Cataracts under three headings —

- i. Prophylactic.
- ii. Medical or non-operative.
- iii. Surgical or operative.

Similarly in discussing the operative treatment, opinions used to be freely expressed, that "extraction gives best results when the Cataract is ripe",¹ and this opinion also has to be changed; for we nowadays get equally good, if not better results with, extraction of entire Cataract in calpsule². There had been a general reluctance among surgeons in recognising that the senile Cataract is not altogether the result of a physiological senile process. That not all Septua—Octo—or nonagenarians get cataracts in their eyes, ought to make it quite clear that some different factors than senility, or at least besides senility, must be coming into operation in the production of so-called senile cataract.

It has been besides well noted by many great practitioners, that not all cataracts coming under their observation, always attain to maturity and amongst such cases as do advance, they had reason

to believe that there was an increase in the uveal pathology accompanying 3&4, while some cataracts progress rapidly others are so slow that the patients suffer agonising heart breaks, when they come to consult their surgeon over and over again, and are told that their cataracts have not been making much perceptible progress towards maturity considered so essential for a successful operation. It is evident, therefore, that the constitutional or ocular pathology to which the senile cataract must be definitely 5, more marked and persistent in some, and less marked and of shorter duration in others. Herein comes the clue to medical treatment of cataracts, namely, that if these pathological processes could in some cases come to a stop of their own accord, and thus could arrest the progress of Cataracts, Eye Surgeons with all their materials and research capacity should not find it impossible to get at this pathology, attack it, check it and thereby check the growth of cataract, if not altogether resolve it. Viewed in this light it would not be an idle boast to class cataracts under "preventible forms of blindness."³

Treatment of Cataracts then has to be given under the following headings (i) Prophylactic (ii) Non-operative and (iii) Operative, as mentioned above.

(i) *Prophylactic treatment* :—

The nutrition of the lens is dependant on that of the Uvea and the nutrition of the latter, on the general condition of the whole body. Prophylaxis therefore has to attend to (1) the general health of the body and (2) the condition of the Uvea.

(1) The general condition of the patient in advanced age must receive one's careful consideration. Any foci of auto-infection and free from any pathological complications. Constipation and its attendant auto-intoxication should be attended to. Diet and the general mode of living should be carefully studied and regulated. Moderate amount of healthy occupation or exercise should be prescribed even in advanced age, to maintain the body in good tone; but no strain of any kind physical or mental should be permitted.

(2) Any ocular conditions as are likely to react on the nutrition of the Uvea should be set right, errors of Refraction and muscular anomalies corrected and all sources of strain on the eye removed. Frequent correction of Refraction errors is said to have often checked the progress of Cataracts. Into this category also falls the use of Tr. Iodine, a few minims in milk given orally to combat chronic foci in the eye.

(ii) *Non operative treatment* :—

"Various workers have tried various remedies and records of clearing up of well observed lenticular opacities are to be found in literature in large numbers free from criticism."

Smith of intracapsular extraction fame, while trying to resolve corneal opacities with Sub-conjunctival injections of Cyanide of mercury, discovered that these injections cleared up accompanying lenticular opacities as well, and so applied the remedy successfully to early cases of incipient Cataracts. Peter⁶ of Philadelphia strongly corroborates the efficacy of this method. He first looks for any focus of autoinfection and treats it, aiding the treatment with small doses of Tr. Iodine orally in milk over long periods with short intervals. Locally he injects 12 to 14 minims of 1 in 6000 Cyanide to which is added 3 to 4 minims of 1% Acoin solution, beneath the conjunctiva, well back from the limbus. There is a strong reaction accompanied by swelling of lids &c., which is relieved in 3 or 4 days by hot compresses. Subsequently eye baths with Dor's solution twice a day or Gutt Dionin 5% once in three days are prescribed.

He finds the treatment most suitable in two forms of cases. (a) in cases of diffuse clouding of the lens without any marked opaque Striae and (b) in cases where opaque Striae are present in only the peripheral layers of the lens usually between the nuclear layer and the capsular zone. In cases where vision is not reduced to below 6/12, he found the results most satisfactory. The more severe the reaction the better were his results.

Greens⁷ have tried the method with slight modifications in a series of 72 cases. The results were—

Improved	42
Checked	18
No result	12

They supplemented the treatment with 1% drops of Pot. Iod. and 2 to 8% drops of Dionin on alternate nights, the strength of the latter being increased gradually. They conclude "this method is a decided help in conserving vision at a time of life when a few months or years of sight is worthy of consideration."

The effect of these injections lasts a few years: about four. It is not yet found out whether injections could be repeated with good result.

Pot. Iod. subconjunctivally has given good results at the hands of Pflugk.⁸ The formula used is Pot. Iod 2, Sod. chlor. 2, and Aqua Dist. to 100.

An addition of Acoin to this makes the injections painless. Half to one syringeful is injected daily or tri-weekly for four weeks, followed by two weeks of rest, during which time Gutt Dionin is instilled in the eye.

Some have used a solution of Pot. Iod. as an application to lids, combined with a galvanic current, some like Dor (see below) in the forms of a bath and others as hypodermic injections. "But the best results are obtained by sub-conjunctival injections."

Van der Hoeve⁹ discovered the "Swelling heat" liberated by a lens, while swelling in different fluids and the effect of presence of Pot. Iod. in diminishing the heat. On this basis he suggested the therapeutic possibilities of Iodides in checking cataracts.

Dor¹⁰ of Bern used eye baths containing Sod. Iod. 1 Calc. Chloride 1. to Aqua Dist. 80. He found them very useful in cases where vision was not reduced to less than half. The solution should be warm and used half an hour daily for months.

Cases are described by Pollock¹¹ where marked improvement followed the use of Pot. or Sod. acetate, citrate and chloride solution with drops of Trunacek's solution. He augmented his treatment in some cases by using Fibrolysin drops.

Syrup of Hydriodic acid or Iodonucleoid has proved beneficial in certain cases. Twenty intramuscular injections of Benzoate of mercury 1 cgm daily are reported to have completely absorbed lens striae.

Le Roy¹² while investigating the efficacy of Sod. Thiocyanate in dissolving the earthy salts of the body, for testing a certain theory of his about certain diseases, discovered that the arcus senilis on the cornea gradually faded away in the case of many patients and tried it on cases of cataracts. The drug was administered hypodermically in some cases and orally in others, with good results. In one case where 1/4th grain of the remedy was given after meals for weeks, the cataract disappeared leaving behind practically no trace of its presence.

To get good results however the drug has to be pushed on till it appears in the saliva in excess of the normal content. The administration must be well watched and guarded as untoward symptoms and even death may result. For "the Thiocyanates are very active poisons when administered carelessly."

On quite a different principle has been advocated the use of lens antigens for resolution of Cataracts and much work has been done in the methods of preparing various antigens. Davis¹³ claims that he has arrived at a method of preventing or curing cataracts

without resort to Surgery. He believes that a solution of emulsified lens of an animal when injected into the human body, will cause the active formation of antibodies which will seek out the lens, invade it and cause absorption of its opacities. In a series of 72 cases with 132 cataracts he got a cure or improvement in 86 and arrest of progress in 36.

In experiments performed on cataract cases, Ellis¹⁴ however found the results far from encouraging. He gives his results as in cases with progress of cataract 14; no change 13; absorption of Cataract as revealed by slit lamp or improvement of vision, nil.

Doctors will differ in all that one can say in this matter, pending observations of other Surgeons. Succus cineraria maritima is a much advertised remedy and very popular among the lay in this part of the world, a physician visiting Venezuela is said to have cured his own cataracts by using the juice of fresh leaves of cineraria and to have reported the matter in the B. M. J.; on reading which a firm of chemists prepared the succus. Many surgeons including Callon¹⁵ of N. Y. have tried the remedy, but without success.

Lotus Honey is well known to readers of lay papers here. But the writer has not come across any medical literature on its use and effects.

Though the multiplicity of remedies according to general experience may suggest doubt about their efficacy of any of them one cannot but feel, after reading the mass of evidence, that one or the other of them should be given a fair trial in every case of early Cataract one comes across.

(iii) Operative Treatment.

The orthodox treatment namely extraction of a fully mature cataract with capsulotomy is now depended upon by only a few experts. Even those as do not value intracapsular methods, do not now wait for complete ripeness. In patients of 60 or over as Swanzy and Werner¹⁶ advise one 'need not hesitate to operate without waiting for absolute maturity, if the patient be materially incommoded for want of sight.' But the more progressive men remove unripe Senile Cataracts by intracapsular methods whatever the age of the patient as the size of the nucleus is of no importance in these methods.

Though all surgeons have had long since agreed that "the ideal cataract operation would be to remove the lens in the closed capsule."¹⁷ both Smith's and Barraquer's operations had been looked upon as successful only in their respective hands.

But during the last quarter century both these eminent surgeons have gathered numerous followers.

The use of Novocain infiltration anæsthesia for controlling lid spasm, has made these operations very safe and popular for the main bugbear in undertaking intracapsular operations was the fear of vitreous loss and since the use of this method of anaesthesia, this rather undesirable accident—though a loss of little vitreous makes no difference—has almost disappeared, or at least been reduced to the same percentage as is frequent in extractions with Capsulotomy, a variety of methods of infiltration anæsthesia have been devised, including the blocking of the facial nerve at its exit from the skull.¹⁷ But the most popular, easy and safe procedure is one where one per cent. novocain in normal saline to which are added a few drops of adrenaline chloride, is injected subcutaneously into the lids well away from the lid margins and a syringe of it is injected deep down near the ciliary ganglion. As a further precaution which also facilitates a conjunctival flap, a few minims of the solution might be injected subconjunctivally near 12 o'clock of the cornea. In a series of 43 operations by Barraquer's method under this kind of anæsthesia-cocain was besides dropped in the conjunctivæ in the usual manner—the writer who had no specially trained assistant to control the lids for him, did not have vitreous loss in a single case.²

This safety in the procedure leads to the application of the operations to unripe Cataracts and the fact that unripe Cataracts could be removed as safely as the ripe ones has become established.

Between Smith's operation and Barraquer's there is little to choose. Both are equally efficacious and equally easy to perform when this novocain infiltration anaesthesia or facial nerve block are used.

The prevalent prejudice against Smith's operation is that force, styled brutal by some, has to be exerted in breaking the Zonule, which force if it exceeds a certain limit, would cause the dreaded escape of vitreous. But as in other operations those that develop the necessary skill, will manage to stop at the safe amount of force only.

The drawback of Barraquer's operation is the cost of the apparatus. But as they say patients and not a doctor pays for the latter's outfit.

The advantage of Barraquer's method is that no force positive or negative is exerted. The negative force talked of with so much awe by ignorant critics, comes into force only in fastening the lens

to the erisophake. The Zonule is ruptured by side to side movements of the lens and after its rupture, the lens is merely glided out of its socket in the vitreous. No negative force whatever is exerted on other structures in the eye ball.

In all cases where vision is lowered below the point of usefulness, it is absolutely unnecessary to wait till vision is reduced to hand movements, a popular test of the maturity of cataract; particularly so when both eyes of a person are affected. Even when the other eye is not much affected, it is an advantage to remove the unripe cataract in the first eye, so that, the operated eye will be ready for useful vision before the other eye diminishes in visual acuity below the useful point.

It is not at all necessary to go into further details about the operations as both these procedures are now well known to all eye surgeons, at least in India; beyond stating that their technic has now been developed enough for them to become popular operations.

To add further to the safety of all cataract operations many methods of conjunctival bridges and conjunctival scleral and corneal sutures have been devised. These certainly make the eyes more safe from post-operative complications. But the writer is not sure that they make the technic more easy. A conjunctival flap with or without suture followed by confinement of patient to bed and non-disturbance of the bandage for 3 or 4 days, is in his opinion enough to give ample safety. But those who are not much used to cataract extractions and feel therefore a little diffident would find the method of a Scleral Suture most satisfactory. Verhœff¹⁸ who introduced the method raises a small flap of conjunctiva before the corneal section, takes a bite into the denuded Sclera with one needle of the double needled thread and brings out the two arms of the Suture through the conjunctival flap. The threads, which of course are long enough, are placed out of the way and the main operation proceeded with after toilet the conjunctival flap is brought over the Sclera and stitched on to it firmly.

To summarise roughly the modern treatment of Senile cataract—

(i) Eye Surgeons when they examine Presbyopes for glasses, should pay attention to their ocular and general condition with a view to prophylaxis of Cataract.

(ii) At the earliest suggestion of cataract non-operative treatment should be at once resorted to.

(iii) In patients beyond this stage, in whom the non-operative treatment has failed or not been tried and whose vision with correcting glasses has fallen below 6/12, extraction in capsule should be undertaken.

(iv) When a cataract is advanced to almost maturity, extraction in capsule or with capsulotomy should be performed according to one's choice.

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The Editors acknowledge with thanks the receipt of the following Contributions received for the JUBILEE Issue.

Dr. Abilas Chandra Basu, M.B., D.T.M. Calcutta—"Some effects of the Tropical Sun and how to prevent them including heat-stroke."

Dr. Abibhushan Mukerjee, Nutanganj, Burdwan—"A systematising and generalising conception of the defensive mechanism of the Blood".

Dr. K. S. Anantha Iyer, L.M.P., Madras—"An Indian Materia Medica—Its prospect foreshadowed."

Khan Bahadur Dr. D. J. Asana, L.M.&S., F.C.P.S., B.M.S. Civil Surgeon, East Khandesh, Jalgaon—"The Cancer Problem."

Dr. Babu Ram Garg, L.M.P., Muzaffaranagar—"Gonorrhœa and its treatment"

Dr. Brojendra Chandra Bhattacharyya, L.M.F. (Bengal), Medical Officer in-charge of the Mahiram Kole Charitable Dispensary, Fulkocha—"Rational Treatment of Nephritis."

Dr. Chaitanya Charan Paul, M.B. The Tropical Pharmacy, Nutanganj, Burdwan—"Evolution on the Ætiology and treatment of Sutika or Asthenic Diarrhœa during the puerperium of Indian women".

Dr. N. Chatterjee, M.B., Bartolla P.O. 24 Parg.—"Predisposing Causes and early signs of T. B. of Lungs."

Dr. S. K. Chauduri, M.B.E., B.A., (Alld.) M.B. (Punj.) Capt. (Late I.M.S.) Chief Medical Officer, Benares State—"Medical Education in India".

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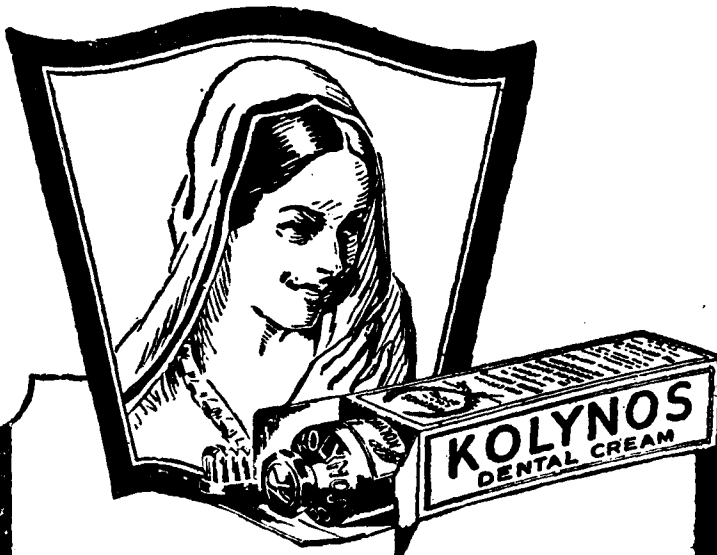
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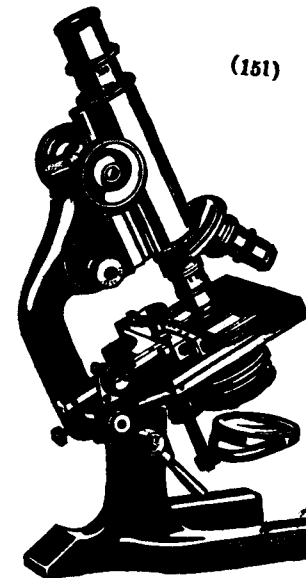
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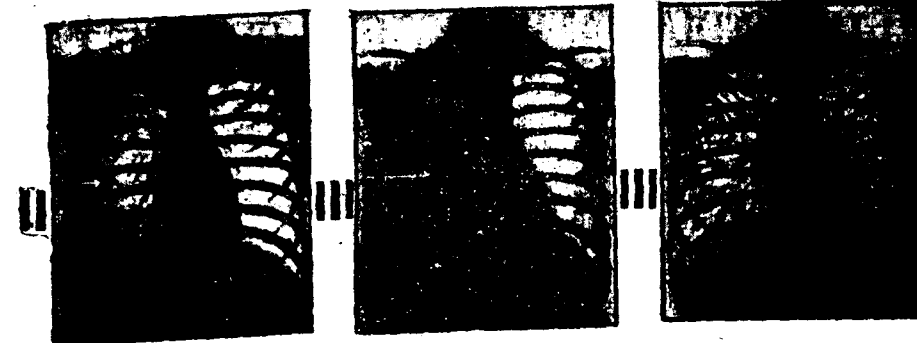
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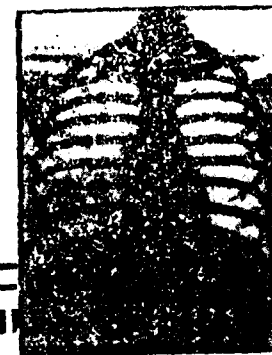
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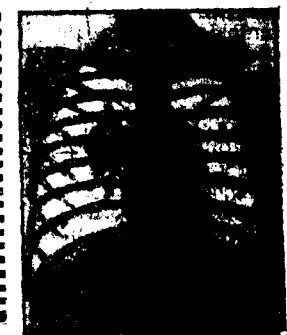
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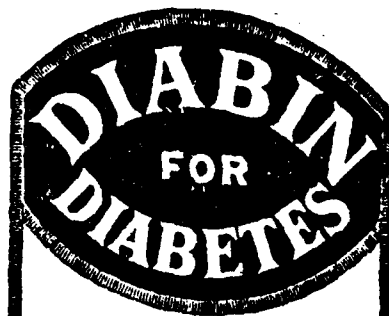
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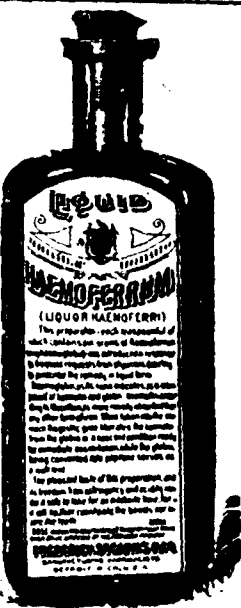
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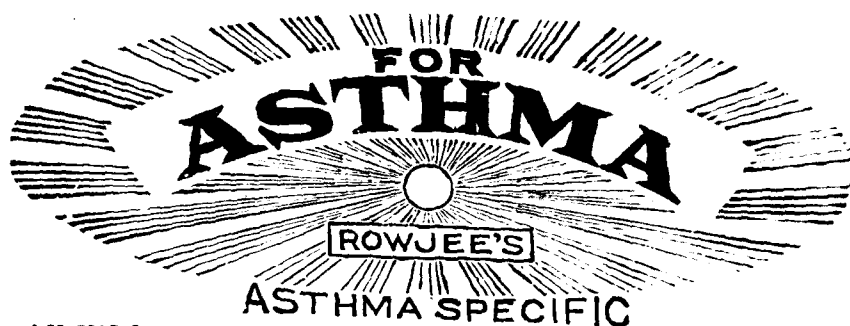


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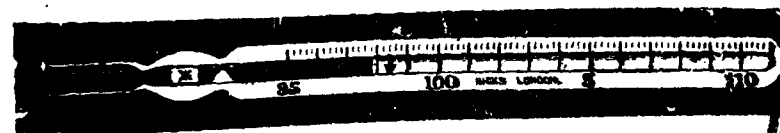
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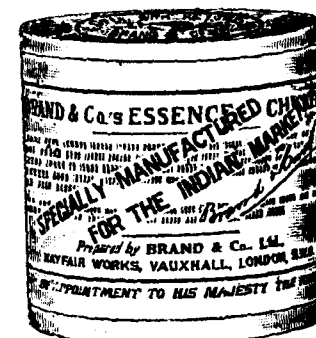
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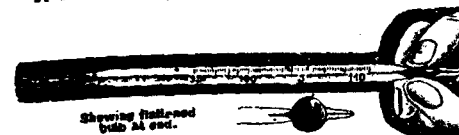
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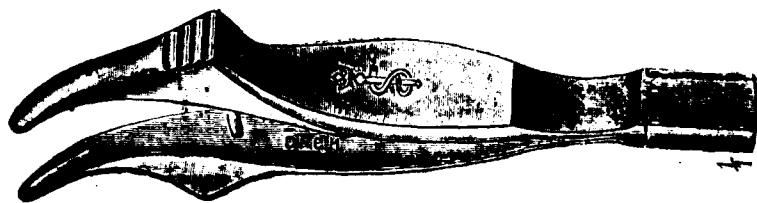
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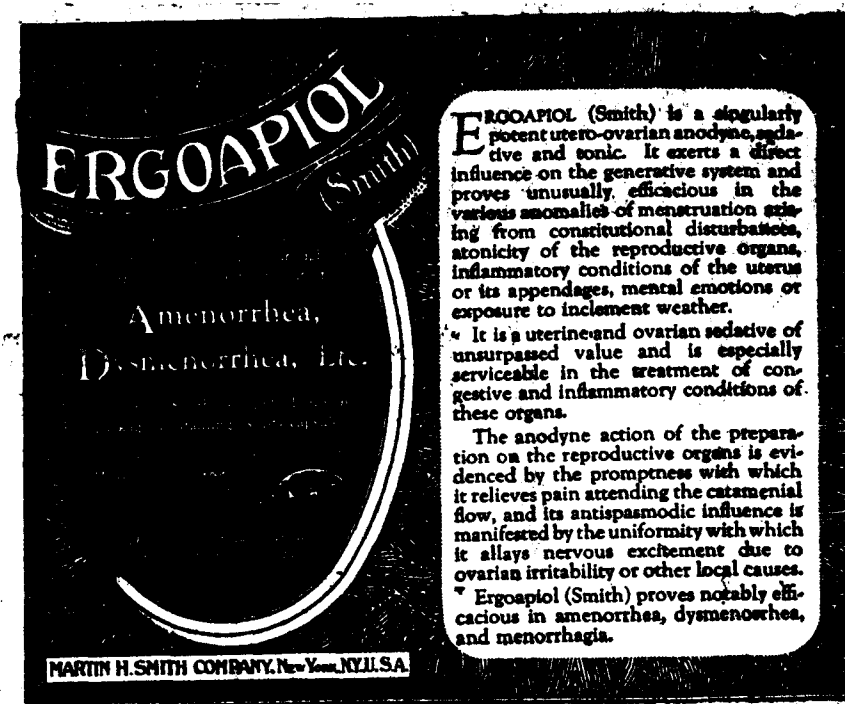
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Apart from organic defects or external injuries, the majority of diseases are attributable to an abnormal composition of the blood, in other words, to a condition in which the blood is deficient either in quality or quantity. Blood has very aptly been styled the red elixir of life, loss of blood leads to debility, and when the escape of blood is copious the result is fatal, although all the organs may still retain their full vitality.

