The Bulletin

OF THE

South Indian Medical Union.

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CONTENTS.

PUBLICITY SECTION.

NOTICE.

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Address all communications for :—

(1) Publicity Section—51, Poonamallee Road, Kilpauk, Madras.

(2) General Section—100, Poonamallee Road, Vepery, Madras.

Programme.

APRIL 1931.

Meetings held at

32, Broadway, Madras.

Monday 13th, 6-30 p.m.

MODERN TECHNIQUE IN THE TREATMENT OF PULMONARY TUBERCULOSIS

BY

Dr. S. Krishnaswamy, M.B., B.S.,

Hony. Assistant Surgeon,
Tuberculosis Hospital, Madras.

Monday 20th, 6-30 p.m.

GOVERNING BODY MEETING.

Monday 27th, 6-30 p.m.

X-RAY EXAMINATION OF THE HEART AND GREAT VESSELS

BY

Dr. P. Rama Rao,

Unique X-Ray Institute, Madras.

Members of the Union may exhibit any interesting case for demonstration at the meetings.

* * *

All members of the Medical profession and medical students are cordially invited.

—:o:—

The *Annual* General meeting of the South Indian Medical Union will be held on Monday, 11th May 1931.

Members who wish to move any resolutions at the meeting are requested to send the same to the General Secretary, 100, Poonamallee Road, Vepery, Madras, to reach him before the 11th April 1931.

BULLETIN

OF THE

SOUTH INDIAN MEDICAL UNION.

MARCH, 1931

The Medical Budget.

At the present period of almost universal financial distress, it is only natural that Governments should strain their energies to carry on the affairs of the country with utmost economy. The speeches delivered in the Madras Legislative Council bear ample testimony to the earnest and vehement desire of most of the representatives of the people to eliminate waste of public funds and to cut down the cost of administration to reasonable standards. The medical and public health departments, more than others, concern every individual citizen of a country. Every one is familiar with some aspect or other of these two departments. We are not therefore surprised that so many members of the Council should have referred to them in their general remarks on the budget. The increasing interest taken by the members is further evidenced by the large number of token cuts contemplated on this item of the budget estimates. These "cut" resolutions cover many pages of printed folio. Many of them concern questions of general medical policy, others relate to isolated defects. Some resolutions refer to grievances of groups and others deal with individual hardships. This growing interest of the public in what concerns them and the Profession promises well for the future, and while the Public is so ready to help us, it behoves the Profession to help the Public better to understand the defects of medical administration, the easily removable disabilities of the profession and the urgent need for the expansion of medical relief in the country.

The volume of ill-health and death from preventible disease is well known. Efforts to remedy these conditions require a large amount of money. For some years to come, this department of the Government can usefully absorb all the money that may be available. According to the report of the Simon Commission, this country spends about four annas per head of the population for purposes of medical relief and public health. This is indeed a very inadequate provision. There is therefore no room here to cut down expenditure. But the watchful legislator would see to it that this meagre sum of money is well and wisely spent. It is easy to make out a plausible case for every item of expenditure. An efficient organisation for medical relief requires among others a large body of well trained medical men and buildings. Naturally we find a large proportion of the money is spent on medical men. But the public would like to know if more medical men could not be induced to offer their services for the money that is now spent, and if more buildings appropriate to the purpose could not be built for the present large outlay on them. Since these items account for a good part of the expenditure incurred on medical relief we shall discuss them in a little more detail.

Medical Staff.—Out of about 59 lakhs spent on hospitals and dispensaries, over 16 lakhs are paid as salaries and allowances to medical men of various grades from the sub-assistant surgeons to the district medical officers. We are not here required to say whether these men are not worth the salary they receive. But the public would like to know if other arrangements could not be devised by which for the money now spent, a much larger number of medical men could be engaged to work on part-time basis without any impairment of efficiency. We have repeatedly referred in these pages to other methods of staffing the hospitals. We do not therefore propose to elaborate this suggestion, but we desire to take this opportunity of correcting a certain misapprehension in the public mind. We have been time and again asked to state whether we suggested that no full-time salaried medical men would be required in our scheme of medical relief to this province. If the question refers to the various Presidency and mofussil hospitals, we say deliberately that no paid full-time medical officers would be necessary. We can easily visualise the incredulous smile that plays on the faces of our readers as they read these lines. Those who for so long have been familiar with the multifarious duties of the D. M. & S. O., D.M O. and the District Surgeon would wonder as to how and by whom those various duties would be performed. They would wonder as to who would inspect the mofussil dispensaries and hospitals, who would grant certificates of physical fitness, recommend for leave or commutation of pension. But we would humbly point out that similar considerations of administrative conveniences and efficiency were used as arguments against the transfer of control over district boards and other local bodies from the district collector to non official public men. If non-officials can successfully administer the affairs of a district, if they can direct the co-operative movement, if they can be successful legislators, if they can be respected statesman, if they can even decide the destinies of the country, are non official medical men the only unfortunate incompetents in this land, who cannot be trusted to look after the medical needs of the population here? It spells ludicrous and even more ludicrous that of all people only medical men should be so poor of imagination or be so thoroughly lacking in self-confidence.