When the blood is deficient either in quality or in quantity the organism loses its power of resistance to the invasion of pathogenic agents, since it has been proved that the blood contains protective bodies — alexins and vitamins — which are endowed with the property of destroying poisonous germs. According to the severity of the infection, these protective bodies are either able to combat successfully the disease, or, when the virulence of the infection exceeds the defensive powers of these protective bodies, the organism succumbs and a fatal termination ensues.

Recent researches have definitely established that in addition to protein and albuminoid food, it is essential to supply the organism with nutrient salts of vegetable origin in order to provide the blood with all the salts which enter into its composition. In this connection alkaline salts play an important role, a fact which had hitherto been neglected, since attention chiefly centred in maintaining the iron content of the blood. For this reason preparations of iron were extensively prescribed in anaemia and chlorosis on the assumption that these were capable of remedying the deficiency in iron present in these conditions. Apart from the fact that these preparations of iron discolour the teeth and irritate the mucous membrane of the stomach and intestine, it has now been recognised that they fail to achieve their object, and recourse is being made to preparations in which it exists in the blood. However, the sole administration of compounds of this class by themselves is insufficient to provide all the constituents which enter into the composition of the blood, and while iron is beyond doubt a factor of vital importance other bodies also play a very important part, for we must not lose sight of the fact that blood is a very complex fluid.

Anaemia and chlorosis are of frequent occurrence, and often lead to many and varied illnesses. Anaemia is a condition in which the blood is deficient in quantity, while in chlorosis, a form which mostly affects girls about the age of puberty, the number of leucocytes, the white blood corpuscles, exceeds that of the red blood corpuscles, which are the carriers of haemoglobin. Both conditions are marked by paleness of the skin, loss of energy, debility, insomnia, headache, loss of appetite, nervous disturbance, and other general symptoms. In anaemia, as well as in chlorosis, the deficiency in blood is responsible for a diminished supply of oxygen to the body tissues, while the whole organism suffers from the effects of insufficient nutrition. If this functional disturbance is not removed loss of weight occurs, and the organism readily falls a prey to serious diseases, especially tuberculosis.

It is evident that it is impossible to cure a disturbance of so fundamental a character simply by administering iron. The patient must be given a food which contains all the constituents essential to blood, and which is capable of promoting the formation of healthy animal as well as vegetable tissues.

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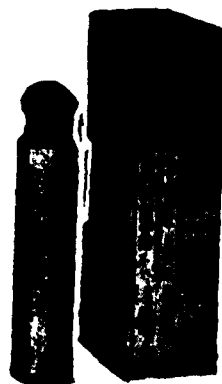
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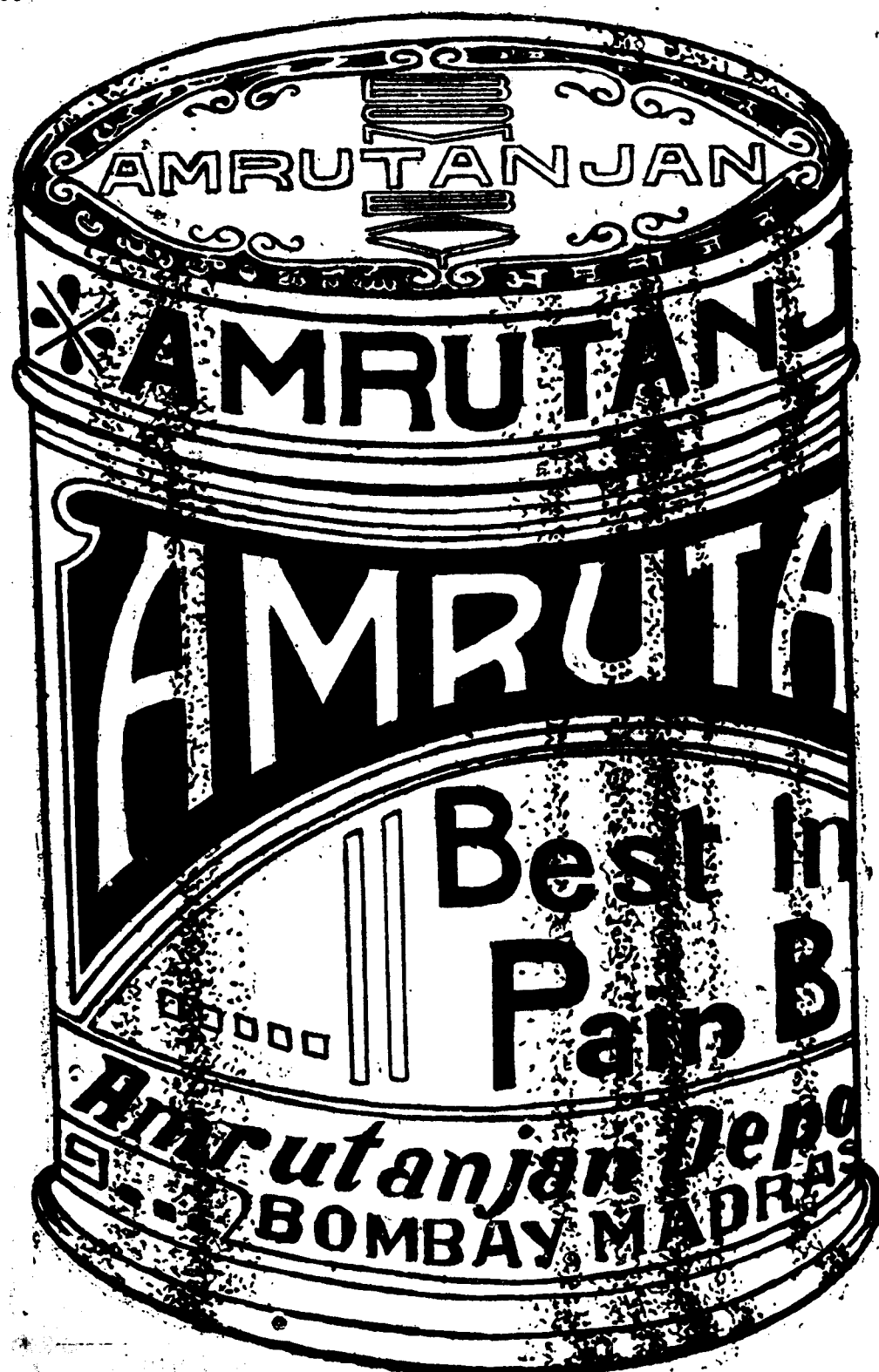
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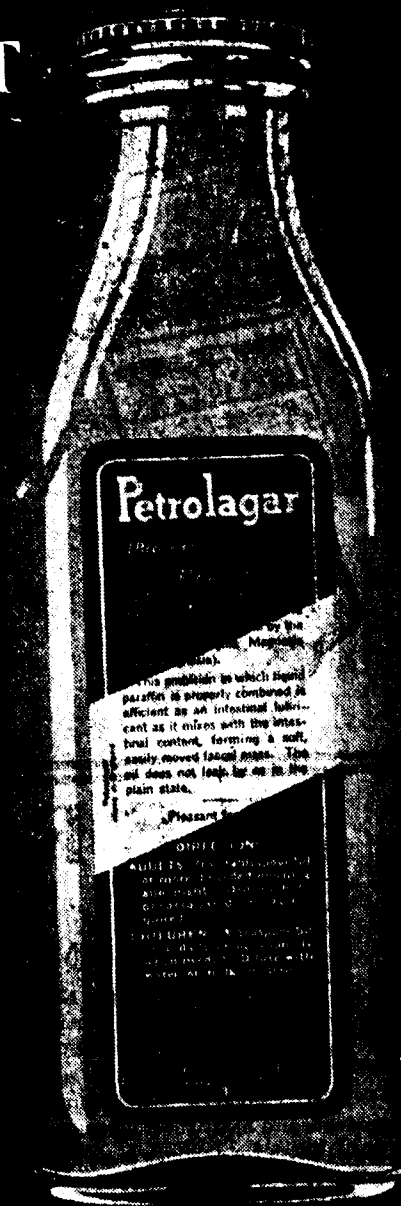
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[NO. 5.

ORIGINAL ARTICLES.

* THE TREATMENT OF VARICOSE VEINS

By

DR. F. C. PYBUS, M. S., F. R. C. S.

Surgeon to the Royal Victoria Infirmary, Newcastle-on-Tyne.

That there is still considerable disability and suffering occasioned by varicose veins and their complications, is suggested by the recent collective investigation initiated by the British Medical Association, and the perfection of the more recent method of treatment by injection is my excuse for reviewing the subject.

While it may be stated at once that the Surgeon usually saw such cases at an advanced stage, the relief afforded by surgical operation, granted a suitable technique adapted to the particular needs, was quite satisfactory, its performance was necessarily associated with 3 or 4 weeks recumbency. This made radical treatment a consideration for the workers, and the shortage of hospital beds led to its being denied to considerable members.

Varicosity, in brief, consists in a general dilatation of a vein, accompanied later by incompetency of its valves, increase in length

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producing tortuosity and localised dilatation and the formation of saccules. Secondary changes in the wall of the vein lead to Phlebitis or thrombosis, while rupture of the atrophic covering of a sacculle may lead to sudden and severe hæmorrhage.

The further changes of eczema and ulceration due to malnutrition, trauma and infection are common accompaniments of neglected cases.

While the varicosity frequently commences in the main vein, it tends to spread until the smallest branches are affected, and the whole subcutaneous tissue may become almost void.

While the majority of cases may be regarded as static in origin and due to a weakness of the vessel, and its being unable to withstand the ordinary wear and tear of life, it is important to remember that they may result from direct pressure on the larger veins by some form of pelvic tumour, be compensatory from thrombosis of the deeper veins or become distended from some direct arterial communication. They should therefore be considered a symptom until one of the more obvious causes is excluded.

The earliest symptoms are a tired feeling or actual aching in the limbs after exercise or standing, followed by slight cedema of the foot or leg. There may be a definite sharp pain along the inner side of the shin with each step due to sudden distension along the internal saphenous vein.

On inspection the distended veins are usually obvious, but note should be taken of their extent, degree and competency of the valves.

While in most cases the internal saphenous and its tributaries are involved, and numerous variations in its course may be noted, the external saphenous may share in the dilatation.

Elastic support in the form of a stocking or bandages if efficient, will do much to prevent further extension, and will allow patients to carry out their ordinary work.

Surgical treatment, consisting of interruption, and if necessary excision, of portions of the vein could be claimed as entirely satisfactory. Ligature in the thigh of the internal saphenous alone, in early cases, was sufficient to give relief. In more

advanced cases interruption at several points, combined, if necessary, with excision of segments of the veins, through multiple small incisions was the more usual measure. Either of these procedures could be carried out satisfactorily under local anæsthesia. Where a mass of veins existed, not readily separable from one another, and whose walls were brittle, then excision of the mass with the surrounding connective tissue or fat was necessary.

In order to simplify these more surgical methods, for many years numerous attempts have been made to imitate the natural cure by causing localised thrombosis. The supposed danger from embolism remained the great "bogey" to these attempts.

Embolism was most carefully protected against after operation—where thrombosis was necessarily present—but it proved an almost unknown complication. A similar possibility must exist after almost every operation, somatic or visceral. Where fatal embolism occurred careful post mortem examination revealed the important distinction between thrombosis and embolism, namely that in the latter cases infection was present with consequent softening and disintegration of the clot. I have on several occasions seen patients with the whole length of the internal saphenous vein thrombosed, carry out their ordinary work without mishap.

That the injection of certain substances could cause venous thrombosis, or even shrinking or obliteration of a vein, was well seen after the injection of Salvarsan. In spite of the numerous attempts to produce obliteration of a vein by injection, it was not until Sicard, some 15 years ago introduced his methods, that they have become accepted as a well recognised and safe procedure.

The method consists of an intravenous injection of substances which are capable of damaging the endothelium so that clotting occurs.

These substances include Sodium Salicylate, Quinine or such non-toxic materials as hypertonic solutions of Sodium Chloride or Glucose.

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The actual technique is as follows :

It is first necessary to get the vein distended ; for this purpose the patient may stand or a tourniquet is applied in such a manner that it can be released rapidly, the vein being compressed by the finger one or two inches above the puncture. The needle is introduced into the vein and a drop of blood aspirated, to make sure the point is in the vein, and the solution is injected. If the vein remains full with its contents stationary, the lining is damaged in the immediate vicinity of the injection, and clotting occurs at once, being evident by the hardening of the vein. The compression is then released and the excess of drug passes into the general circulation. A vein may be interrupted at one or more points by this method. For the smaller veins the solution may be injected directly without producing stasis, and its passage is sufficient to damage the endothelium.

A second method, and one most useful for the larger veins, is to insert the needle into the vein, elevate the limb, after compressing the vessel below the puncture, and then inject. By this means the solution comes into more direct contact with the venous wall, and can be allowed to travel any desired distance. In some cases an immediate adhesion of the walls can be obtained. The puncture is sealed by a collodion or "court plaster" dressing. As a rule the injected area becomes thickened owing to thrombosis and its subsequent organization. Three or six weeks elapse before the vein becomes reduced to a thin, fibrous cord. The thickened area is usually painless and only slightly tender.

It is unnecessary to lie up during the treatment and a number of patients have carried on the most laborious occupations while undergoing it, indeed, blocking the main vein often gives almost instant relief to the symptoms.

In using quinine it is usual to start with a small injection to test for idiosyncrasy, after which the full amounts may be used at intervals of 4-7 days. For varicose ulcer the injection may be used in addition to any other measures needed to cure it, such as rest or, in the more extensive cases, skin grafting. It is common to find a dilated vein immediately underneath the ulcer, and this should be dealt with first. It is important that none of the solution should escape into the subcutaneous tissues,

as it is likely to cause considerable pain or necrosis with varying amounts of sloughing. This is especially the case with sodium salicylate.

For extensive thrombosis of the internal saphenous I have recommended a few days' rest, but perhaps this is an unnecessary caution.

In some cases staining of the tissues round the injection results, presumably from leakage of the solution and blood from the puncture.

Sicard has now given many thousands of injections without serious mishap. Two years ago the method was commenced in my clinic. I admitted several persons for treatment in order that we might watch the course of events, and some of these were shown before the Society. Some hundreds of cases have now been dealt with as out-patients without complication, and with most gratifying results. In the earlier ones I was inclined to limit treatment to the less severe forms, but by perseverance even the most extensive can be dealt with, and one finds the patients enthusiastic about the results.

* BIOLOGICAL AND SEROLOGICAL METHODS OF DIAGNOSIS OF EPILEPSY

By

EUGENE DE THURZO,

Professor of Neurology and Psychiatry,

University Debrecen, Hungary.

The pathologic-humoral methods of research which have been pursued in epileptic patients may be useful in three different respects.

1. The results and obtained relations tell us about the beginning of the disease and about the way the epileptic attacks occur.
2. They may be used for casual treatment.
3. They offer convenient method, on a pathologic-humoral basis, for the diagnosis of epilepsy.

And indeed these humoral and pathological researches have given valuable results in those three ways. The researches

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about the phases of epilepsy have also led to essential conclusions. Those researches show the modifications which appear in epilepsy, during those periods where no symptoms are to be observed, as well as in relations to the attacks.

The study of the Metabolism shows that in the processes of oxydation, there appears a decrease compared normal. The experiments with carbohydrates and albumin show a relative decrease of the humoral activity and of the production of carbo-ixyd. The azotic exchanges prove a modification related to the epileptic attack. Before the paroxysms one finds the smallest values of nitrogen, and after the attack it rises again. During the attacks one observes nitrogen retention, what ALLEN (1) attributes to circulating albumin. Concerning the exogen purins, the study of metabolism (as RHODE (22) has shown) proves a slower combustion of them. One will observe a diminution of the rate of the urine acids. Some observers mention also a toxicological state of the nucleo-proteins.

The alterations of the elements which occur in epilepsy naturally react upon the state of the body humours. The chemical, biological and morphological blood analyses show also alteration, which DI GASPERO and DE CRINIS (9) have first shown to occur. If we sum up the humoropathological characteristics of the blood-serum, we see that the albumin rate of the serum in epileptics offers greater fluctuations than normal people. Before the attacks the albumin rate goes rapidly up, reaching its highest point immediately before them; afterwards it falls suddenly. The rise and fall of the tension of blood shows an evident parallelism with the oscillations of the rate of albumina. The time of coagulation may also fluctuate, and particularly be longer before the attack. DI GASPERO has noticed laucopenia before the attack also, and on the contrary leucocytosis during the attack. Besides one observes a rise of the hæmoglobin and of the viscosity as well as a decrease of the specific weight of blood during the epileptic attack.

BISGAARD (4) observed in 30 examined genuine epileptics a decrease of the percentage of the H ionic concentration and also of the NH₃ excretion, when he failed to find in 150 normal people a similar decrease. Troubles of that kind are well-known in tetany and are disclosed by the dosage of parathyroids. From

this point of view Bisgaard considers that tetany and epilepsy are due to functional alterations of the endocrine glands. Bolten (5) also considers epilepsy as due to insufficiency of the thyroid and parathyroid glands. Pfeiffer (19) and De Crinis have also found a rise of the antitryptic ferments in blood-serum. After Bruehl (7) the dosage of creatines shows a lessening and with the crisis higher values.

In the lipid substances the rate of cholestrin in serum offers similar fluctuations during the attack as the albumin rate. Those facts deserve particular notice as the central nervous system is the chief storehouse of the lipoids, specially cholestrin; and in epileptic attacks the alterations of the central nervous systems are to be put in the first rank.

Cuneo (8) has observed that the serum contains toxic albuminoses, especially before the attack. Many authors consider the pathological bases of epilepsy as the effect of these toxic substances contained in blood. Pfeiffer (19) has also shown the rise of the parenteral albumin as a cause of epilepsy. For this reason the disease apertains to toxic anaphylaxy.

The humours alterations of the serum, observed during the attacks, occur indeed by themselves, without any attack. We call those the "serologic equivalents" of the epileptic attack. It is very important-looking from a practical standpoint to use the humours and pathological methods for the diagnosis of the disease.

The thought immediately occurs that this proof of the presence in the epileptic organisms of toxic substances may be used for the diagnosis of the disease, from a biological point of view. About the chemical construction of those bodies toxically acting, appearing in the humours after the epileptic attacks, we know nothing for certain. Some authors after experiments upon animals call in question the toxicity of urines after the epileptic attacks. Loewe (16) asserts strongly a relation toxic substances of the serum to a substance in the urines, which cannot dialyse and contains nitrogen. Those substances, which he calls "pesetoxine", are excreted after the attack in great quantity in the urine and can produce according to his experiments—epileptic seizures in animals. Those experiments indeed do not show a sufficiently

coherent result. Examinations of the urines evacuated "past-paroxysmal to inoculated animals are of no help for the diagnosis of epilepsy; they have no signification since the toxicity of urine observed in many other psychoses. And furthermore those methods do not give results during the periods free from attacks, where it should be most useful to make a diagnosis.

The explanation of the urine toxicity after the paroxysms is differently accounted for. **Noervig** (17) asserts that according to his experiments the epileptic organisms present troubles in the regulation of the H ion concentration in urine. **De Crinis** points out that the nervous central system in epileptics loses the power to regulate the "acid-base equilibrium". There is far less discrepancy in the ways if instead of inoculation by urine the animals were inoculated with epileptic blood serum. During this year I had occasion in our clinic to pursue such experiments. We have worked out a biological method principally serologic of Dementia præcox, on the ground of the proceedings published in 1911 by **BENEDEK** and **DEAK** (3) and during those "pleohæmolytic" researches, have we used as control method the blood serum extracted out of 10 epilepsy inoculated. We have injected in the ear-vein of rabbits 3—4 cm. 3 of blood serum. In 6 cases where the animals 1/4 to 1 minute after injection seized with tonic and clonic attacks, and 3 died during the seizure. The other inoculation in animals of epileptic blood serum was always intraperitoneal. In this way one did not obtain the proof that the toxic blood serum could cause the attack, but only that after a series of injections the body-weight would notably decrease. Same were observed in 15 cases published in 1921 by **PAGNIEZ, MOUZON** and **TURPIN** (18). They inoculated rabbits in the heart with 2—4 cm. 3 blood serum of epileptics. In 3 cases they could produce a seizure. If the blood serum is warmed during 10 minutes at the temperature of 58° C. it loses its toxic power.

The above mentioned biologic methods (with blood serum inoculations) may also be applied to the diagnosis of uncertain cases. From another point of view **Trevisano** (4) has employed the inoculations of serum for this diagnosis. He employs in his experiments the anaphylactic shock to prove epileptic causes in evidence, the inoculated first Guinea pigs with bloodserum of

normal people and some days after with the spinal fluid of same. No anaphylactic symptoms were observed.

The same experiments pursued with bloodserum and spinal fluid of epileptics get anaphylactic symptoms in evidence. The animals presented general trembling and seizure, a decrease of the body temperature and in many cases death ensued. The same effects appeared when first spinal fluid and then blood serum were inoculated. The results of those blood-serum and spinal fluid inoculations do not seem to be influenced by the fact that one used spinal fluid blood-serum obtained immediately after the attack, or sometime after.

About the toxicity of the epileptic spinal fluid do we know nothing for certain. **Kafka** (14) asserts the same who tried to solve that question by very thorough based experiments. Experiments were also made about cytologic, biologic and chemical characteristics of the spinal fluid and the fluctuation of its pressure. The results of the various investigations **Ekuchenp** (II) or so called "Spectrum spinal fluid", "humoral syndrom" in nervous and brain diseases has given very poor results for epilepsy. Our very researches, when we used epileptic spinal fluid collected during the attack as well as after it, could not prove anything abnormal with the various methods of research already known. Mostly an increased spinal fluid pressure is observed especially during the attack. These observations had already been made by **Redlich** and **Poetzl** (21) in 1919 and afterwards by **Boveri** (6).

We have observed it ourselves in 1/3 of the cases. The suboccipital puncture showed in general that in sitting position the spinal fluid pressure in Cisterna magna was (even during the periods free from attacks) positive, contrary to the negative normal pressure. In those cases after the puncture the spinal fluid drops out by itself, when the patient is sitting.

Mention should be made of the evidence given by **Donath** (10) that the spinal fluid collected during the attack contains "cholin". On this basis, he thinks that cholin plays a part in the cause of the epileptic attack. Notice also should be taken of the fact proved by **Laures** and **Gascard** (15) that whereas the Urea rate in spinal fluid increases during the epileptic attack, it decreases during the hysteric seizure and that

may be used for differential diagnosis. **Wittgenstein** (25) has observed hyperglychorachia immediately after the attack. Recently did **Jacobi** (13) point out troubles of the "interferometric rate" and mostly an increase of the value of it in the spinal fluid of epileptics. **Altenberger** and **Stern** (2) assert that a secretion of the retro hypophysis is to be found in the spinal fluid. It was absent at the beginning of 79 cases of epilepsy, whereas they had found in 71 cases upon 80 of non-epileptics an average percentage of 0.00058 in spinal fluid extracted out of cisterna magna or 0.00087 out of ventricles.

In clinical practice regarding the humoral pathologic diagnosis of epilepsy the above mentioned researches cannot be very useful as the research depends upon very difficult chemical analys.

HARTMANN AND DI GASPERO (12) after the methods also used in clinical practice, found in the observations of epileptic a notable decrease of albumin rate in spinal fluid (0.4-0.6 per cent) (Nissl-Eshbach method). One will on the whole notice that the chemical standard of spinal fluid in epileptics does not show anything certain when examined with the methods already known. **De Crinis** emphasizes as follows "Nothing characteristic is shown by the spinal fluid chemical standard in epileptics".

In our clinical laboratory out of 5780 spinal fluid examinations since 1922 to the present day, 332 pertain to epilepsy. On the whole we notice that we have observed always an absolutely negative "spinal fluid spectrum", except a very few cases even unimportant. Among the colloid reactions which offer the greatest sensibility, the Normomastic and the Schellak reaction and also the bicoloured mastic reaction (23) have in some instances given very evident abnormality.

We have described the whole humoral syndrom on the basis of the so-called "five reactions," summarising our researches—numerous enough—upon epileptic spinal fluid. Same encloses principally B. W. reaction of serum and spinal fluid, cytological analysis, globulin and colloid reaction. We have also compared the results of those various methods. Our results are shown at best in Table I and for some do we notice a small or average pleocytosis in spinal fluid, and that only in a very little percentage

and comparison of results.

Number of cells in c. mm. 3-5, Weak pleocy.	Number of cells in c. mm. 5-20	Number of cells in c. mm. [20-50] strong pleocy.	Number of cells in c. mm. 50 and more.
21 [+6] 13 [+2.1]	6 [+3] 2.1 [+1.0]	0 [+2] 0 [+8]	0 [+2] 0 [+0.8]

Glo Slight positivity of (Pandy reaction one of the Other r. or all of them up to +.	Medium positive Pandy a. one of the other react or all of them up to ++	Strong positivity with all Globulin reactions
19 [+10] 5.9 [+3.1]	0 [+2] 0 [+0.6]	0 [+2] 0 [+0.6]

Golk	Medium deviation above the third degree of reac.	Meningitic curve
	0 [+1] 0. [+0.3]	0 [+1] 0 [+0.3]

Licoction with re.	Medium deviation above the IIIrd. degree of reac.	Meningitic curve
16] 5.6]	4 [+10] 1.4 [+3.5]	0 [+4] 0 [+1.4]

Sche	+ result	++ - + + + result
	4 [+7] 27 [+3.9]	0 [+9] 0 [+5.2]

Ch (Tusc=6 Pr	China ink reac. Positive	China ink reac. Negative]
C. P	87.1	12.9

es. 45 cases positive (13.6 % positive).

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TABLE I.

The examination of cerebro-spinal fluid in epileptics with various reactions and comparison of results.

Examination of pleocytosis.	Number of cases examined 286	Number of cells in c. mm. 0. 114 39.9	Number of cells in c. mm. 1/3-2 100 34.9	Number of cells in c. mm. 1-2 32 11.2	Number of cells in c. mm. 0-2 246 86.0	Number of cells in c. mm. 3-5, weak pleocy. 21 [+6] 7.3 [+2.1]	Number of cells in c. mm. 5-20 6 [+3] 2.1 [+1.0]	Number of cells in c. mm. 20-50 strong pleocy. 2 0.7
Results in%								
Globulin reactions (Pandy, Nonne-apelt, Rosse-Jon, Weichbrodt reac.)	Number of cases examined 325	All globulin reactions are negative. 261 80.5	Pandy reac. either I or Weichber. reac. I Other reac.s are neg. 16 [+15] 4.9 [+4.6]	To be assumed as negative 292 89.80	Slight positivity of Pandy reaction one of the Other r. or all of them up to +. 19 [+10] 5.9 [+3.1]	Medium positive Pandy a. one of the other react or all of them up to ++ 0 [+2] 0 [+0.6]	Strong all Glob 0 0	
Result in %								
Gold test.	Number of cases examined 300	Entirely negative curve 287. 95.6	Curve with slight denture (Lacta) 6 [+5] 2 [+1-8]	Medium deviation above the third degree of reac. 0 [+1] 0. [+0.3]	Meningitic 0.7 0.7			
Result in %								
Bicoloured mastic test.	Number of cases examined 289	Negative cure 180 62.2	Slight deviation without form of denture 31 10.7	Slight deviation with denture. 44 [+16] 15.2 [+5.6]	Medium deviation above the IIIrd. degree of reac. 4 [+10] 1.4 [+3.5]			
Result in %								
Schellack reac.	Number of cases examined 176	Negative result 146 82.9	+Result 7 [+3] 39 [+1.7]	+ result 4 [+7] 27 [+3.9]				
Result in %								
China ink reaction. (Tusche-Reac.) Colloid Protection Index. C. P. I. Result in %	C. P. I.=0. - 12.9	C. P. I.=2 77.4	C. P. I.=4 9.7	C. P. I.=6 0	China ink reaction			

Wa. reaction in spinal fluid in 332 cases all negative. Wa. reaction in blood serum in 332 cases, 45 cases positive

of cases. Also do the Globulin and Goldsol reaction seldom prove very little deviations. The highest percentage of little deviations is shown by the bicolour-mastic reaction under the form of slightly irregular curves. *For that reason one could call this colloid reaction to be the most precise among the others.*

The numbers between parenthesis in the table apply to the results of very small or average rate of spinal fluid, or where a small quantity of blood in spinal fluid or a reaction due to intervention (air injection or lipidolographia) had modified the spinal fluid, or when the examined epileptic would offer a seropositive latent syphilis. The great value of the bicoloured mastic reaction in the range of the "5 reactions" is shown also by the fact that we have found in 16 and 10 cases feebly positive reaction proved by slight or average irregularity of curves in patients who offered also a seropositive latent syphilis.

After two years research we have in our laboratory worked out a new method of research of the already known colloid reaction founded on a quite different base: the Tusch reaction of the spinal fluid (*i.e.*, Chinese ink reaction). This proceeding is also useful for the examination of the spinal fluids in epileptics, as I will briefly show it. The method is very simple and for that reason very useful in the general practice. In three glass test tubes we put 0.1 cm. 3 spinal fluid per tube and hereafter in the first, one drop, in the second two drops and in the third three drops of half% acetic acid. And in each tube 1 cm. 3'1 per cent solution of China ink. We get it by dilution of the original solution of the Perls Tusche Chinese ink*. After centrifugation one finds immediately the result. We read it as follows: the colloid apparition and precipitation is marked from tube 1 to tube 3 with—1,—2,—3, or +1, +2, +3. Numbers so obtained are written in succession, and making a total we get a number which is called colloid protecting index. As one may see in the table, the epilepsy deviates in a characteristic way from the normal.

This reaction is positive in 87 % cases, which puts it decidedly above the other methods which have been described up to that day.

*Manufact. Gunther Wanger Vienna-Hannover.

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*SOME ILL EFFECTS OF THE TROPICAL SUN & HOW TO PREVENT THEM INCLUDING HEAT-STROKE

BY

ABILAS CHANDRA BASU, M.B., D.T.M. CALCUTTA.

Before going into the details about the effects of the tropical Sun it will be a good plan to analyse the Sun light as it reaches the earth and then discuss the effects produced by the individual elements composing the Sun light.

Sunlight when analysed consists of different varieties of rays in different proportions. The Solar spectrum begins with the Ultraviolet rays and ends in Infrared rays. The actions of the different kinds of rays are different and may be tabulated in the following way :—

VARIETY.	ACTIONS.	EFFECTS PRODUCED.
<i>Infrared</i>	Invisible, chiefly heat production.	Tropical Anæmia Heat-stroke.
<i>Red</i>	Same	Same.
<i>Orange</i>		Glare headache, over stimulation of the retina, cause night blindness.
<i>Yellow</i>	Visible, gives light.	
<i>Green</i>		
<i>Violet</i>	Visible, Stimulates tissues.	Excess causes pigmentation of the skin and irritation of the skin.
<i>Ultra-violet</i>	Same but it has got a bactericidal effect. Promotes the healthy development of the bones in the young ones and prevents Rickets.	

*Specially contributed to "The Antiseptic" Jubilee issue

From the above table we see that all the rays other than the red and infrared serve useful purpose when in moderation. The red and infrared rays are very useful in cold countries.

According to Langley different rays of the Sun reach the earth in different proportions as tabulated in the following table:—

Infrared	76 per cent
Red	70 per cent
Violet	42 per cent
Ultraviolet	39 per cent

From the above table we see that in hot countries like India where the heat rays are much in excess than the stimulating violet and ultraviolet rays, protection must be given to the head and the upper part of the body to prevent excessive heating leading on to heatstroke. The eyes should be protected from the strong Sunlight to prevent glare headache.

In the previous paragraph the actions of the different varieties of the sunlight have been described. Suggestions are made in the following lines as to some easily applicable methods to prevent the evil effects that may be produced. The remedies are as follow:—

1. Suitable clothing
2. Suitable head dress, protection to eyes.
3. Suitable housing
4. Avoidance of the midday Sun
5. Vegetations and suitable roads
6. Avoidance of Alcohol.

Clothing:—An ideal form of clothing is as follows:—

- a. Cotton tennis shirt, short cotton trousers; where mosquitoes are prevalent clothes should be such as will prevent mosquito bites.
- b. The colour of the dress should be white. This protects to a large degree from the heat of the

Sun; the darker the colour the more heat will it absorb.

- c. Clothes should be loose at the neck and everywhere to keep a continuous passage of air.

N. B.—The Indian dress is best suited to the climate of India. A loose dhotie and a loose punjabi (shirt made of cotton) is an ideal dress.

Head dress:—A head dress is not necessary to cut off the ultraviolet rays but to protect the head from the heat rays.

- a. *Pith helmet* covered with white cloth and ventilated. The helmet should possess an internal band so attached that the head does not touch the frame of the hat while it allows free circulation of air.
- b. Straw hats covered with white cotton and ventilated, the temperature inside the hat is higher than that in the pith helmets.
- c. *Caps*—the temperature inside it is higher than that in the other two.
- d. *Umbrella* is a better protection with white outside. It protects not only the head but also the neck and the spine.

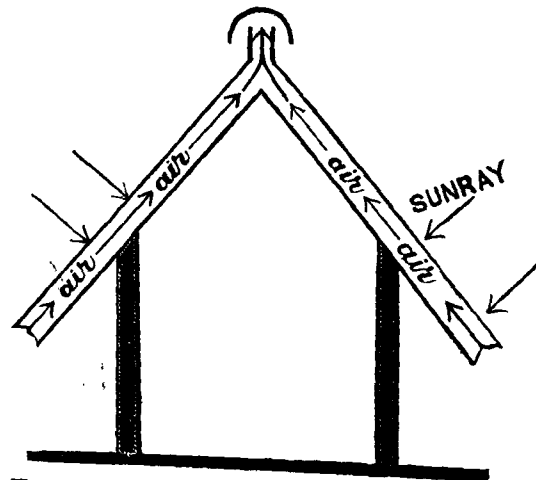
N. B.—The Indian umbrella is the best of its kind to protect the head and the spine from the heat rays of the Sun. The only drawback of the umbrella is that one hand remains engaged in holding it. A hat is better in this respects as both the hands remain free.

Eyes Protector:—The eyes should be protected from strong light or light reflected from white buildings, roads and snows by the use of dark coloured glasses with side pieces.

Suitable housing:—Very little advance has been made with regard to housing except the electric fans. For an ideal house in the tropics the following conditions must be satisfied:—

- a. A double ventilated roof as shown on the other side. The inner layer is not heated,

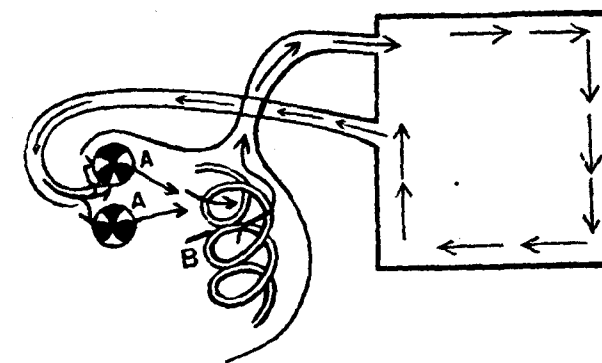
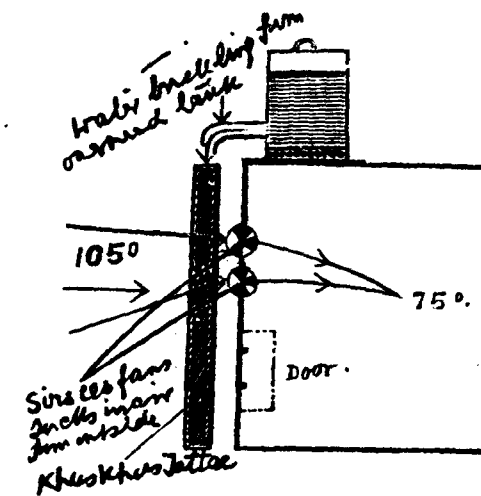
- b. There should be a verandah so that the rays of the Sun are prevented from beating against the wall.
- c. Doors and windows of good size and number and thorough ventilation are of great value.



- d. Fan (electric) not only cools but drives away the mosquitoes.
- e. Glass panes, ordinary glass shuts off the ultraviolet rays completely. VITA glass allows a large proportion of the ultraviolet rays and it should be used in place of the ordinary glass.
- f. In places where there is dry heat, evaporation of water for cooling the air is made use of. 'Khuskhus' tattees are used. These tattees are hung in front of doors and windows so that the air that enters the room must pass through them and gets cooled down in its passage through these tattees. These tattees are kept wet by syringing water against them. The water evaporates and cools the air that passes through the tattees. This arrangement is best done as shown in the below figure. It does away with syringing at frequent intervals.

As shown in the diagram the tattees are hung in front of the door and windows, or if there are too many windows the windows may be kept closed during the time the outside air is too hot; the only air passage kept open being the door. A tank filled

with water is kept at the roof of the house and arrangement so made that water trickles over the tattees. To increase the current of air and rapid evaporation of water one or two Sirrocco-fans are fitted up near the door as shown in the diagram below. When the fans are run air is drawn into the room. The air in coming inside has to pass through the tattee. Evaporation of water takes place and the air gets cooled down; say from 105° to 75° or 80° when it reaches the room. This can be arranged in almost all the houses as this arrangement is not very costly.



Another method though more expensive may also be carried out. The principle is the same but the 'khuskhus' tattees are

dispensed with; the air is passed through ammonia tubes. In passing through the tubes the temperature of the air goes down to a considerable degree. A plant on this principle has been installed at the Calcutta School of Tropical Medicine and Hygiene. During the installation it was feared that staying for hours together in that cold temperature will have deleterious effect on the health; but Lt. Col. Megaw now Surgeon General with the Government of Madras passed a few years in that room without any ill effect. Those who can afford to pay the cost may give it a trial.

A rough sketch of the plant is given on the other side. In the above figure, A, A represent the Sirrocco fans. B. the ammonia tubes, and the arrows show the directions of the air current.

Roads, Midday sun, alcohol etc.—Roads should be protected from the glare of the Sun by trees with spreading branches. Plots of green grass is very soothing to the eye. Red coloured roads are most comfortable to the eyes as they do not reflect the rays of the Sun to the same extent as the white ones.

Travelling and muscular exercises should be done in the early hours or late in the afternoon. The midday should be avoided. It may be utilised in taking a good rest.

Alcohol should not be taken in the day time. It predisposes to heatstroke.

Ultraviolet rays.—Ultraviolet rays play a very important role in the healthy growth of the children. So many cases of rickets was almost unknown in India. With the advance of western civilisation ricket is getting its hold harder and harder. The old custom of putting the newborn babies in the Sun besmeared with oil is going out of fashion nowadays and along with it cases of rickets are increasing. The fashionable young mothers think that putting their dear babies in the Sun will make them dark in colour. They do not take into account the beneficial effects of the ultraviolet rays of the Sun and so suffer the consequences later on as the baby advances in age. Those who are in maternity and child welfare work should impress this thing on the expectant mothers and the climatic influences on the colour of the skin should be made known to them.

During my professional career for the last 6 years I took particular care to enquire into the cases of rickets that came under my treatment. Invariably in all the cases the Sun's rays were excluded either intentionally or the time the baby was born was not suitable to put the baby in the Sun i. e., either in summer when the Sun was too hot or during the rains when the Sun usually makes itself scarce. These cases apart from vitamin treatment improved marvellously under exposure to ultraviolet rays. Apart from the vitamin theory I am of opinion that ultraviolet rays play an important part in the prevention of rickets.

DISEASES CAUSED BY LIGHT.

Solar Dermatitis.—Solar dermatitis is due to the exposure of the body to the direct Sun. A local damage to the skin is caused. This varies with the intensity of the light and the duration the light acts on the body. The same effect can be produced by an Arc lamp or a mercury vapour lamp. Violet and the ultraviolet rays are responsible for this mischief. This does not depend on the temperature as you can get Solar dermatitis even in the Himalayas where the temperature is much lower than that in the plains. The action of the light is not felt immediately. After 5 or 6 hours you begin to get a sensation of smarting, then that part becomes hot and later on it gets oedematous. This goes on for 2 or 3 days and then desquamation follows. The skin becomes pigmented. In India warty condition of the skin may occur after repeated attacks of Solar dermatitis. These warty growths later on may give rise to epithelioma.

In the hills rays of the Sun reflected from the snow may cause solar dermatitis of the face.

Treatment.—Soothing application, e.g. Calamine lotion and then cold cream.

Prophylaxis.—Very thin clothing will cut off the ultraviolet rays which are responsible for the mischief and no harm will be done.

Light Stroke or Glare Headache.—This condition happens when the eye is exposed to extremely bright light. If one looks at the Sun for some time or at an Arc lamp, temporary blindness

ensues. If one goes out in bright sunlight and the ground is white, the rays are reflected to the eyes and produce headache.

Prophylaxis.—To prevent glare headache use tinted glass. Crook's glasses are much in vogue but the ordinary glass will cut off more than 90 per cent of the ultraviolet rays.

Night Blindness.—Night blindness is frequently caused by overstimulation by bright light. Sometimes vitamin deficiency especially vitamin A is the causal factor. Malaria, Dysentery and Diphtheria are specially liable to predispose.

Treatment.—

1. Treat any cause that predisposes.
2. Light should be regulated
3. Nourishing food
4. Undercooked goat's liver. Cod liver oil seems to act beneficially.

I may mention here 2 out of some of my cases of night blindness that were cured in a very short time.

Case 1.—A boy aged about 12 years came to my consulting room one morning accompanied by his father. I knew the boy and his father too. The old man stated "You know this boy, doctor; how naughty he is. In the day time you will never find him at home but with the nightfall he is always at home and will not stir an inch even to do any household work. When he sits down to read he keeps his head so close to the light that we cannot make use of the light. If remonstrated he says he cannot see properly and so he keeps so close to the light. He keeps so close to the light that in more than one occasion he got the hair of his head burnt."

On examination no defect was found. Later on it transpired that he had an attack of fever with ague about a month ago. His present complaint started after that fever. The fever stopped after taking a bitter mixture for 6 days and though he was asked to continue it he did not do so.

Treatment.—I prescribed him Quinine bihydrochlor tabloid 2 grains to be taken twice a day. A good nourishing diet and a good amount of fresh butter with sugarcandy (misri) in the morning. I asked them to see me after a week.

After a week the boy came to inform me that he could then go out in the dark easily and that he could read even in dim light.

My conclusion is that Malignant malaria was responsible for this trouble and Quinine had its desired effect.

Case 2. A young man of about 25 years came one morning into my consulting room complaining of partial loss of sight after evening. On being questioned he said that he had fever about two months before and that he had an attack of dysentery about 20 days ago when the number of stools were 10 or 12 times in 24 hours. By using some indigenous drugs the frequency of stools and the pain during a motion have both diminished. He was having 2 or 3 motions daily but the stools contained mucus.

I examined the stools but did not find any vegetative *Entamoeba Histolytica* but there were plenty of *Histolytica* cysts.

Treatment.—I prescribed him Castor oil emulsion to be taken three times a day. I also advised him to take a course of Emetine Hydrochlor. As he said he was unable to come to me daily I prescribed him Emetine hydrochlor grain one to be injected daily for 6 days. He went away with Emetine and came back to me after 12 days and said that he had got back his lost sight and thanked me very much for suggesting the right medicine. He said he had his complaint treated by several doctors but nobody could give him any assurance about the cure.

N. B.—In private practice one is apt to get plenty of cases of night blindness. Some of them come for spectacles but before asking them to go to an optician it would be much better if an examination be made of the different cases one can easily find a clue as to the line of treatment that is suitable to the individual case and so save him from much trouble.

HEAT-STROKE OR HEAT FEVER

Synonyms.—Sun-stroke, Insolation, Siriasis, Coup de Soliel, etc.

Definition.—Heat-stroke is a fever caused by atmospheric condition in which the heat regulating mechanism of the body

fails to keep the body temperature under normal limits. Sun-stroke is not a good expression because it may occur in places where the rays of the Sun do not enter. It is characterised by high fever and often extreme pulmonary and meningeal congestion, convulsion, coma and death.

High atmospheric temperature, high atmospheric moisture together with still air are the causes of the disease. So long as the heat regulating mechanism of the body works it keeps the body temperature within normal limits.

Heat production goes on in the body so long as life exists. It may be on its minimum when at rest, on low diet or starvation. In cold climate large part of the heat lost is due to the cooling effect of the atmosphere round the body, but in hot climate like India heat loss cannot take place from the body to the air; instead the air communicates heat to the body. If the body mechanism cannot regulate the heat the body attains the outside temperature. This has to be adjusted by, cooling by evaporation if the air is dry and the air movement is quicker, but if the air is moist evaporation is at its minimum.

SOME OBSERVATIONS ABOUT HEAT PRODUCTION.

1. Violent exercise in hot moist air, in spite of the heat regulating mechanism the body temperature rises. The temperature of the football and hockey players in India rises more than 2° when their game is finished.
2. Haldane's experimental results are of great value.
 - a. When the wet bulb thermometer is above 88° with still air the body temperature will rise.
 - b. When between 89° and 90° the body temperature rose 1° per hour.
 - c. When at 94° it rose 2° per hour
 - d. When at 98° it rose 4° per hour.

Haldane's findings are of great importance as a high wet bulb temperature is more serious than a high dry bulb, the air movement must also be taken into account.

3. Sir Leonard Hill invented the 'Kata thermometer.' It considers 3 things 1. air temperature 2. air movement 3. air moisture.

Heat the thermometer till it rises to 100° and then note the time it takes to come down to 90°, the rapidity shows the cooling effect of the air.

4. 'Ana thermometer' just the opposite of Kata thermometer. Put the thermometer in cold water the temperature goes down. Then note the rapidity with which the temperature rises. This shows the heating effect of the air. These thermometers may be, with great advantage, used in the tropics.

Sir Leonard Roger's statistics of fatal cases of heat-stroke:—

Months.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.
Number.	0	0	0	0	7	31	15	4	3	0	0

Hours of the day.

75% Occurred between noon and 8 P. M.

8.1% " " 8 P. M. and midnight

17.7% " " 4 A. M. and midday.

From the above statistics we see that the maximum number of fatal cases occurred in June but cases are noted from May to September. The number of deaths occurred in the highest percentages during the hours between midday and 8 p. m.

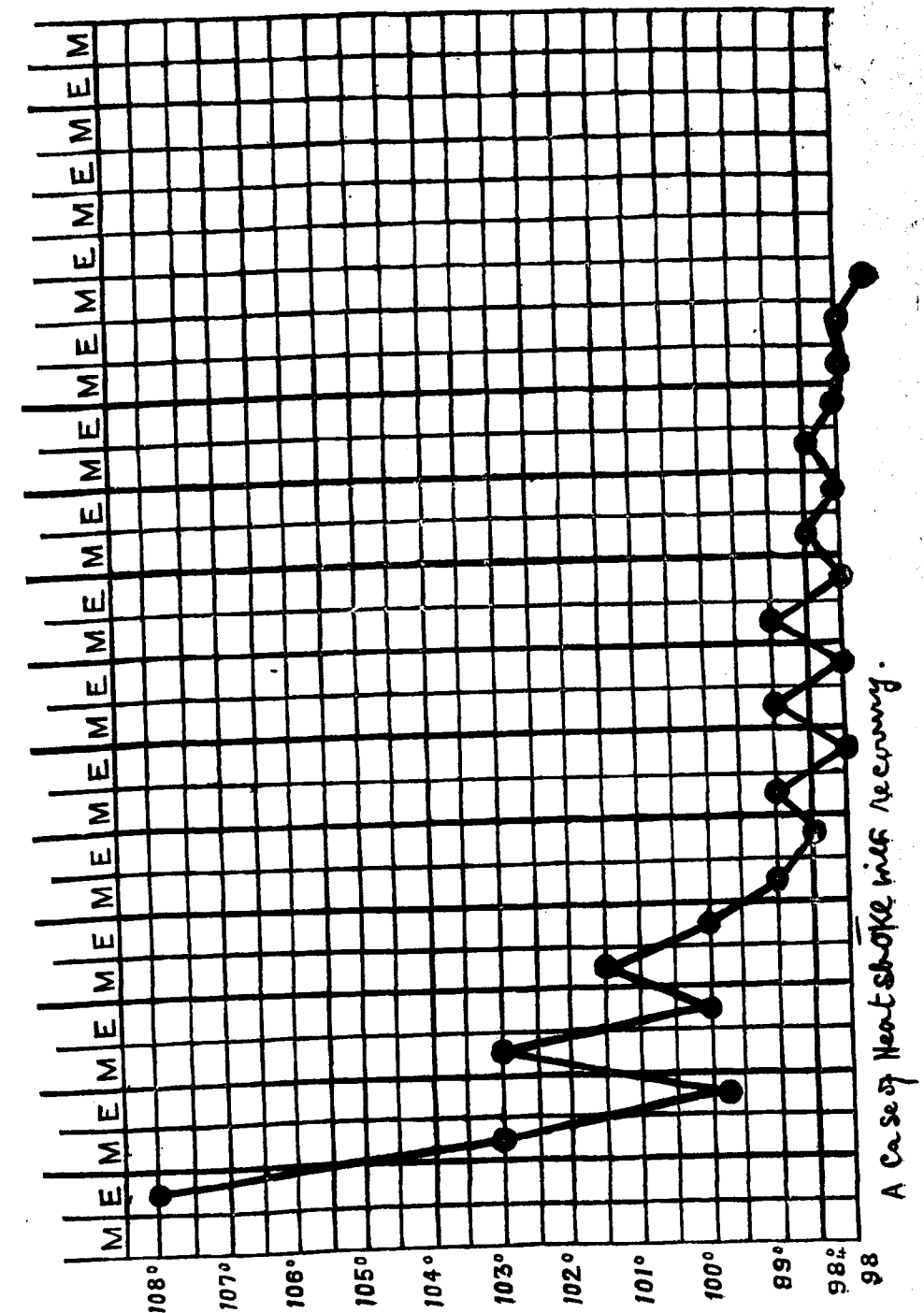
Col. Hutchinson's cases amongst soldiers:—

Col. Hutchinson found not only very severe atmospheric condition necessary but a great majority occurred after a long period of very hot weather where the maximum air temperature was 105° and over for a long period. Very few cases occurred during the beginning but large number of cases at the end. He found in (1) 113 cases of heatstroke after 62 days of exceptionally hot weather (2) 48 cases after 62 days and (3) 44 cases after 41 days of continued heat.

The consideration of the following predisposing causes are of great value:—

1. *High air temperature*:—Interferes with heat loss.
2. *High air moisture*:—Interferes with heat loss of the body by diminishing the evaporation.
3. *Air movement*:—Slow air movement interferes with evaporation.

4. *Muscular exertion*:—Produces more heat.
 5. *Clothing*:—Warm tight clothing interferes with heat loss. A layer of saturated hot air between skin and clothing and so no heat loss can take place.
 6. *Alcohol*:—It has been noted that the alcoholics die in far greater number than the abstainers.
 7. *Diseases*:—Resisting power is broken down by diseases. Sufferers from Malaria, Dysentery etc. are more liable to get heatstroke.
 8. *Race*:—Europeans are much more susceptible than the Indians. This is due to the effects of the following:—
 - a. *Pigment*: Pigmented skin absorbs heat more readily and conducts the heat to the nerve endings more quickly. The heat regulating mechanism gets a stimulus and so acts reflexly.
 - b. *Diet*: Indians as a rule get food of a low calorific value.
 - c. *Alcohol*: Indians take less alcohol.
 - d. *Clothing*: Better adapted to the Indians.
 9. *Sex*:—Males are much more susceptible than the females.
 10. *Direct exposure to the Sun*:—Actual heating of the body by the Sun's rays may not be heating of the whole body but by the heating of the brain an attack of heatstroke may be ushered.
 - In-take of liquids*:—If there is no intake of fluids the sweat glands cease to act and evaporation is stopped.
 12. *Diet*:—That which promotes heat production predisposes to heatstroke.
 13. *Age*:—More frequent after 30 years.
 14. *Over-crowding and bad ventilation*:—Quite easy to see that the heat loss takes place with difficulty.
- Morbid Anatomy*:—The body retains a high temperature for some hours after death. Rigor mortis sets in quickly and passes off quickly. The blood is dark and fluid. Alkalinity is diminished and blood frequently contains Staphylococci, streptococci and B. Coli. They probably develop after death. Congestion and œdema of the brain and the meninges. There may be punctiform hæmorrhages in the brain. Lungs are congested so much so that they appear almost black. Chromatolysis of the cortical cells and some destruction of the nuclei of the Poly and large mononuclears take place.



Symptoms :—Sometimes the symptoms come on suddenly, but more frequently there are prodromata.

Premonitory stage :—The early stage of the disease is often characterised by headache, giddiness, drowsiness, weakness especially of the legs, nausea, vomiting, frequent desire to micturate, dry skin and feeling of constriction of the chest.

Middle stage :—When temperature rises rapidly to 105° or so the patient is suddenly struck down with headache, photophobia, thirst and restlessness. He becomes sometimes delirious and sometimes comatose. In this stage the temperature rises rapidly and may go up to 105° or 110°. The skin becomes dry, burning and flushed. A temperature chart is annexed.

Face and neck become congested sometimes cyanosed.

Pupils are often very much contracted and do not react to light.

Breathing often rapid and stertorous.

Urine Albuminous and casts are present.

If untreated or treated too late :—The temperature reaches a higher level and the patient becomes delirious or comatose, more often the latter. Pulse becomes small and thready. Breathing becomes stertorous. Convulsions appear and the skin becomes cyanosed. The patient then dies after an illness varying from a few hours to a day or so.

If the case is a mild one :—Symptoms go as far as the early symptoms and if in this stage treatment is carried on the outlook is good.

If the case is more severe and treatment not carried :—The patient's condition is more serious and he dies.

Types of the disease :—This may be classed according to the organ which is most affected.

1. *Cardiac type* :—Heart is the first to fail and so there is pallor, severe pain in the cardiac region and death from syncope.
2. *Respiratory type* :—Dyspnoea, cyanosis, and signs of congestion of the lungs.
3. *Cerebral type* :—Coma and convulsions simulating Epilepsy. Delirium simulating acute Meningitis.

Duration of the disease :—

- a. Premonitory stage lasts for a few hours
- b. Acute stage a day or two
- c. Death may occur suddenly without previous warning.
- d. Cases in which recovery takes place lasts about 7 days.

Sequelae :—

Dementia follows in about 10% of cases
 Suicide " " 5%
 Most patients whose temperature was very high are left with (a) Loss of memory (b) Irritability. Loss of memory and mental decay are such as are seen in senility.

Prognosis :—

This may be considered under 2 heads:—

1. Prognosis for recovery after an acute attack
 - a. Depends on the severity of the attack and the height to which the temperature reaches.

If temperature reaches 107° mortality 8.3%
 " " 107°-109° " 29.2%
 " " over 109° " 69.2%

- b. Depends on early diagnosis and treatment. If it is recognised before the temperature reaches 106° there may not be any mortality, but when it reaches 108° or 109° the damage that is done is very hard to be repaired.

- (c) *Unfavourable conditions* :—Alcoholism co-existence of other diseases, old age, debility, previous damage to the heart.

2. *Prognosis for ultimate recovery* :—If the attack is severe, there is a permanent mental damage.

Diagnosis :—

1. Hyperpyrexia due to other causes. There is difficulty in diagnosis as to what extent suffering is from the illness and to what extent suffering is from concurrent disease. In all cases of hyperpyrexia blood should always be examined for Malarial parasites. Sometimes in very severe attack of Dengue

and Sandfly fever the temperature reaches very high but in Dengue there is not so much cerebral disturbance as in heatstroke.

2. *Apoplexy* :—In apoplexy-seizure of apoplexy first and then the temperature rises, but not so high as is noted in heatstroke. There is local paralysis in apoplexy but not in heatstroke.

3. *Cerebro-spinal fever* :—Absence of Kernig's sign and contracture of the neck muscles in cases of heatstroke. Cerebro-spinal fluid not under pressure as is evidenced by a lumbar puncture. As for the attack of C. S. fever, though sudden like heatstroke the best guide is the atmospheric condition when the patient gets the attack.

4. *Coma* :—Alcoholic or Renal; the high temperature is absent in these cases.

Treatment :—

Treatment of heatstroke may be divided into 3 heads.

- (1) Lowering of the body temperature in every case.
- (2) Cardiac stimulation when there is evidence of heart failure.
- (3) Artificial respiration in cases of respiratory failure.

Lowering of the body temperature :—Loosen the patient's clothing, keep him in a cool atmosphere, take off the clothing, cover him up with a cotton sheet soaked in as cold water as is available and let air play on it. An electric fan is best suited for this purpose, a hand fan may also do. If ice is available rub the body with chunks of ice especially the head. It is a good plan to place chunks of ice under the nape of the neck, over the head and the superficial big blood vessels as in the axilla and over the groin. This brings down the temperature within a short time.

When an ice pack is given continue to take the rectal temperature and if it falls to 103°, stop application of ice and watch what happens. If the temperature goes up re-apply ice and the wet pack. If not, do not repeat cold application.

Plenty of ice cold water by mouth and ice cold enemata is good enough to bring down the temperature but the drawback is that rectal temperature cannot be taken in that case.

If a cold bath with plenty of ice can be given it is good but a wet sheet soaked in ice cold water with air playing on it is better. Friction should be applied to the parts which have been rubbed with ice in order to promote circulation in the cooled down skin.

Cases of severe collapse:—In these cases intravenous saline with pituitrin is required. Camphor in ether may be given.

If respiration fails:—Artificial respiration is to be carried on combined with rhythmic traction of the tongue. If there is great engorgement of the lungs let out some blood. Watch for the brain in these cases. Alkaline enemata are recommended.

After the acute stage is over, the patient is to be kept in a cool airy room with electric fans, light bedclothes, complete quiet, light diet—only milk at first to start with and Bromides to soothe the irritability of the nervous system. The patient remains susceptible to high atmospheric temperature for a long time after recovery and so he should be sent to a cool climate when in a fit condition. Some of these patients go on getting severe headache and convulsive seizures. If it goes on for more than 3 months decompression operation is recommended.

Prevention of heatstroke:—Conditions producing heatstroke should be avoided.

- a. Loose cotton clothing.
- b. Avoid long exposure.
- c. Avoid alcohol and exertions where atmospheric conditions are trying.
- d. Enough cold drinking water and frequent cold baths
- e. Good protection to the head and the spine when going out. A big umbrella is best suited; short of that a well ventilated large topee.
- f. Always keep an eye on the wet bulb thermometer as it is the best guide indicating when to take precaution to avoid an attack of heatstroke.
- g. Under most trying atmospheric condition wet towel over the arms, legs, and the head will keep down the temperature.

* THE CANCER PROBLEM

BY

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In recent years a good deal of research work has been done on Cancer, volumes have been written on it and a number of remedies have been suggested, yet thousands of people die every year, indicating that we are still far from having acquired definite, useful and applicable knowledge. India is also not free from this scourge; and unfortunately the people that come to the Hospital have such an advanced stage of the disease that the Medical man involuntarily expresses the verdict "Hopeless". But in certain cases as for example the cancer of the breast and the penis, although very much advanced, we can get a satisfactory result after operation, so far as the longevity of the patient is concerned. Why is it so? It is very likely that the problem is ultimately bound up with the condition of the blood, and if serious investigations are taken up in India in connection with the chemistry of the blood in relation to cancer, I think, some important results for the prevention and treatment of cancer may be obtained. In fact this kind of investigation is being assiduously carried on abroad and I now propose to give a brief review of two lines of study that appear to be very promising.

Yamagiva and Ichikawa showed that if the skin of rabbits is painted for lengthy periods with tar, cancer occurs in the parts so treated. Cancerous growth was also provoked in the parts that were exposed to X-ray radiation. These experiments go to show that normal tissue contains cells that can produce cancer without any intervention on the part of foreign cells. It is, therefore, natural to suppose that the problem of Cancer is one of cellular physiology.

Since, however, cancerous tissue differs from normal tissue in growth, it follows that there must be some difference in their respective metabolisms. But from what we have seen above, we can justly assume that there must be some relation

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between the two types of metabolism. Let us see what it is.

For investigating this, the blood in afferent and efferent vessels was analysed. It was found that :—

(1) Carcinomas as well as normal organs use up oxygen and produce Carbon-dioxide.

(2) Both use up the glucose but with the difference that the effluent blood of sarcoma contains three or four times more of lactic acid than the affluent blood, whereas, in the case of normal organs the quantity remains practically unchanged. This lactic acid is derived from blood sugar. The latter is partly oxidised in the tumour as in natural organs, but the major part of it is converted into lactic acid.

Let us now see the conditions under which normal cells cleave glucose into lactic acid. Araki found that if normal cells are stifled owing to a deficiency in oxygen or to the presence of poisons, they commence to produce lactic acid. The power of converting glucose into lactic acid is, therefore, peculiar to all the body cells and is not dependent on an observation of growth alone. It must be noted however that normal cells produce lactic acid only in the absence of oxygen while the tumour cells do it even when saturated with oxygen and are able to thrive under these conditions.

It cannot be said, however, that tumour cells behave like stifled normal cells. The reason is that there is a quantitative difference in the intensity of fermentation, it being greater in the case of tumour cells. It has been, however, ascertained that normal tissues contain single cells capable when suffocated of fermentation with an intensity comparable to that of cancer cells. With regard to its metabolism, we can therefore state that a tumour behaves like a suffocating normal growing cell.

Although we have likened a tumour to a suffocating normal growing cell, it may be pointed out that there is a considerable difference between the two types of fermentation. It consists in this that the powers of resistance of the normal cell towards a

deficiency of oxygen are, on an average far weaker than those exhibited by tumour cells.

The question now arises: How can the aberrant development and the unlimited growth of cancers be explained? It was experimentally shown that sarcomas were able to grow in absence of oxygen for some 40 hours, provided the culture medium contains fermentable sugar. This fact is important. In the case of tumours, growth is no longer limited by the diffusion of oxygen, as is the case in normal tissues, and is, therefore, also without form.

SUMMARY.

(1) The cancer cells are derived from normal cells of the body without the intervention of foreign cells.

(2) Only young growing cells are capable of cancerous aberration and of these only those with high powers of resistance against a deficiency of oxygen.

The other piece of interesting work is by Dr. Mc Donald of the University of Pennsylvania. His chief conclusions are :—

(1) When a body cell is surrounded by an abnormally alkaline environment it grows. Its cell-wall expands and becomes more permeable. It divides profusely and irregularly.

(2) This excess of alkali is closely inter-related with a low content of calcium in the blood.

(3) Treatment may consist in attacking chemically the fundamental source of alkali or in fostering acid production.

(4) People cursed with "acidosis" are found by Dr. Mc Donald to be practically immune from cancer. It is likely that families cursed with cancer are composed of persons sharing a family tendency to run low in bodily acid and high in alkali. Of course the actual disease is not inherited; only the tendency is passed on.

***DIAGNOSIS AND TREATMENT OF PLAGUE**

By

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From the year 1897 when plague was introduced first in Bombay to 1914 great epidemics had prevailed and the roll of death was so heavy that the attention of the authorities, scientists and medical men all over the world were focussed on the disease and most of the work on its etiology, transmission and treatment had been done during that period. After that as the incidence and the severity of epidemics lessened, the general lack of interest in scientific investigations in this country became manifest and the authorities as well as the medical profession has taken no further interest in its investigations specially as regards treatment.

As is generally known plague is caused by *B. Pestis* discovered by Kitasato.

The source of infection and mode of spread were worked out by the Indian Plague Commission as follows:—

1. Contagion occurs in less than 3% of cases, playing a very small part in the general spread of the disease.
2. Bubonic plague in man is entirely dependent on the disease in the rat.
3. Infection is conveyed from rat to rat and from rat to man solely by means of rat fleas.
4. A case in man is not in itself infectious and a large majority of cases occur singly in houses.
5. When more than one case occurs in a house the attacks are generally simultaneous.
6. Plague is usually conveyed from place to place by imported rats and fleas.
7. The human agent carrying fleas may escape infection.
8. Insanitary conditions have no relation to the occurrence of plague except in so far as they favour infestation by rats.
9. A non-epidemic season is bridged over by acute or chronic plague in rats accompanied by a few cases in human beings.
10. Susceptible animals could be infected if fed on food grossly contaminated by plague bacilli.

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Clinical manifestations vary a great deal in different localities and according to the particular system involved and it should be borne in mind that no strict line can be drawn between various types. Many cases, bubonic at first, become septicæmic or pneumonic later and buboes may develop in septicæmic or pneumonic cases.

The most important types are :

1. *Pestis Minor.*
2. *Bubonic*
3. *Septicæmic.*
4. *Pneumonic*

Diagnosis:—Clinical is easy during an epidemic, but is difficult in sporadic cases. The main features of the disease are ten:—

- (1) Sudden onset.
- (2) Intense toxæmia of the nervous system, headache, insomnia and delirium.
- (3) Sustained high temperature.
- (4) Peculiar manner of the patient, who does not notice anything and anybody about him with staggering gait.
- (5) Injection of conjunctiva, drunken and sometimes staring look.
- (6) Heavily furred tongue with red tip and edges; the patient is not able to put it out.
- (7) Flattering speech.
- (8) Presence of buboes or pneumonic signs in the lungs.
- (9) Hæmorrhages in various parts of the body, jaundice and other grave symptoms of septicæmia.
- (10) Presence of plague bacilli demonstrated by staining of films from buboes by blood culture, and by inoculation of animals; also by agglutination and fixation reactions.

Pestis minor:—Includes mild types of bubonic and cutaneous infection with *B. Pestis* at the site of inoculation which may produce large ulcers and necrosis.

Bubonic plague:—A febrile or septic or venereal adenitis in epidemic times frightens many people but the clinical character of these are not the same and there is never so much tenderness or infiltration as in plague buboes. I saw three cases recently owing to inflamed glands from sepsis in which people

were frightened of plague. A parotid bubo may be mistaken for mumps and later on by infiltration and œdema of glottis may reveal its true nature. The most interesting case we had was that of a boy who was sent in as a case of plague, because of a small inflamed cervical gland on the left sternomastoid. He had high temperature but no other nervous symptoms, but owing to the spasm of the sternomastoid, he got some retraction of neck and was suspected to be a case of cerebrospinal fever; lumbar puncture gave a negative result; while he was under observation he passed a round worm and was not showing any serious symptoms except the continuous temperature; he was given santonin and next day passed about 100 worms; the temperature continued high for some days, but on getting rid of all the worms it became normal.

Climatic bubo :—This generally develops in the groin and is not so painful and may go on to suppuration with fever. It occurs sporadically due to some venereal or staphylococcus infection and may simulate a plague bubo. It affects generally seamen and is of a subacute type; as it has no relation with climatic condition it has been recently named as subacute inguinal granulomatosis. Many times it is bilateral and is probably due to mild sepsis contracted through sexual intercourse and for treatment sometimes requires incision and excision.

Glandular fever might be mistaken for mild type of plague with cervical bubo and there may be stiffness of neck and some pain on swallowing.

Enlargement of lymphatic glands are also found in many infectious diseases, such as typhoid, relapsing fever, malaria filariasis and dengue fever, but the history, the clinical picture and the bacteriological examination distinguish these diseases from plague. On the right side involvement of iliac and mesenteric glands with pain and other symptoms, in the early stages, may suggest appendicitis but the later development of the buboes and other features of plague will settle the diagnosis. Early cases of plague pneumonia may not be noticed, but the character of the sputum, rapid respirations, cyanosis, severe prostration and some enlargement of glands should put one on guard. Postmortem examination should be done in any suspicious case, and characteristic morbid changes already described be looked for and a search made for the presence of plague bacilli.

Bacteriological :—All lymphatic swellings with or without general symptoms, should be punctured by a hypodermic syringe and fluid extracted should be examined with a microscope, should be cultured and inoculated also into a rat or a guinea pig for positive diagnosis. Some people say by puncturing the bubo there is a risk of producing septicæmia, but the bacilli pass into the circulation in majority of cases even without the puncture. The material should be taken from the lymph gland showing the greatest amount of inflammatory reaction. After death one may find particularly in rodents but sometimes also in human beings, any number of organisms that look like plague bacilli but are not. Fortunately most of these are not pathogenic and the few that are, may usually be readily distinguished from *bacillus pestis*. Blood should also for examination be taken from a vein in addition as in septicæmic plague, blood is naturally the only source from which one may hope to obtain the organisms.

On the death of a patient suspected of having had plague, the organisms should be sought in the enlarged lymph glands, the spleen and the heart's blood. Relatives and friends will often consent to a small incision for the removal of a lymph gland, when they would not allow a post-mortem. Sufficient material for diagnostic purpose may also be obtained from the liver by needle puncture and aspiration, provided a large needle is used.

If puncture of bubo is not satisfactory, gland may be removed, pounded up and microscopical and cultural examinations made from it. The smears should be made reasonably thin. After drying in air, they should be fixed by passing once or twice through a flame and then stained with carbol thionin or methylene blue, preferably the former, when obtainable, since it brings out bipolar staining better. The plague organism is a relatively short, thick and oval bacillus. It usually occurs in considerable numbers and a diagnosis should never be based on the presence of two or three bacilli. Smears showing *bacillus pestis* have three principal characteristics. The bacilli are lightly stained and a considerable proportion of them show distinctly heavier staining at the two ends shading down to the central portion which is almost completely clear. The individuals vary in size from short cocco-bacillary and round coccoid forms to rods two or three times as long as wide, with all intervening sizes. There

is no particular arrangement: chains are not formed and individuals do not lie parallel; in smears from human buboes it is not unusual to find plague bacilli in phagocytes.

After preparations of smears 1 to 2 c. c. of saline are drawn into the syringe and shaken up a bit and a portion of it injected subcutaneously or intraperitoneally into a white rat or a guinea pig or rubbed into a shaven area on their abdomen. The guinea pig dies within 8 days and the rat sooner, showing the characteristic injection bubo, large granular liver and spleen with the bacilli present in large numbers in smears from them.

Intraperitoneal injection causes death of the guinea pig, but without the appearance of bubo and markedly granular spleen.

Septicæmic form may present difficulties in diagnosis, but severe constitutional symptoms coming on suddenly with some tenderness of all superficial lymphatic glands without definite enlargement, delirium and fever of a very high degree from the very first, with the tendency to early collapse, constitute a clinical picture which will enable one to come to a correct diagnosis.

Pneumonic form.—Primary and secondary: This is easily diagnosed by examination of sputum; in primary cases the sputum is also very characteristic, watery, abundant, greenish or rusty. The pneumonia is of broncho-pneumonic type with patchy consolidation involving both the lungs as in influenza.

The septicæmic and pneumonic types are very difficult to diagnose early and very often a diagnosis of enteric fever, on coming of pneumonia or severe eruptive fevers like small-pox, cerebro-spinal fever, other septicæmias or cerebral malaria, relapsing fever, typhus and influenza is made.

In suspected septicæmic plague 3 or 4 c.c. of blood are drawn, thick smears are made and guinea pigs or rats are inoculated. Blood culture may also be made by dropping 1 to 2 c. c. of blood into Conradi and Kayser's bile medium or into broth containing 1 per cent sodium citrate. To this if a little ghee (melted butter) is added, characteristic stalactitic growth may be obtained.

In pneumonic plague, bacillus pestis is present in ever increasing numbers in the sputum. Guinea pigs should be inoculated for production of the characteristic lesions in all cases, since

the microscopic appearances of plague bacilli in sputum except to the eye of an experienced observer is not a reliable guide.

Marras from Egypt working at the Haffkine Institute Bombay has described a rapid method of diagnosis of plague bacilli by fermentation of sugars. He has found that glucose and levulose are more rapidly fermented by the plague bacilli than mannite which takes a longer time; the other sugars, lactose, saccharose and dulcitol are not changed by the plague bacilli.

Blood examination.—Rogers says that blood examination is of great help sometimes and early leucocytosis is noticed with relative increase, as much as 44% of lymphocytes; also hæmoglobin percentage is increased in contrast to other septicæmias.

In most of our cases also leucocytosis was present

Serum diagnosis.—As the bacilli have the natural tendency to cohere in clumps agglutination reaction by microscopical method is the best. A suspension in normal saline of plague bacilli is made from a young agar culture and a uniform turbid liquid is used. The suspected serum is diluted from 1 in 10 upto 1 in 50 and then controls also put up. Equal parts of serum and the suspension are put up in test tubes for 24 hours and if the case is positive the serum will agglutinate plague bacilli clumps at the bottom of the tube. The reaction appears about the end of the week and is most marked in severe cases. It fades after six weeks and its use clinically as a means of diagnosis is uncertain.

Cultures of plague bacilli can be identified by high titre agglutinating antisera.

Treatment and Preventive.—We have seen that the rats are the most important rodents harbouring plague and the control of plague depends upon primary fight against them and upon preventing ratfleas that have bitten plague infected rats, biting non-infected persons. The rat flea does not bite man by choice but only when there is no other rat to which they can go, they seek their food supplies.

Personal.—First essential is to avoid infected region and guard against flea bites. All visits to the plague infected area should be prevented. Attendants should seal up any wounds on

their persons. All the discharges should be thoroughly disinfected and hands frequently washed or dipped into antiseptics. Cats or dogs should not be allowed near plague patients and all cases should be isolated. Those who are exposed should wear fleaproof clothings, overalls, leather gloves and boots in which the neck, wrists and ankles are fitted with elastic bands; for other measures to prevent the access of fleas, sprinkle naphthaline powder about the tops of shoes, wrist and neck bands. For the pneumonic cases wearing of masks made from gauze with suitable eyes of celluloid and every endeavour to avoid droplet infection from patients, are the chief guards. Experience during the influenza epidemic has proved that ordinary surgical gauze, 325 strands to the square inch, if worn over nose and mouth will prevent the entry of ordinary respiratory bacteria. This can be done by using 4 layers of 40-44 gauze (or cheese cloth or muslin) and cotton wool may be enclosed in between.

Prophylactic inoculation :—With vaccines on the principle of antityphoid inoculation should be done during the epidemic. Haffkine's and other vaccines with attenuated living or killed plague bacilli, generally protect for at least six months against plague infection. Sensitised vaccines have not given encouraging results. The vaccine is prepared by growing plague bacilli in broth at low temperature for six weeks and sterilising them at 65° c. for one hour and adding 5 carbolic acid. The dose is 4 c.c. if given at a time but it is better to give in divided doses of 1 to 2 c.c. at the interval of a week according to the age, weight, etc. of the person.

At the Haffkine Institute attempts are made by Naidu and Jung (who only recently died of plague being infected while experimenting) to increase the potency of vaccine and reduce the substances which produce reactions but no definite improvement has been possible yet on the original vaccine prepared by Haffkine. The results of inoculation are quite encouraging; the incidence of plague is reduced to about one fourth and mortality to about half in the inoculated. The immunity lasts from six months to a year or more. Lustig's and other dry vaccines also produce temporary immunity but the injections are attended with marked local and general reactions.

Public control :—As an outbreak of plague is always preceded or accompanied by plague in rats, measures directed against them are the most important because it is believed that if the rats can be reduced a great deal, epidemics amongst human beings cannot continue. Therefore, the primary measures of combating the diseases, consist in preventing the rats harbouring near man and destroying them; the latter is expensive and unending and according to some, of not much use, but the former with the education and sanitation of people if properly carried out will stamp out plague altogether. Popular ignorance is the chief difficulty in accomplishing plague prevention. Definite education to understand sanitation and regulations is required; at present public health laws are ignored or resisted by people, more than 90% of whom are illiterate. Valuable results can be obtained by intensive research, sanitation and education in fundamental laws of health and co-operation of people.

(1) *Rats' harbourage* :—The most efficient and at the same time the most economic rat proofing campaign that could be conducted against plague, is the proper laying out of new sites, putting up modern dwellings, destroying the insanitary ones and improving the towns, as done in Bombay by the Improvement Trust. By the activities of the trust and by improved sanitation the incidence of plague during the last 20 years in Bombay has gone down considerably. Whereas there were more than 1,000 cases occurring yearly during the decennium 1908 to 1917 in the decennium 1918 to 1927 there were hardly more than 100 cases a year.

(2) *Methods of destroying rats* :—There are two methods for the destruction of rats: trapping and poisoning.

Trapping :—A wire spring or a snap strap is more efficient than an ordinary wire cage trap. A plan of catching large number of rats in the cities must be worked out. After a catch, traps should be immersed thoroughly in boiling water.

Poisoning :—This has been used with varying success. Rats will not eat food much handled by human beings so it should be properly prepared before dipping it in the poison. Also feeding habits of local strain of rats should be considered in putting up baits. Kundardt and Chitre in Bombay recommend 5 gr. doses of barium carbonate in bajri, maize or rice (flour) dough as the most

efficient of all the poisons used to kill the rats. It is also harmless to human beings. Phosphorus is mixed with glucose to prevent spontaneous combustion and the paste is used with a fatty base such as lard or other substances. In Japan and Manila arsenic has also been used, 1 part of white arsenic is boiled in 4 parts of rice. This poisoned rice is distributed about the places frequented by rats and it is said that 1 grain is quite sufficient to kill a rat. The baits should be frequently changed and tomatoes, bajri flour, molasses etc. should be used. Fumigation with various gases is also of great value in killing rats in the case of houses, grain-stores and ships. Sulphur-dioxide under pressure by means of Clayton apparatus is useful for steamers and warehouses. Sulphur is ignited and all the cabins and rooms tightly closed. Opinions differ as to the strength of gas required and hours of exposure. To be certain that all rats, fleas and plague bacilli will be destroyed, 5 lbs. of sulphur per 1,000 cubic feet, for 7 hours for living quarters and for 12 hours for ships, are sufficient; if the gas is dry it will not injure foods, merchandise or machinery which should also be not damp. In Bombay, hydrocyanic acid gas is used efficiently for grain stores, barges, etc. Half an ounce of potassium cyanide per 100 cubic feet will kill all the rats and fleas in about 4 hours. Every infected, house must be disinfected by gas, after thoroughly making it air tight, otherwise gas will escape and rats will simply pass from the infected to non-infected houses and will not prevent the spread of infection.

Fleas:—Destruction of these vermin is also important and the measures above mentioned are adopted for fumigating and disinfecting houses or ships those remaining in the clothes and other articles can be destroyed by exposing them to the direct rays of the Sun for some hours. They and their eggs, larvæ, etc. can also be killed by crude kerosine emulsion which is made as follows:—

Bar soap	3 parts.
Kerosine	100 "
Water	15 "

The soap is cut and boiled in water till it dissolves and then the oil is added little by little stirring all the time and making an emulsion. For use one part is diluted with 9 parts of water and walls, floors and furniture are freely swabbed with it.

Under certain conditions plague infection survives for a long time outside the body, and clothes, skin etc., may keep the bacilli in active state for a year or more; so thorough attention should be paid to the disinfection of all these.

Quarantine Measures:—The incubation period of plague may extend up to 10 days and so the minimum quarantine period should be 10 days for a person coming from an infected place or exposed to a case of plague or for a ship having cases of plague on board. Wherever rodent infection exists it is important that every effort be made to prevent this infection from being transported to other places.

Another important measure is evacuation of houses and villages.

Local treatment of bubo:—Various applications and injections of antiseptics have been in vogue for the treatment of bubo—such as iodine and mercury preparations and injection of turpentine for pus formation, but none of them have been found to be useful in getting the desired end; applications of glycerine and belladonna and fomentations are useful as thereby pain is relieved and more immune bodies and leucocytes are brought to the part to fight the germs and neutralise the toxins. If suppuration occurs it is more favourable to the patient. Some authorities advise early incision and excision of bubo, but it is not advisable as it adds more to the pain and shock of the patient without any corresponding benefit; for delirium, restlessness and also sleeplessness, injection of morphine gr. 1/8 with hyoscin hydro-bromide 1/100 gr. is the only effective remedy found; bromides and other sedatives may be used, but they are not so promptly effective.

Specific treatment:—This treatment of plague is not satisfactory, but work if done along newer methods of sero-therapy, there is a hope that one day we may have a perfect serum like that for diphtheria, tetanus or meningococcus infection; till then we have to depend upon so called symptomatic treatment to help the patient's resisting power in combating the infection. In every infectious disease the patient is suffering from poisoning and the first principle of the rational treatment is to remove or combat the cause. Some authorities advise early incision of the bubo, but it is not advisable as it adds more to the pain and shock of the

patient without any corresponding benefit; as the patient is soon in toxæmic and septicæmic stage it is best to neutralise the toxins by antitoxic sera. The Indian Plague Research Commission (1906—1908) studied this question in Bombay. They showed that in more than 60% of the cases there was early septicæmia which progressed upto death, but sometimes it was fluctuating and irregular. There is nowadays septicæmia coming on early in almost all cases and the cardiac and cerebral symptoms are caused by the toxins. Heart failure from toxæmia is the usual cause of death. Yersin's serum was tried by the Commission on a number of clinically chosen cases against controls and the result was that serum treatment reduced the mortality by 8·4 per cent in sterile cases, but only prolonged life, in slight septicæmic cases. The administration of serum was done subcutaneously. The plague marasmus, a profound intoxication of the system, also follows serum treatment, three times more frequently than in cases treated otherwise. This is due to a sudden disintegration of the bacilli by the serum and liberation of toxins. I have found the same in some of our cases after serum treatment.

In 1908 the Advisory Board in London directing the Plague Commission reported that "Yersin's serum shows no indication of any advantage and the slight reduction of mortality in sterile cases is of no definite significance".

The treatment by immune serum supplied by Pasteur and other Institutes has not given on the whole any good results. This may be, because, the serum is not fresh and prepared from local strains or there is not enough complement in the serum or in the patient's body or the sufficient concentration is not attained or there is not sufficient antitoxic property. The plague bacilli mostly produce endotoxins and so the serum should not only be bactericidal but antitoxic; the makers give no idea whether the serum is bactericidal or antitoxic and accurate standardization does not seem to have been carried out. Large doses have been tried and some favourable results have been reported in a small number of bubonic plague cases from France, when the serum was given intravenously in 100 c. c. doses everyday for seven or eight days.

Lloyd of Washington says "There is at present practically only one treatment for plague that merits our serious

consideration and that is the use of fresh antiplague serum in large doses. By large doses I mean from 80 to 100 c. c. for an initial adult dose, and it is perhaps better to give it intravenously. Subsequent doses may be somewhat smaller, but not less than 40 c. c. which should be repeated every twelve hours until all danger is passed. Some of the poor results obtained may have been due to the use of serum that has been kept too long and perhaps at too high a temperature.

In Bombay epidemics serum treatment has not given favourable results. All observers are agreed that serum either Lustig's or from Pasteur or Lister Institute if given early in non-septicæmic cases, modify the disease in the direction of lengthening life but has produced only a small reduction (from 7 to 10%) in the mortality rate. A careful test carried out in Bombay by Liston in 222 cases with equal number of controls demonstrated this and was confirmed by Choksy also in large number of cases. Our statistics for the serum treatment for the last 7 years are shown in the following table which shows no reduction in the average mortality of plague with various serums used because there was no selection of cases (except the late and the moribund) and almost all of them were septicæmic.

	Total cases.	Discharged.	Died.	Mortality per cent.
Sol. Iodine (Alcohol) I. V. and antiplague serum (Pasteur) subcutaneously 40 to 60 c.c. daily.	66	16	50	75·5
Antiplague serum (Pasteur) subcutaneously and I. V. 20 to 80 c.c. daily.	166	29	87	75·0
Antiplague serum I. V. only 40 to 80 c.c. (Pasteur) daily.	84	17	67	79·9
Antiplague serum I. V. only 60 to 80 c. c. (Lister Inst.) daily.	9	2	7	77·7

One should remember that so many factors are to be taken into consideration in valuing the success or failure of any treatment. These are the virulence of various strains, the day on which the treatment is given, the presence or absence of septicæmia and the resistance of various individuals and races. It is necessary to have controls in the same outbreaks as the experiment and in the absence of comparative deductions in various epidemics, it is valueless and misleading to draw definite conclusions as to the benefit and reduction in the mortality.

Of course such treatment is not possible in majority of cases here, because the cases come very late and also the price of the serum to carry out complete treatment is very costly something like Rs. 100/ or more per patient. Also protein shock reactions and the disturbance of the colloid mechanism when a large amount of foreign protein is injected into the blood would complicate the matter, so at present the question of efficacy of foreign sera supplied now for the treatment of plague is *sub judice*. All are agreed still that fresh serum is of some benefit if given during the first 48 hours. So efforts should be made to produce a potent serum here from the local strains and various Government research institutes and municipalities and states should combine and start a Central Serum Institute not only for plague but for all other diseases treated by serum in India.

Specific treatment by means of vaccines and bacteriophage has not given good results.

CHEMO-THERAPY.

Antiseptic treatment:—This treatment is discredited now-a-days and various drugs have become the rage of the season for curing plague amongst doctors from time to time just like various fashions. Attempts are made to destroy the plague bacilli by means of antiseptics such as carbolic acid, various preparations of mercury, iodine, chlorine, urotropine, flavine and salvarsan from time to time and claims have been put forth as curing a number of cases. One should remember the great variability of the disease as regards its severity during the same epidemic and also many other factors enumerated above in judging the success of any treatment: also it is difficult to understand how antiseptics can help when there is such an amount of overwhelming toxæmia from the beginning; if the toxæmia can be combated either by antitoxins or by the resisting powers of the patient the remaining slight infection may possibly be destroyed by potent internal antiseptics as iodine or chlorine which at the same time do not injure the body cells.

Iodine preparations either spirituous, aqueous or colloidal containing from $\frac{1}{2}$ to 1 gr. of iodine were given either by mouth, in the bubo or intravenously and the mortality has always been more than 75% which is hardly less than in the cases without any treatment.



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MAY '29.]

ORIGINAL ARTICLES

519

Tr. Iodine mitis	dram. ii
Camphor	" i
Thymol	" i
2 c. c. injected intravenously and 1 c. c. in bubo B. D.	
Iodum pure	dram. 1½
Pot. Iodine	oz. 1
Alcohol absolute	" 2

So in a paper on "The Chemo Therapy of Plague" read by me at the Medical Research Section of the Indian Science Congress, Bombay, 1925 and also at the Far Eastern Congress, Calcutta 1927, the following conclusions were put forth.

1. The Chemo-therapy of plague with iodine and its preparations, carbolic acid, mercurochrome, salvarsan preparations and protein shock by means of milk has not been found to have any effect on the course and the mortality of the disease.

2. Looking to the analogy of other similar infectious diseases the only rational treatment would be a fresh powerful and concentrated and antitoxic serum prepared from the local strains and given preferably intravenously as early and in as large doses as possible.

General symptomatic treatment:—This only occupies a secondary place in dealing with such a serious disease. It is on general lines as in other acute infections. As noted before, the plague patient is suffering from toxæmia and it is quite rational that the toxins should be eliminated as early as possible. Soeliminative plan of treatment should be adopted by prescribing suitable hydrotherapy, diaphoretics, diuretics and laxatives. At the same time weakening effect of the toxins on circulation should be kept in mind and all depressing measures should be avoided.

Treatment of Cardio-vascular failure:—The poison of plague bacilli like the poison from snakes and to a certain extent from diphtheria has a marked toxic effect on the cardio-vascular apparatus and from the beginning every care should be taken to avoid the factors telling against the circulation. These are as follow:—

1. Improper feeding or insufficient feeding.
2. Insufficiency of water.

3. Vomiting and diarrhoea.
4. Insufficient supply of oxygen.
5. Impairment of renal excretion.
6. Loss of sleep and rest due to noises, bright light, pain, febrile toxæmia itself and high temperature.

Management of any of these factors is the everyday affair in treating many febrile conditions, but it would be better to emphasize the methods we adopt here of keeping up the heart and blood pressure in grave cases: careful nursing is the first essential; after the patient's temperature is brought down to a comfortable level (102° or thereabout) by hydrotherapy and eliminative treatment, his general strength is maintained and any of the factors enunciated above which causes depression of cardio-vascular apparatus, if present, is attended to. But still the toxins are too powerful in many cases and when stimulants are required diffusible stimulants by mouth such as Caffein, ammonia, camphor, nux-vomica and belladonna or injections of adrenaline pituitrin or any of the above according to the urgency of the symptoms should be given. Adrenaline has been used or rather abused in the treatment of plague than any other disease except asthma. It was a custom in our hospitals to give it to every plague patient in large doses 20 ms. as a routine every two to four hours by mouth; according to many pharmacologists such as Hare, Sollman and Hale White, it has practically no action if given by mouth.

CASES AND COMMENTS

INFECTIVE GRANULOMATA OF THE MOUTH AND PUDENDA.

By

C. VEERARAGHAVAYYA L. M. P.
Panapakam via Arkonam.

Ulcerating Granuloma is quite common in the tropics; but the ulceration occurring in the mouth is rather rare.

Mr. A. B. consulted me for his ulceration in the groin, thigh and over the scrotum. He had ulceration in the mouth also, (i.e) in the right half of the roof of the mouth. The teeth in the corresponding area were dirty and a bit shaky,

The ulceration in the groin was raised from the surface, red, glazed, and serpigenous in outline. The outlying borders were healing a little. There was no enlargement of groin glands. Diagnosis was infective granuloma of the pudenda.

In the mouth, the ulceration was red, tender and dirty near the teeth. The corresponding portions of the lips were swollen. Patient was not able to chew well, or take hot things, such as, chillies etc. The ulceration in the mouth began after the ulceration in the groin. Provisional diagnosis of the ulceration in the mouth was syphilitic supervening granulomatous disease.

TREATMENT.

Treatment of pudendal ulceration:—

Intravenous injections of Antimony Tartarate of 1% solution beginning with 5 c c cautiously increased to 8 c. c. every third day. External dressing of the ulcer with 1/2% solution of the same was followed. The ulceration in the mouth began to improve side by side with that in the groin. The patient was feeling a smart burning sensation in the mouth, soon after the injection and dribbling of saliva noticed in the mouth.

After this therapeutic test, I began to conclude that ulceration in the mouth was also infective granuloma. Antiseptic gargles for the mouth and Euthymol tooth paste for the teeth were recommended which helped a great deal in the healing of ulceration.

The pretext of my sending this short note to your Journal is the rarity of the ulceration in the mouth. It seems that Maitland has seen it in the mouths of a husband and wife.

A few important aspects of Infective Granulomata:—

The specific bacillus which produces the disease has not yet been isolated.

The disease is generally of venereal origin and is surely a contagious one. It occurs in both sexes but more especially in women where polyandry is practised.

The ulceration though not deep spreads "by continuous, eccentric, peripheral extension and by auto-infection of an opposing surface".

In the male the ulceration affects and spreads over the penis and involve glans, scrotum, upper part of the thighs.

The discharge is generally very offensive and soiling the clothes but does not materially affect the health of the patient. The Lymphatic glands do not become affected in the male.

In the female, it affects the crura of the clitoris then extends into the vagina and over the labia and along the flexures of the thighs. The women thus affected are rendered sterile.

The lymphatic glands are said to be enlarged in the neighbourhood of the lesion.

Differential diagnosis:—

From malignant and syphilitic ulcerations: The disease under consideration differs widely from these clinically, histologically and therapeutically.

It is characterised by extreme chronicity ten or more years, by absence of cachexia or any tendency to cause death, by non-implication of lymphatic glands, by non-amenability to mercury and Iodide of potassium.

From Lupus Vulgaris:—

It differs as it is confined to pudendal region, tends to follow in its extension, the folds of the skin

Treatment is more or less specific, scraping and caustics, including actual cautery. Chronic cases yield to X-Rays Treatment by intravenous injections of tartar emetic is very encouraging in several early cases. The dose being from 5 c. c. of 1% solution in normal saline increased up to 10 to 12 c c given daily or every second day. At the same time the ulcer should be dressed with gauze soaked in the same solutions. The sore may be dusted with antimony oxide, zinc oxide and calomel in equal parts.

**AN INTERESTING CASE ILLUSTRATING THE
VALUE OF SILVER PREPARATIONS IN THE
TREATMENT OF SEPTIC CONDITIONS.**

By B. GUNAWARDENA, L. R. C. P. S. (Edin) L.R.F.P.S (GLAS)

Carolus, 24, male was admitted to Civil Hospital, Galle on, the 25th of January 1929 with a history of having fallen from a wall about 6 months ago and hurt his right knee. He had been in

another hospital undergoing treatment but as it did not show any signs of improvement, he left hospital and took native treatment, but even then finding no signs of recovery he came again to Galle hospital. On admission he had a fracture of the right patella which had united but, his knee joint was ankylosed and his movements of the leg as a result of which were limited. He had now a deep sinus tracking under the skin over the patella which was discharging pus, over an area of tenderness spreading all round the knee. The patient was very weak as a result of this long-continued suppuration going on. Temperature on admission was 102°F. Pulse 104. Lungs did not show any involvement. Heart sounds were normal. Multiple incisions were made after admission over the area where inflammation was present and saline compress were ordered twice daily with hot boric fomentations over the surrounding area of tissue. As the patient was somewhat anæmic a mixture containing Iron and Quinine was ordered.

R/—Quinine Bi Hydrochloride	gr. iv
Tinct Ferri Perchloride	m. v
Arsernic hydrochloride Liq.	m. iii
Aqua chloroform ad	oz. ½
oz. ½ T. D. S.	

The patient was ordered a nourishing diet in spite of his temperature as he was very feeble but the typical Hectic type of temperature began to continue in spite of treatment and suppuration was found to spread. Urine by the way was clear and contained no sugar. As he showed no signs of improvement and discharge of pus was continuing it was decided to open up the tracts from which pus was coming out! under chloroform. On admission the incisions were done under Ethyl chloride spray (local anæsthesia.) On the 1st of February he was taken up and several more incisions were made under chloroform anæsthesia, and the wound was thereafter washed about four times per day with Milton lotion diluted and hot boric fomentations applied. The temperature in spite of opening him up persisted to rise in the evenings daily to 102, 103° etc., and the patient was getting daily weak and his appetite too began to show signs of failing. At this

stage it was decided to start Electrargol injections. 1 Bulb electrargol was given every 3rd day intravenously into the gluteal muscles. and the mixture containing iron was omitted and he was put on the following mixture.

Sodii Bicarb. gr xx.
Sodii Sulph. z. $\frac{1}{2}$
Sodii Salicylate gr. x
Tinct Nux Vomica. m. v.
Infus. Gentain ad. oz. $\frac{1}{2}$
oz. $\frac{1}{2}$ T. D. S.

Six injections of Electrargol and the temperature gradually began to come down and the patient left Hospital on the 22nd of February with the wounds all healed up quite well but his knee joint was ankylosed. This case I think well illustrates the value of silver preparations in the treatment of suppurative conditions and chiefly of Electrargol injections. Copy of his temperature chart is appended below.

PTOSIS.

By

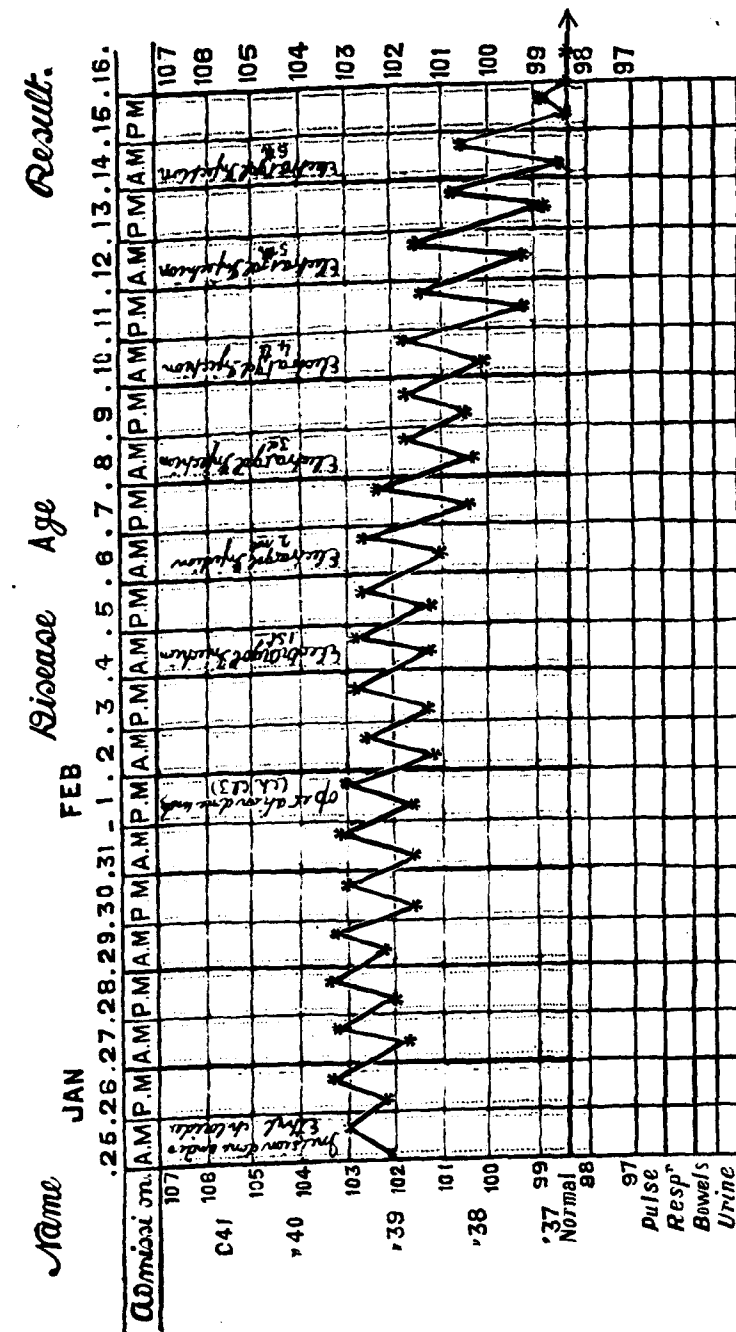
DR. RAGHUBIR SARAN AGARWAL.

Ram Eye Hospital, Buland Shah'r.

A. Congenital Ptosis:—Sometimes hereditary.

It usually affects both upper eyelids and is frequently associated with other defects such as weakness of Sup. rectus, squint, micro-ophthalmos or epicanthus.

Cases of congenital, mostly unilateral Ptosis have been observed in which the lid cannot be elevated in the natural manner, but as soon as the patient opens the mouth or moves the lower jaw to one side or the other, the lid is raised completely and remains so until the action of the jaw is discontinued. This condition is called "Jaw blinking or jaw winking".



B. Acquired Ptosis :—

1. Injury of levator.
2. Lesion of 3rd nerve.
3. Lesion in nerve centre supplying it
4. Anæmic women at or about the menopause
5. Following enucleation.

C. Pseudo Ptosis :—

1. Paralytic Ptosis.
 - (a) Paralysis of fourth and sixth nerve
 - (b) Sometimes in crossed hemiplegia
 - (c) Paresis of Muller's muscle
 - (d) Myasthenia gravis.
2. Swelling from œdema
3. Tumours
4. Trachoma due to additional weight
5. Due to Adipose tissue.
6. Hysteric Ptosis due to partial spasm of orbicularis
7. Morning Ptosis in neurasthenic patients
8. Night Ptosis in neurasthenic patients
9. Sometimes with uncorrected presbyopia

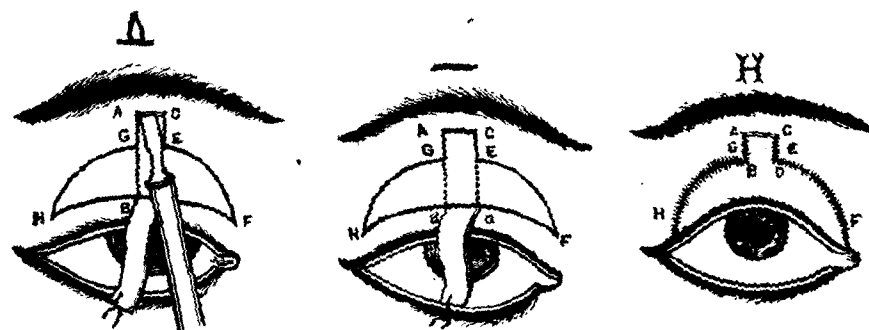
Treatment :—Every case of Ptosis should be studied carefully to determine its cause. Frequently paralytic Ptosis has a syphilitic origin. Anti-syphilitic or anti-rheumatic remedies will cure many cases. Electrical treatment is of some value.

If these measures fail, operation for the degree of Ptosis should be resorted to. When Ptosis is associated with paralysis of some of the ocular muscles, it is better to let the drooping lid remain rather than to raise it by an operation and so subject the patient to an annoying diplopia.

In traumatic Ptosis due to division of the Levator or its tendon from a wound of the eyelid, the divided ends of the muscle or tendon should be carefully searched for and tied by catgut sutures.

THE HUNT-TANSLEY OPERATION.

Operation.



Make two perpendicular cuts A B, C D one fourth of an inch apart, and extending from the upper orbital margin to within two lines of the edge of the upper lid. These are united at the upper extremity by a horizontal incision, A—C, and then the ribbon of tissue is dissected and permitted to drop down upon a wad of cotton lying upon the cheek, which is kept moistened with warm normal saline.

Then a curved cut is made from H to G and E to F, following the crease which shows the upper limit of the tarsal cartilage and a straight cut is made from H to B and from D to F, parallel to and about four millimetres distant from the lower border of the upper lid.

The derma and the orbicularis muscle which are within these cuts are then carefully dissected off, leaving the whole tarsal plate denuded of tissue. The cut edges H—G and E—F are united to the cut edges H—B and D—F respectively, by interrupted sutures.

Then a Von Graefe knife is entered at A—C and passed beneath and brought out upon the forehead just about the eyebrow and slight lateral cuttings are made so as to give room for the passage of the ribbon of derma which has been dissected up at the first stage of operation. Then passing a strong suture into the upper edge of this ribbon, it is drawn up into the cut made beneath the eyebrow, and is brought out upon the forehead.

When drawn up sufficiently tight, it is cut off smooth with the forehead and fastened there by two small sutures.

Then several sutures are placed from A to G and C to E, uniting the edges of the ribbon to the bordering derma.

Note:—I have tried this operation on several cases with success.

MY FAVOURITE PRESCRIPTIONS.

Eye drop			
1. R/		2. R/	
Cocain nitrate	gr. 1	Carbolic acid	gr. i
Boric acid	gr. 12	Fluid extract of Hydrastis	m iii
Sodium borate	gr. 10	Witch hazel water	3 ss
Camphor water	3 ii	Boric acid	gr. x
Distilled water to make	oz. i.	Distilled water to make	z. i.

This is an agreeable and soothing collyrium to use after silver nitrate, zinc or other irritating drops have been instilled.

These drops have a momentary sting, which is replaced by cool, pleasant sensation.

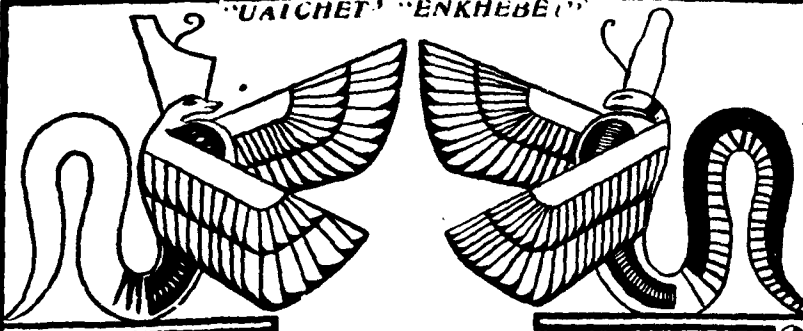
BLACK WATER FEVER

By

NALINI KUNTA SAHA, L. M. S., NATER RAJSHAHI, BENGAL.

I shall thank you very much if you will kindly give publicity in your esteemed journal the following case of *Black Water Fever*. There seems to be a strong general belief current among medical profession engaged in general practice in the country, that there must always be a quinine history in the occurrence of this serious and many times fatal complication. It is a curious fact that high malarial endemicity and Black water fever coincide. In the last 20 years of my practice in a badly infected malarious part of the country where cerebral and intestinal forms and hyperpyrexial forms are of common occurrence, I have seen about 100 cases of Black water fever of all grades of severity, and I distinctly remember that in 4 at least of these cases there was no quinine history. I narrate the undermentioned case which I attended quite recently in support of my previous experience that Black water fever actually does occur without a history of quinine administration.

Name: Saonia H. M. aged 14 years, inhabitant of Putea in Rajshahi District (Bengal). The patient is of average physique and stature with spleen enlarged (moderately) but no jaundice and no enlarged or tender liver. He had an attack of continued fever in June 1928, lasting for fifteen days, when he was dosed with quinine for a pretty long period and he was completely cured. In September 1928 he had an attack of fever (the usual seasonal fever of this part of Bengal) which lasted for 3 to 4 days and he was perfectly cured (as the people of the patient say). From October 1928 to 23rd February, the day of occurrence of Black water fever, the patient had four attacks of fever, at irregular intervals, lasting for 2 or 3 days. He used quinine under medical prescription during the febrile period only, but, no quinine treatment nor restorative treatment was undertaken during intervals. He was free from fever for the last thirty days and in this period did not take a single dose of quinine. The patient was quite all right up to the evening of the 22nd February and returned to bed as usual quite a healthy man. Early in the morning of 23rd February he had slight rise of temperature with moderate rigor and passed urine characteristic of Black water fever, the temperature rising to 102.4 by midday. From morning to 12 noon he passed urine 4 times. Three scanty but the 4th urine was about 2½ oz. All thick deeply stained and full of sediments. At 4 p. m. the temperature fell to 99.4 and he passed about 4 oz. smoky urine with sediments hanging, looking thick but haemoglobin colour practically vanished. Colour looked blackish yellow, almost like the consistency of mustard oil when seen though the sample collected was in a clean sulphate of quinine phial. I put the case before the medical profession so that interest may be aroused in finding out the correct ætiology of Black water fever, the current view of which is "Malaria and an unknown factor probably a poison that develops as a result of some reaction against malaria" *vide medical Annual 1928 page 280*. In this particular case no extraneous agent was used to provoke a reaction against the M. P.



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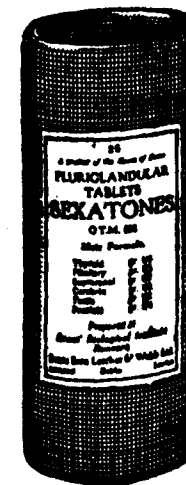
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MUSIC—AN ART OF HEALING.

The one art which is as old as the hills is the art of music. It began, as all of us know, from the creation of the world. Music unlike other arts appeals to everybody. It was developed and cherished by the ancients of India, Greece and Egypt. It was to them not merely an instrument of pleasure, though to-day a good majority consider it only as such. But in the following pages we shall endeavour to show that music apart from its primary quality of giving pleasure both to the singer and the audience, has the power to act upon our system as powerfully as any other modern chemical and physical agencies.

We shall at the very threshold, postulate, that music is medicine. It controls our body and mind. It can stimulate the nerves accelerate or depress the respiration, and influence the muscular system as definitely as any drug. But we shall draw this difference between medicine and music, that "in the instance of music the effects are always attended with pleasure, which is not always the case with medicine." By this we mean that music is pleasure and pleasure is cure.

Pleasure is a psychic state and a sweet emotion. Music is able to create or rouse this emotion in a man by its very inherent quality of concordance or sweetness. Every form of music, or raga as we call it, has its own sweetness, and each raga creates its own emotion

on the audience. And, any particular emotion is conditioned also by the song sung, apart from the raga in which it is sung. The raga determines the emotion, and the song, its intensity. How is a particular kind of song able to put a man in a particular state of emotion is answered by modern Psychology. A particular kind of auditory sensation is capable of stimulating various centres of the brain, thereby bringing about a train of thoughts which are closely related to the kind of music sung. Thus, for example, a war-song in a war-raga arouses a man's martial spirit and he becomes all virile, and a sorrowful melody taps his sad memories, and he becomes pensive. But the intensity of the state of mind so created very much depends, as we have already said, upon the composition of the song.

That the action of music in the human system is purely psychic, is not false. But is it a fact that a purely psychic state can affect the physical condition, or bring about a cure to bodily ailment? This, rather a difficult problem, has been solved by Psychologists who claim that they can keep a man healthy and happy by auto-suggestion. By this they mean that it is possible to cure a man Psychically by creating a happy atmosphere in his mind, that is by making him believe, he is happy.

This principle of making one believe in what another says is based upon the fact that every thing is in the mind, and every part of our system is controlled by the mind (brain). This is verily true. How many do we not see, smiling or cracking a pretty joke, when they are being grinded by extreme poverty or drooping under the pin-prick of a fell disease. R. L. Stevenson, (the "Tusitala") was one of them. He had been ailing from consumption. But in none of his writings could we detect even a microscopic smallness of sadness. A sound mind keeps a sound body.

The above truth, that, by dwelling too much upon happiness the sorrow or the pain is exterminated root and branch is not false, is true again even from the standpoint of physiology. Constant thinking, feeling, etc., becomes our habit. If we suffer and if we always think of it, it becomes a habit to think only of our suffering. And the axons which make varied connections in the nervous system when we think of suffering, by constant use, makes such a rut in the nervous system, that it is almost impossible to think of anything else

except our ailment. Music obliterates this habit, by making the sufferer forget his pain and think only of pleasure. Thus, constant disuse of the entangled axons regain their normal position in the same way as a spring gets back to its pristine form, if the pressure upon it is released.

Man is emotional, and his actions are determined by the kind of emotion he had at the time of doing a particular act. Hence, man is primarily directed by his emotions and music, therefore, is the language of emotions. That amounts to nearly, that music could control our entire system.

These psychic effects of music are a great cure in cases of lunacy, where as Shakespeare says 'it holds mad men to their wits'. The changes towards cure take place in the brain centres, where the aberrated neurons are set right, and the patient is made to think rightly. How can any thing else reform the mind diseased? A psychic disorder can only be cured by a psychic agency. And this agent is music. It checks wrong thinking, and lunacy is nothing but wrong thinking, and mends the brain. And we believe that, not only lunacy but also other allied diseases can be cured, by the exact study of the patient's cause of the disorder, and by allowing the patient to hear the right kind of tune or melody—a music which would repair his brain. But the success of the cure by this method, depends largely on the correct diagnosis of the cause of the disorder and the right choice of music.

These apart, modern clean-cut experiments in Psychology and Physiology prove, that even an un-meaning harmonious tune, produces changes in our body. "In one series of experiments," says Mr. E. Podolsky, "isolated tones, chords and musical exercises, possessing no intellectual or emotional associations, were used. These sensorial stimuli produced no respiratory modification except an acceleration of from 0.5 to 3.5 additional respirations per minute. The acceleration varied directly with the increase of the movements, and was greater for the minor mode and for discordant sounds".

The same author quotes another experiment of Lombard where he (Lombard) observed "the reinforcement of the knee reflex caused by music, while making a general experimental investigation of the variation of the knee-jerk in relation to the activity of the central

nervous system". His experiment was very conclusive. The amplitude of the knee jerk varied distinctly with the intensity of the auditory stimulus. There was an increase in the extent of knee jerk as the music approached and a decline when it receded.

Even the muscular system is considerably affected by music. Music reduces and delays exhaustion, and thus increases the muscular endurance. The work-man while pulling a heavy load or doing an arduous task, by singing while doing them, puts off the time of fatigue to a considerable period. The Picothar-man can do the business of a mechanical pumping machine without collapsing, by singing.

Music even immunises a man against fear. We can now see the reason why, a man while travelling in a dark night or walking through places which he considers 'haunted', sings loudly. Singing itself is a diversion and it keeps a man unperturbed in a state of happiness.

There are other cases, where music, of a particular type only, induces sleep, or produces on the hearer a sort of coma, in which state he experiences extreme felicity. This brings home to us the anaesthetic or the numbing quality of music.

So much for its effects on the human system. It has charms over the animal kingdom also. The ancient tales and mythologies of Greece and India, are sufficient evidences to illustrate this fact. Animals are very much attracted by sounds produced by instruments, especially those with a fine timbre-like violin, veena and flute. Lord Krishna with his flute, could summon all the beasts in the jungle to his side, and Apollo with his lyre, could tame a wild lion and make him sit by his side in friendship. Even the modern snake-charmer's pipe has the charm to draw the deadly cobra from its hole. It has been asserted by many that a cow gives more milk when any instrument is played while milking it. It is also a fact that certain insects and birds are attracted by music, though it is not known whether the action of music on them, is as definite as that on the human system. But the birds at least which sing seem to possess some definite response to the varieties of tunes.

When we come to the vegetable and inanimate kingdom, we are not in a position to say anything. It has been said that Apollo raised a wall of stone with his lute. But modern scanty knowledge

laughs at it. With the advancement of ideas in Natural History, a time will come when a Bose would prove that the plants are as susceptible to music as man is, and justify the statement, made by the Sweet Swan of Avon more than 4 centuries ago, that "music hath charms to soften racks, and to bend the knotted oak". We will not be surprised if he conjures up the seeds to sprout and resuscitates the dying tree and makes it laugh again with flowers and fruits by the help of music; for music is life, soul, and every thing.

In conclusion, the progress and the development of the practical side of music as an aid to the cure of certain diseases, depend upon the researches of the Physicians and Psychologists. It is imperative therefore on the part of the doctors to devote some portion of their work at least, to music. The late lamented Dr. Nair, to whom this Journal owes its existence, endeavoured not a little to create interest in music in the minds of the medical practitioners of this country.

Proceedings of the 'Silver Jubilee' of the Antiseptic :

The Silver Jubilee of the Antiseptic was celebrated, with much *eclat*, on the 18th and 19th April, 1929 and never before in the annals of the Medical Profession in Madras was there an occasion for such rejoicing and festivity. As soon as the date of the celebration of the 'Silver Jubilee' was announced, the Medical-men in Madras began to bestir themselves and issued a manifesto suggesting the desirability of honouring the late Dr. T. M. Nair and the Hon. Dr. U. Rama Rao, the founders of the Antiseptic, in a fitting manner. The signatories to the manifesto were:— (1) Dr. Rao Babadur C. Natesan, (2) Dr. G. Narayanasami Madaliar (3) Major K. Gopinath Pandalai (4) Dr. T. Krishna Menon (5) Dr. Miss M. McNail (6) Dr. Rao Bahadur N. Kesava Pai (7) Dr. C. R. Krishnasami (8) Dr. G. Zachariah (9) Dr. K. B. Bhujanga Rau (10) Dr. B. K. Bhandarkar (11) Dr. P. K. Bhima Rau (12) Dr. P. Rama Rau (13) Dr. P. C. Raghavachary (14) Dr. S. Rangachary (15) Dr. V. Rama Iyengar (16) Dr. T. Satagopan

(17) Dr. E. S. Swaminathan (18) Dr. E. V. Srinivasan (19) Dr. G. Srinivasamurthi (20) Dr. K. Srinivasa Rau (21) Dr. U. L. Narayana Rau (22) Dr. U. Venkat Rao (23) Dr. C. S. Vijayaraghavan and (24) Dr. K. Venkata Pai.

In response to the wishes contained in the above manifesto, a meeting of the members of the Medical Profession in Madras was held at 5 P.M. on Saturday the 6th April 1929 at No. 56, Thambu Chetty Street, with Rao Bahadur Dr. C. Natesa Mudaliar in the Chair. It was resolved (1) to present the 'Antiseptic' with bro-mide enlargements of its late Editor Dr. T. M. Nair, M.D. and its present Editor, the Hon. Dr. U. Rama Rau, for the invaluable services they have rendered to the cause of the Medical Profession in Madras and (2) also to present an address enclosed in a Silver Casket to the Hon. Dr. U. Rama Rau and (3) to call for subscrip-tions to carry out the above objects.

A strong Entertainment Committee was formed and invita-tions were sent out to all the members of the Medical fraternity practising in the City. A public meeting was held at the Gokhale Hall on Thursday the 18th April '29 which was presided over by Dr. S. Rangachary. After refreshments, the meeting commenced with the unveiling of a portrait of the late Dr. T. M. Nair and the Hon. Rao Sahib Dr. U. Rama Rau. Dr. C. Natesa Mudaliar performed this pleasant function and in the course of his speech he said:

"I am thankful to the members of the committee for having asked me to perform the pleasant function of unveiling the portrait of two distinguished men, one of whom I knew and the other I have known for over 3 decades, both of whom exhibited potentialities in their youth of their future activities, in both of whose hands "Antiseptic" whose silver jubilee we are assembled here to celebrate, was a weapon to fight the battles for our profes-sion. Be it the shortage of privileges to the Indian Medical Service compared with other all India services, be it the raising of the status and the emoluments of the provincial services including the Sub-Assistant Surgeoncy, be it the consolidating of the independent medical profession, be it bringing under control the whole medical profession by bringing into operation the Medical Registration Act, be it the bringing into existence of Provincial Medical Council or attempting to



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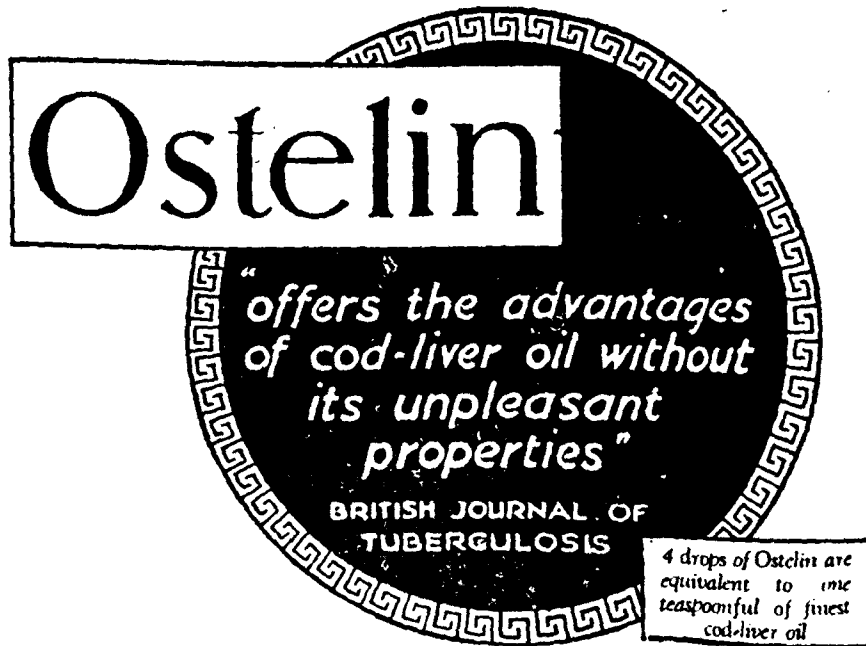
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initiate the All India Medical Council, be it the improvement in sanitary direction or be it the efforts of nation-building such as Medical examination of pupils in the schools, all these things were espoused by the 'Antiseptic'. Both of these gentlemen Dr. T. M. Nair and Dr. U. Rama Rao walked beyond the pale of their profession into the magic circle of public life and politics which for a long time was considered to be the preserve for gentlemen of a particular profession. In that circle they distinguished themselves, one led a great democratic movement in South India and the other is now adorning the highest political chamber of our country. Both of them proved to the world that Medical men, having a sympathetic profession in their hands, come into contact with all sorts of individuals, of all castes, of all creeds of all nationalities and of all races, rich and poor, the literate and the illiterate, come to know of their grievances, their shortcomings, their abundances and their information is first hand and their knowledge is versatile. They are fit to be not only civic representatives as some people think but also fit to be social workers, political leaders and I can boldly say even religious teachers because God is more in evidence in their profession than anywhere else.

Coming to late Dr. T. M. Nair, I have known him from my boyhood. I learn, he after having had his education at Calicut entered the Presidency College. He entered the Medical College from thence and went to Edinburgh where he completed his M.B.B.S. examination and then took the degree of Dr. of Medicine. While he was there he was a member of almost all the associations. He was also the President of the Edinburgh Indian Association and then the President of London Indian Society. He specialised himself in ear, throat and nose diseases in Great Britain first and then he had a further course in Paris. He came to India and settled himself as a specialist. His consulting rooms were resorted to by men not only of the city but of the whole presidency both Europeans and Indians. In the great war he went into the Hospitalship of Madras as a Lieutenant. He introduced the Medical Registration Bill in the Legislative Council bringing into existence the present Medical Registration Act and the present Provincial Medical Council. He acquired the parliamentary vote perhaps, for having remained in Great

Britain for over 7 years. He was a follower of Gladstone and worked in the election of Dadhaboy Naoroji and later on he took a leading part in the election of Mr. Herbert Paul to represent South Edinburgh in the Parliament. Mr. Herbert Paul himself admits that but for the exertions of Dr. Nair he would not have succeeded. He was appointed a member of the Factory Labour Commission. He wanted to minimise the hours of labour from 17 and 16 hours to 12. Having not been able to get the ears of both the Indian Members of the Commission and the Government of his views, he had to leave the Indian shores to place his case before the British Labour party and interviewed Lord Morley and finally succeeded in getting the concession he wanted. He was elected while in Madras to a seat on the Corporation Council where he overhauled almost all the departments of the Corporation. It was a surprise to see how he had the expert knowledge of subjects like engineering etc. After a piece of advocacy there once it was told that late Mr. James Sharp told Dr. T. M. Nair that he selected a wrong profession. I wish late Mr. James Sharp is here to day so that we all may tell him that the medical profession is the right profession to select and the medical men can befit themselves with credit in any walk of public life. He represented the Corporation in the Legislative Council where he won the admiration of both the officials and non-officials. He was a democrat believing that the salvation of the country depended upon the elevation of the various depressed classes, the masses. He espoused their cause and he went to England to lay their claims before the Parliamentary Committee where he expired. Thus in him we lost a distinguished medical man, a powerful writer, a great orator, an excellent debator, a practical social worker, a striking personality, a towering intelligence and above all an unequalled politician.

Now coming to Dr. U. Rama Rau, to me he is a very loving friend. Towards me he has no parties and he has no politics. I have known him intimately for over 30 years. We entered the Medical College together. Before entering the Medical College Dr. U. Rama Rau apprenticed himself to Col. Sturner. Those of you that were acquainted with Col. Sturner know that, though the Colonel was an able surgeon he was impatient of any the least delay. Dr. U. Rama Rau was so very useful to him

that Col. Sturner used to wait for some minutes for his novice apprentice coming.

In the College he won all medals and prizes. He discarded the text books prescribed for his course and took the newest editions of the most informing books of the day. I believe he topped the list of his batch of students in the final examination. He discarded Government appointment and set up private practice. Dr. Rama Rau as a junior practitioner attracted the attention of almost all the leading practitioners. Dr. C. B. Rama Rao, the then leading physician, Major Clarence Smith, the then leading surgeon and Dr. T. M. Nair, the then leading specialist all requisitioned the assistance of Dr. U. Rama Rau. I do not know what was it in him that attracted their attention. After sometime Dr. U. Rama Rau himself became a leading physician almost the uncrowned medical king of the northern portion of Madras.

Dr. Rama Rau organised the Ambulance Corps, while Dr. Nair went on Hospitalship, the students of which were sent to the eastern front in the war. He also published leaflets and pamphlets on health etc., the sale proceeds of which amounting to Rs. 2,000 he gave to war fund. His work in the direction of Ambulance and other public works was so great that he was dubbed a Rao Saheb. He was again presented with a Kaiser-I-Hind medal and recently he was awarded the silver Donat Badge of the Order of St. John of Jerusalem, the highest honour to a non-Christian in the gift of the King Emperor. The strenuous efforts he took in the cause of Sub-Assistant Surgeons, consolidating them and getting them the privileges they are now enjoying, need no mention.

Dr. U. Rama Rau was elected to the Corporation with Dr. T. M. Nair where he did splendid work. Then he went into the Legislative Council elected by the people of the City and then by his own district at Mangalore (general constituency) therein showing that he had the confidence of the masses. After remaining there for six years fighting the battles for the profession and for the country very successfully, he got himself elected to the Council of State by the votes of the aristocracy therein showing that he had the confidence of all the people, rich and poor. In the Council of State there is not a sitting that closes

without Dr. Rama Rao asserting himself and making an impression. In Dr. Rama Rau I personally have a very loving and intimate friend and the country has a leading medical man, a resourceful journalist and an admirable social worker and a distinguished politician.

With these words, I unveil the combined portraits of Dr. T. M. Nair and the Hon. Dr. U. Rama Rau.

On behalf of the staff of "The Antiseptic," Dr. U. Krishna Rau, most sincerely and gratefully accepted the portrait of the two great founders of the journal. The late Dr. Nair had been the soul of "The Antiseptic" for over a decade and most of the activities of the Journal were due to his exertions. The photograph would be a beacon light to him (the speaker) in his future work. As for his father, Dr. U. Rama Rau, they were in a better position to speak. It was for them to say whether the journal had done good or bad work. He knew that it was not perfect, and he appealed to them for co-operation and sympathy in the future work of the journal and make it a powerful force in the land.

The Address.

Dr. E. V. Sreenivasachari then read an address to the Hon. Rao Sahib Dr. U. Rama Rau on behalf of the members of the Medical profession, Madras. The address ran thus:—

To The Hon'ble Rao Sahib Dr. U Rama Rau
Proprietor & Editor of "The Antiseptic", Madras.

DEAR DOCTOR,

It is with immense pride and pleasure that we, the members of the Medical profession in Madras and in the mofussil, greet you, on the happy occasion of the "Silver Jubilee of the Antiseptic", with this token of our regard for and appreciation of the invaluable services you have rendered to the cause of the Medical Profession in India, in general, and South India, in particular.

"The Antiseptic", the first and the foremost unofficial Medical Organ in this part of the country, which has fearlessly stood the fair weather and foul common to journalism in our land, lay or professional, and which is victoriously sailing on its

onward course of scientific progress, has been an effective weapon in your hands to fight the battles for the profession for full five years and twenty. It is a matter of congratulation that you in conjunction with your talented and distinguished predecessor, the late Dr. T. M. Nair, its Editor during the first fifteen years of its existence, have been able to achieve for the profession, especially in our Presidency, many notable objects, such as the reformation of Medical Services and stimulation of its members to attain positions of trust and honour which they richly deserved, the consolidation of the independent medical profession, the formation of the Provincial Medical Council and an attempt at initiating the All India Medical one.

As a general medical practitioner in Madras, as a Commissioner for some time, of its Corporation, as a member of the Local Legislative Council, as an Honourable Member of the Council of State, as an elected Vice President of the Madras Medical Council, as the ex-President and present Vice-President of the South Indian Medical Union and as the President of the Madras Branch of the All India Medical Licentiates' Association, you have gained the approbation of the Medical Profession. Among your beneficial acts, your Ambulance Organization and Health Propaganda, stand out prominent. You have, by your many sided activities, proved yourself to be a tower of strength to the present generation of Medical men in South India and a source of inspiration and emulation to the future generation all over India.

In fine, we pray to the Almighty to shower His choicest blessings on you and *The Antiseptic*—to spare you for many more years of useful Service, and to bestow on the Antiseptic uninterrupted progress, to be of enduring benefit to the Medical Profession in India and to contribute, in its way, to the advancement of Medical Science.

We are,

Dear Doctor,
Yours Sincerely,

Madras,
18—4—1929.

Members of the Medical Profession, Madras.

Dr. Vayyapuri Mudaliar, Mr. Thodla Venkatachella Iyah and the Secretary of the St. John's Ambulance Association also spoke, eulogising the services of the Doctor.

The address which was beautifully printed was presented to the Doctor, enclosed in a silver casket moulded on ebony.

Dr. Rama Rau's Reply

Dr. Rama Rao, in the course of his reply, said that he felt it a great privilege and honour that so many members of the medical profession came to attend the meeting. He felt that it was not an honour done to him but an honor done to the cause for which "The Antiseptic" stood. In the address just presented to him, reference had been made to his various activities. There was nothing extraordinary about them. These activities were of a simple nature, and any one could perform them, and he was there standing to prove it.

It was not possible for him to say how much he regretted that Dr. Nair was not alive to day to enjoy the fruits of his work. The success of "The Antiseptic" was due to the versatile pen and the honesty of purpose of Dr. Nair. It was intended for the removal of corruption wherever it existed. Twenty-five years ago the medical profession had not been what it is at the present day and feeling this a meeting of the members of the profession was called, and it was decided to start this Journal. At first there were great difficulties in finding out the finances. At the end of the sixth year, they were able to wipe off the deficit, and now it had its own financial position. "The Antiseptic" took up the grievances of the medical profession, and many of the improvements since effected in the pay and status of the officers were due to it. The profession still suffered from many grievances and the existence of these was simply due to themselves! The members of the profession did not make themselves heard. They simply attended to their business and did nothing beyond it. They should take more and more interest in the public life of the country. When it was possible for a Lawyer and an Engineer to attain high public position he failed to see any reason, why medical men should not attain that position. He was sorry that at present there was no unity among them and

he appealed to them to throw off all their communal and other party differences and work all together for a common cause. Because we are not assertive, people with ability and intelligence among us are not recognized and, my friend Rao Bahadur Dr. C. Natesa Mudalair was not given the Medical Portfolio. He was about to retire and it was left to them to make "The Antiseptic" a big force in the land. If the journal was not an ideal one now and if it fell short of their expectations it was not his fault. It was due to want of co-operation among them and he was glad that an awakening was coming among them. He once more thanked them for the honour done to him on the occasion.

Chairman's Remarks

Doctor Rangachari, in the course of his remarks, said that it was an unique occasion. He thanked them for the honour done to him of having asked him to preside over the meeting. "The Antiseptic" was the only non-official medical journal in South India and, it disseminated not only useful medical knowledge but, also fought for improving the condition and status of medical officers. The medical men must agitate and agitate to secure their rights.

The meeting terminated with a vote of thanks proposed to all concerned by Dr. P. Rama Rao—the Secretary of the Entertainment Committee.

THE JUBILEE DAY.

The Silver Jubilee Celebration of the 'Antiseptic' came off on the 19th day of April, 1929 and in commemoration thereof, the Hon. Dr. U. Rama Rao and Dr. U. Krishna Rao gave a dinner party that night at the Masonic Lodge, Egmore, at which nearly 150 guests were present.

After the dinner, Surgeon-General J. W. D. MEGAW, who presided, proposed the toast of "The Antiseptic". In doing so he said that, one of the reasons which might have actuated Dr. Rama Rao in honouring him that evening in spite of his occupying the bureaucratic chair, might be, that, he represented every section of the medical profession. If so, he would assure them that to the best of his abilities he would live up to it. In

addition to the personal gratification the occasion had given him he hoped that it would also help to promote fellowship and unity amongst the members of the medical profession in Madras. He found the people of Madras, European and Indians, very courteous. Every one of them were good fighters but he had only to ask them to select their enemies suitably. Again the speaker found that the people of Madras were either exceedingly good or exceedingly bad. Curiously enough the same men were exceedingly good and exceedingly bad. However the speaker considered himself one of them and so was exceedingly good and bad.

"The Antiseptic," the speaker continued, was started 25 years ago and its editor, the late Dr. Nair, held up as his ideal unity amongst the medical profession. "The Antiseptic" ever since its foundation had lived up to that ideal. Though the speaker might not agree with everything in it, there was no doubt that its present editors were fighters. For the best interests of the medical profession, they must fight together. They should not select their enemies in another section of the medical brotherhood but in ignorance and disease. And so long as "The Antiseptic" continued to fight, as it had been doing, it would deserve the support of the medical profession.

For Dr. Rama Rao, the speaker concluded, this would be one of the proudest moments of his life. The gathering was a remarkable testimony of the appreciation, not only of the medical profession but, of the general public, of the very great efforts that Dr. Rama Rao had made on behalf of the medical profession, the people of Madras and the people of India. The speaker asked them to drink to the health of "The Antiseptic" coupled with the names of its editors Dr. U. Rama Rao and Dr. U. Krishna Rao.

An Appeal to Medical Men.

In responding to the toast, Dr. Rama Rao thanked them all for kindly accepting his invitation. The reasons why he requested the Surgeon-General to preside on the occasion were that he was the head of the medical department and everything medical in Madras, he was the custodian of the privileges of the independent medical practitioners and he was also once the co-editor of the

"Indian Medical Gazette". His presence in their midst was also a symbol of unity between the different grades of medical men in Madras.

After expressing his thanks to the leading journals all over the world for their kind messages of appreciation and encouragement, the speaker gave a short history of "The Antiseptic" and also paid a glowing tribute to the late Dr. Nair, who, as its first editor, had rendered immense service to the medical profession.

"The Antiseptic" was responsible, the speaker said, in bringing to the notice of the authorities the several grievances of medical practitioners. It was also due to its efforts that the Medical Registration Act was now before the Indian Legislature.

"The Antiseptic" was not an ideal journal. It has its own defects. The development of it was in their hands and he hoped that by contributing articles and rendering other help they would enable him to improve it.

Prize for a Medical Student

He regretted that the profession did not get the encouragement it deserved. The medical graduates of the Madras University could not hope to get the highest appointments in the line, whereas lawyers and others could hope to be Ministers, executive councillors, etc. (A voice: You can be a Minister; Dr. Rama Rao: I know the post was not given to a person because he happened to be a medical man). The speaker next appealed to the medical men to enter public life in large numbers. They had no party. They knew only human relief and in that the Government was bound to take their advice. Before concluding, Dr. Rama Rao, speaking with great fervour said: If the Antiseptic could voice its emotion at this large and splendid gathering in response to the generous terms in which Surgeon-General Megaw has proposed its toast, this is what the journal would say. "The present sees the achievements of my most notable of purposes namely, the creation of harmonious relationship between the official and non-official sections of medical men in India. The present also augurs well for the continuance of the good will and the candid recognition of each other's task and the possibility of achievement of yet greater results by timely corrections and constant co-operation".

Dr. U. Rama Rao then announced that he proposed endowing enough money to the University to enable them to give, out of the interest, a prize of Rs. 100 to the best student who went out of the Medical College. (*Applause*).

Journalism and Medical Science

Mr. S. Satyamurthi next proposed a toast to the journalists. He said that both European and Indian doctors belonging to Madras service had rendered notable service to the advancement of medical science in the country. Among them, Dr. U. Rama Rao had played a very important part.

They had to speak of journalists with bating breath and whispering humbleness. Journalists had the capacity to make them or unmake them especially in political career. Indian journalism had made rapid strides in the last few years. Towards that progress Madras talent was not a little responsible. They would find in the most prosperous journals in India, the Madras brain and talent behind the desk. That was a thing on which they, the Madrassees, could be well proud of.

The speaker then referred to the talents of the late Dr. Nair and his connection with "The Antiseptic" and said that in many a hard-fought battle Dr. Nair held aloft the banner of independent medical journalism.

In those days Dr. Rama Rao was the right hand man of Dr. Nair and these two persons were inseparable in their profession as well as in public life.

Mr. Satyamurthi also touched upon the high sense of patriotism and courage of Dr. U. Rama Rao and said that he should really feel proud to possess such a good son as Dr. Krishna Rao who, in the medical profession as well as in journalism, was following the noble traditions set before him.

When he heard, the speaker concluded, constant cheers whenever the phrase unity of the profession was uttered by the previous speakers, he thought all was not well. The applause seemed to him to represent the wish and not the achievement. But he hoped the wish would be soon translated into fact. There were other problems for which "The Antiseptic" was agitating. He considered the question of complete Indianisation consistent

with the highest demands of the profession, to be very important. This did not and ought not to mean racial prejudice. He was of opinion that Indian Doctors would be equal to the highest of European doctors provided they were also given the same opportunities. The speaker then proposed a toast to the journalists coupling with it the name of Mr. A. Rangaswami Iyengar. "The Hindu" was a unique institution in Indian journalism and Mr. Rangaswami Iyengar was faithfully following the footsteps of his uncle, Mr. Kasturiranga Iyengar.

Mr. A. RANGASWAMI IYENGAR responded to the toast. He said that he did not quite understand why this duty should have been foisted upon him. If it was a question of the claims of seniority, my friend Mr. Hayles, who had completed his Diamond Jubilee should have been the proper person. On this Silver Jubilee occasion, they (journalists) in this country felt naturally elated. Though 25 years was a brief span in the history of a nation it was a fairly long span of existence for Indian Journalism. When he found that he had to respond to the toast, he took it as one of the compliments which the public cared to pay to the journalists.

Dr. Rama Rao bewailed the lot of medical men. As a journalist he ought to have bewailed the lot of journalists also. They could not say that journalists, as such, were prosperous men. Journalists after all had to live laboriously. The late Dr. Nair and Dr. U. Rama Rao lived laborious days not only in the medical profession but also as stalwart fighters in journalism. The speaker had a claim to respond to the toast. Dr. Rama Rao and himself had along with the late Dr. Nair and his revered uncle Kasturiranga Iyengar were in the docks of the Presidency Magistrate's Court answering a libel action against them for having undertaken to do some important public duty in Madras. They won the case and the cause of that case.

Dr. Rama Rao had been very properly described as a fighter. He was particularly sharp and would flare up upon a thing which looked wrong. That was the mettle he and Dr. Nair brought in the conduct of "The Antiseptic." Dr. Nair was also a unique personality. He was outspoken and had no mental reservations.

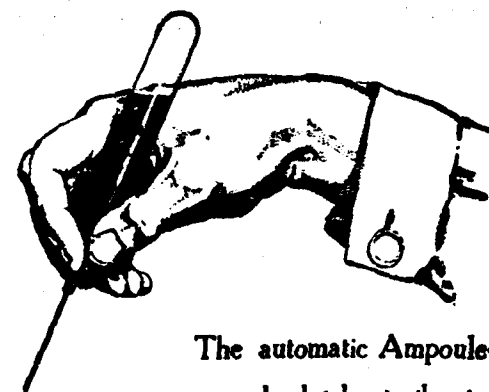
"The Antiseptic" the speaker concluded, was a valuable medical journal. It stood for service to humanity, patriotism and public service. They felt proud that these traditions were being maintained by Dr. U. Rama Rao and Dr. U. Krishna Rao.

Doctors and Social Service.

The Hon'ble Mr. G. A. NATESAN proposed the toast of the profession. The gathering of such a galaxy of medical talents, he said, must gladden the hearts of all. The late Dr. Nair was a prince in that profession. In his public life also Dr. Nair was well known. Dr. Rama Rao was one of the remarkable examples of a self-made man. He had kept himself abreast of the times and was in touch with the latest medical researches. As Dr. Nair he had also set an example in public life. The speaker hoped that many more medical men would interest themselves in public life in the future. In the field of social service their sympathy and co-operation was essential and he was sure that they would feel it an obligation to help in this work.

Some years back, they had considerable difficulty in getting lady doctors. Now he saw a number of them in the hall. He hoped that on the Golden Jubilee of "The Antiseptic" half or even three-fourths of the gathering would be lady doctors. The increase in their numbers would bring happiness to their homes. After pointing out the need for increasing the facilities for nursing, the speaker asked them not to be content with the glories achieved but to look forward to greater things.

Dr. MALLAYYA responded to the toast. He referred to the enthusiasm with which Dr. Rama Rao was carrying on the fight on behalf of the medical profession. The speaker drew not a little inspiration from the leaders of "The Antiseptic." Twenty-five years back the number of medical practitioners could be counted upon the fingers. Now they had one doctor for every 800 of the population of the city. With the rapid production of doctors by Dr. Lakshmipathi and Capt. Srinivasamurti he did not know what would be the condition of the profession in the future. There was keen competition and with the economic depression in the country the out-look for doctors was grave. The interest of the profession should be kept in view. Their conditions should be ameliorated and Indians should be given a chance in their homes. Some of the high places in the profession should be



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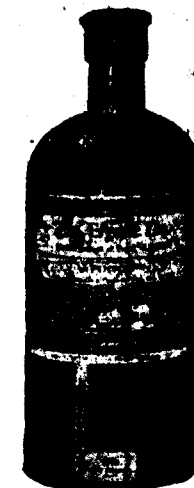
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So cleverly did a gang of fraudulent patent medicine vendors make up and sell quantities of faked medicines to chemists in Paris and elsewhere in France that the proprietors of the patent medicines themselves when asked by the police were unable to distinguish their own products from the faked ones. The bottles, labels, printing and wrappings were all exactly imitated. Large shipments were made to Cuba and Mexico by deluded purchasers of the counterfeit medicines. Several arrests have been made but the police do not yet believe that they have caught all the men involved in the fraud which has cost reputable houses many thousands of pounds.

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reserved for their men. They had a right for those places. There was a talk of bringing outsiders for teaching work in the Medical College. He would ask them why their own men should not be sent out for training so that they could serve their own country.

Dr. U. KRISHNA RAO proposed the toast of the guests which was responded to by **Capt. G. Srinivasamurthi**, who thanked on behalf of the guests, Dr. Rama Rao and Dr. Krishna Rao for the entertainment and wished them long life and continued prosperity.

The gathering then broke up at a late hour.

Prominent among those present at the dinner were Col. J. W. D. Megaw, Mr. and Mrs. A. A. Hayles, Mr. A. Rangaswami Iyengar, Mr. G. A. Natesan, Mr. S. Satyamurti, Col. J. M. Skinner, Col. G. E. Malcolmson, Mr. V. Shanmuga Mudaliar, Mr. and Mrs. Binstead, Mr. G. Kripandhi, Mr. C. R. Srinivasan, Mr. Balasundara Mudaliar, Dr. Miss Hardy, Dr. Miss Maduram, Dr. Miss Russell, Dr. Miss P. Samuel, Dr. Miss Smith, Dr. Mrs. Devanesan, Capt. T. W. Barnard, Col. R. E. Wright, and Drs. B. S. Mallayya, G. Srinivasamurthi, C. Natesa Mudaliar, T. Krishna Menon, P. V. Cherian, Jamaluddin and A. Lakshminpathi.

The last of the series of entertainments connected with the Silver Jubilee of the Antiseptic was the "At Home" given to Journalists on Sunday the 21st instant by Mr. A. Rangasami Iyengar, Managing Director of Swadesamitran. The function was attended by a large number of Journalists of the city. Light refreshments were first served on a lavish scale to the guests.

Journalism in India

The social over, Mr. A. Rangaswami Iyengar thanked Dr. Rama Rao and others for their kind response to his invitation. His principal object in calling upon Dr. Rama Rao to this gathering of journalists of Madras was to induce him thereby to take a greater interest in the fortunes of the poor journalists than what

he had been accustomed to take. The speaker thought that the celebration of the silver jubilee of a paper was the proper occasion when the journalists might foregather and feel after all, beneath their rivalries and difficulties, they were one at heart in wishing success to the profession they all belonged to. Every journalist in his work had to encounter many difficulties with the public, with their employers and with their colleagues in the profession. It could not be said for instance, that their profession in this country was as well organised as it ought to be and repeated efforts had been made to organise themselves in some effective way so that the profession might be enabled to have a scheme of mutual co-operation, help and assistance. After all, there were many more hard cases among the people belonging to this profession than in any other walk of life and therefore it was necessary to start an organisation which would help many a lame dog in the profession over the sty and enable them to have some kind of provident fund for their help in times of difficulties and distress. Such things had not been thought of in this country and many causes had stood in the way. One thing he would say and that was that they were very much in the habit of identifying themselves not only with the politics of the paper to which they belonged but with the fortunes of the several people interested in that policy. He believed that they should be meeting together as often as possible to exchange ideas and to find out ways of keeping up the high traditions of their profession. It was up to them to help each other and to raise the standards of life so that they might set an example for others.

The speaker clearly remembered now the social gathering given by the late Mr. Kasturiranga Iyengar to Mr. Beauchamp, the editor of "The Madras Mail" on his retirement when he gave expression to similar sentiments. In conclusion, the speaker congratulated Dr. Rama Rao and his son Dr. Krishna Rao on this unique occasion in the field of journalism and the others for gracing the occasion with their presence.

The Hon'ble Dr. U. Rama Rao, in replying to the felicitations offered to him, said that from a journalistic point of view he was only a drop in the ocean, but all the same he would be extremely glad to co-operate with the journalists of the city, if his association with them would in any way strengthen their hands. Even from his boyhood, he was a voracious reader of newspapers and always associated himself with editors and leading journalists and if this would entitle him to be called a journalist, he had no objection to call himself one. Journalism was one of the noblest of professions. The statement that the pen was mightier than the sword was perfectly true. Journalists could make or mar a nation. Their important function was to give a correct lead to the people in times of great political crisis. Hence it was a powerful profession. In India it was not what it ought to be. It was all scattered and it was a great idea to bring them together, to consolidate their position and to see that it was placed in its proper position. He knew of several young men with ideas who started their lives as journalists without considering the amount of trouble, anxiety and financial responsibility of the profession. The success of a journal did not depend upon its editors alone. There ought to be a certain number of people who would subscribe to it. Education had not progressed much in the country and what little education in the vernaculars the people had, it was due to the success of the vernacular dailies such as "The Swadesamitran" and "The Andhra Patrika." Such being the case, it was but proper that a young man should consider deeply before he launched on a career of journalism. If a young man hoped to live by it, he would be thoroughly disappointed. With the exception of a few the journals in India were not paying. His own experience with "The Antiseptic" was that for the first six years he worked it at great deficit. Therefore if anybody wanted to start a journal he must have a good banking account. Again the success of a journal depended on the kind of news it catered to the public. The mass must be with it and not against it.

The journalists had a great task to do in the coming years and he hoped that as a result of such gatherings something good would come. He thanked Mr. Rāgaswami Iyengar for the kind words said by him. He also thanked 'The Swadesamithran' press for the promptness with which they brought out the magazine. He also thanked Mr. Krishnamachari for his kind services to "The Antiseptic."

Camaraderie Among Journalists.

Mr. A. A. HAYLES, next addressing, said that he enjoyed the occasion very much. He agreed with Mr. A. Rangaswami Iyengar in the opinion that they should not carry into their social life their political views, and whenever he had an opportunity of meeting persons who differed from him in their political views, he always availed himself of that opportunity. When he came to India he found this tendency prevalent to a great extent, but he could not say that now. As Mr. Rangaswami Iyengar had said, in England, people who might be swapping, as they would call it, in the House of Commons at one moment, would be found clustered together at the supper table the next. That ought to be the way they should get on here. There was no reason why they should not meet often and talk and enjoy pleasant evenings. He hoped that something good would come out of this gathering, a sort of journalist society or alliance, where they could talk over many of the difficulties which they had in common. He had had many chats with Mr. A. Rangaswami Iyengar, and much good had come of them.

Mr. A. A. Hayles, continuing said that since his coming to India the profession had improved much and the members of the profession were getting better treatment from the public than in the past. The speaker then referred to certain instances which occurred years ago in which the representatives of newspapers were treated with scant courtesy at dinners and meetings and how their position had now improved. When they knew the power

which the Press wielded in the country, it was the duty of journalists to take a bold stand against such treatment and to make the public realise that journalists were a set of people who should be treated with respect. There was a tendency again and it was more visible now than in the pre-reform days, on the part of public men, officials and non-officials, to consider the reporters as intruders and not to give them any information. The journalists would know when to publish a certain item of news and when not to do so. They had in Madras that ability and power among them to gather news and the reporters should not sit down under any rebuff from any quarter. They should be persistent and never say they could not get such and such information. It was up to them to get that information and make it available for the public. This would give them a certain position.

The Training of a Journalist.

Mr. Hayles went on to say that they should beware of too many intrusions in the professions. There were some people who style themselves as free lance journalists and who considered that the material they send whether it was good or bad or indifferent should be accepted. In this connection he was glad to find "The Hindu" had taken a great step by instituting an apprenticeship in journalism. To become a journalist there should be a period of preparation and one should work up his way from the lower rungs of the ladder. He was also glad to find that the University had an idea of instituting a course in journalism. The editors of newspapers were invited to give their opinions.

But as the speaker found that the Committee had already in hand a cut and dry scheme, there was no use in his giving evidence before the Committee. Journalism was not a profession which any one could take up on his way to something else. It required hard study and steady preparation.

In conclusion, Mr. Hayles paid a tribute to "The Hindu" and said that he considered it the best Indian journal in India. It approached in its features and make-up the first rate western journals. They should all understand that that work was not being done by amateurs but by people who had worked their way up. He thanked Mr. Rangaswami Iyengar for giving him an opportunity to meet the journalists in the city and for allowing him to make a few observations on the profession.

Mr. A. RANGASWAMI IYENGAR expressed his gratefulness to Mr. Hayles and hoped that their talk to-day would materialise into something useful.

Mr. R. R. BASHYAM IYENGAR on behalf of the guests present thanked Mr. Rangaswami Iyengar for giving them an opportunity to offer their felicitations to the Hon'ble Dr. U. Rama Rao on the occasion of the silver jubilee of "The Antiseptic." Dr. Rama Rao, he said, had conducted the professional journal with remarkable success and hoped that with the help of his son he would achieve still greater success in the years to come. He wished Dr. Rama Rao long life and continued prosperity and public usefulness.

The gathering then dispersed.

The gathering included Mr. and Mrs. Hayles, Messrs, C. Rajam, C. R. Srinivasa Iyengar, R. R. Bashyam Iyengar, T. S. Visvanatha Aiyar, Kidavu and Veeraragavachari.

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Those who wish to read papers at the Congress are requested to inform the Secretary at once. Papers for the Congress should reach the Secretary not later than 1st July to permit of abstracts being made for the Press.

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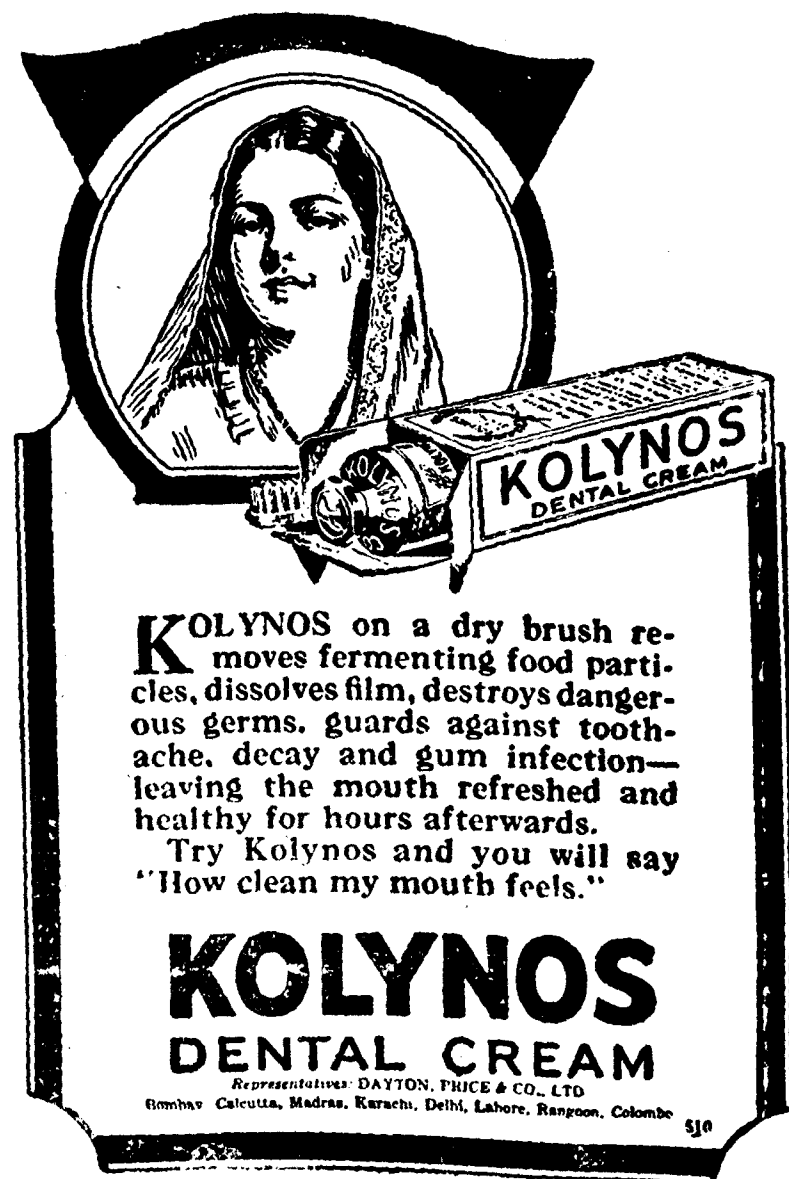
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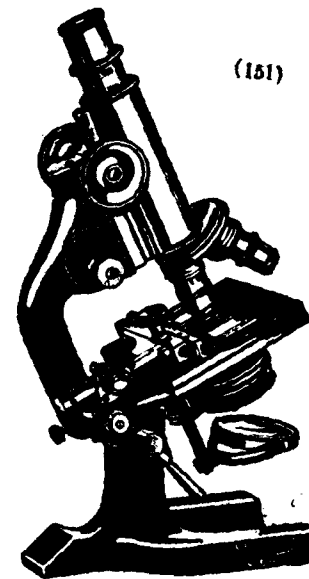
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			on entering	on leaving	on entering	on leaving	on entering	on leaving	on entering	on leaving
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P. L. 34 years	Anemia Uteroventric	4 "	51	64	30% 45o/o	2400000	3240000	90 "	90 "	
H. E. 21 years	Anemia Perimetritis	5 "	53	62½	20o/o 40o/o	1800000	3280000			
Servant girl										
V. M. 24 years	Chlorosis	5 "	36	43	20o/o 60o/o					
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B. E. 23 years	Chlorosis	4 "	49	51½	35o/o 60o/o					
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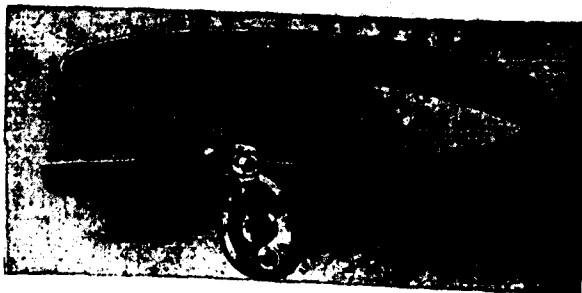
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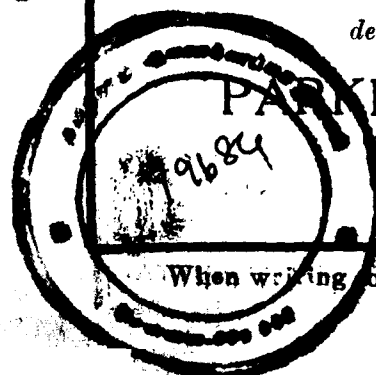
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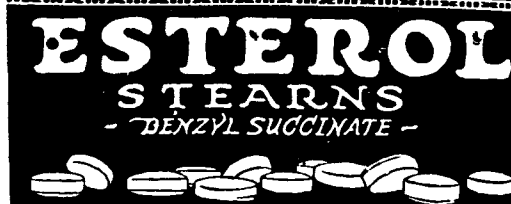
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