In spite of all enthusiasm and ability on the part of medical men, paid men would be required and they could be more useful as pioneers to carry medical consolation to outlying parts of a district where people are not as yet familar with the advantages of modern methods of medicine, or where medical men could not settle down with any prospect of earning a reasonable living by practice alone.

Buildings.—Expensive and impressive buildings are certainly very good if one can afford them. But in a country where hundreds of villages and extensive areas with scattered populations go without any medical aid, it is questionable whether it is the wisest thing to concentrate all the available money in a few places to the great detriment of the rural population. It is common to find in many hospitals patients accommodated on floors, in the verandahs and corridors side by side with others provided with expensive cots and wards with marble floors and enamelled walls. It used to be a common complaint against the Catholic Church in Ireland, that expensive and imposing cathedrals were built in the midst of slums so that the starving citizens might at least get spiritual surfeit by contemplating on the grandeur of the abode of their religion. We do not know if this criticism had any basis. But we know that many an ailing person enters the gates of hospitals in the city and gaze at the neat pile of buildings, only to be told that he could not be provided with an asylum which he sorely needs and for which he has travelled, perhaps, hundreds of miles.

Pay and Special Pay.--Out of a total of 8·7 lakhs spent on the Medical Colleges, about 6·2 lakhs go towards the pay of the medical officers. There are 33 professors of whom 23 get special pay in addition to their basic pay. Among the assistant professors, 12 get higher pay than the 31 assistant surgeons (Rs. 200—450). Of the latter 25 get special pay for teaching—Rs.125 each. There are 17 assistant surgeons on the staff of the Medical School. But we find against them 23 special pays. Evidently some of these assistants receive more than one special pay. We are not able to understand the principle on which special pay is given to officers in the Medical department. If it is because their work is specially arduous or is one which requires special merit, it would be worth while to compare the pay of these men with that of others engaged in similar work in other countries. Or if it be contended that the work of teaching is so dull and uncongenial that, but for these additional emoluments, assistant surgeons and civil surgeons would not be willing to undertake these duties, it would be instructive to risk the experiment of abolishing the special pay in any form and watch the effect on recruitment for the teaching appointments. As these officers are recruited on a provincial basis, we are sure that they would gladly respond to the call for work in any situation within the limits of the province. Further, these officers generally are well aware of what is good for them and with the many advantages they derive by being in presidency towns and teaching institutions, it is not likely that they would lightly refuse an offer which enables them to obtain these coveted appointments.

We are diffident to pursue the subject further. We have probably done these officers wrong in suggesting that the special pay is superfluous. It may be that they are doing in addition to their legitimate duties, other work which would ordinarily devolve on another officer; or they may be working far beyond their usual routine of five hours a day. We wonder if there are any service rules which define their daily task or hours of work beyond which they are entitled to what would be commonly known as over-time remuneration.

The Madras University and the Medical Licentiates.

At the recent meeting of the Academic Council of the Madras University, it was resolved that facilities should be provided to enable such of the Licentiates as are desirous of becoming graduates in Medicine to achieve their purpose on certain conditions. Among the diplomates of even a generation ago, there have been many who were not content to remain for life as Hospital Assistants as they were then called. For want of facilities here, a few of them went over to Great Britain or Ireland and returned with registrable qualifications that they might enter the higher branches of the Medical Service of this country. Those who could not find the necessary finance, but who were none-the-less keen, underwent the ordeal of taking a complete course of five or four years in the medical college and passing all the university examinations. If more of them did not take advantage of this laborious privilege, it was not because they were unwilling, but the lack of preliminary educational qualification stood in their way. At present even those who possess the requisite educational qualification prefer to go abroad to take a registrable qualification on account of the shorter period of study, the various exemptions they obtain, and the relative ease with which they get through their examinations. But the sojourn abroad and the travel to and fro, mean a few thousands of rupees which very few medical men in Madras can afford. Thus many a capable man is deterred from obtaining a higher qualification and they resign themselves with bitterness to their unhappy lot.

Either from indifference or helplessness the State and the University have allowed this most unfair and anomalous state of affairs to continue these long years. Apparently the University has at last realised its cruel blunder and has come forward to rectify it not a day too soon. We congratulate the University and those members who have actively interested themselves in this connection. We are sure that the profession as a body would be thankful to them for this much delayed reform.

The fact that proposals are in the air to abolish the excisting L. M. P. standard and that efforts are being made to raise the standard of the diploma course of medicine, do not bear on this University reform. The contemplated changes are only for future entrants and do not help those that are already qualified. Among the Licentiates, there are many capable young men who could easily come level with University graduates, and we trust that all of them would be ready to take advantage of the facilities that are promised. And as the conditions that are suggested are similar to those which obtain in the British Isles we are confident that our Licentiate brethren would not keep back from exerting themselves to get rid of the undeserved stigma of inferiority.

Indian Medical Association, Calcutta.

RE: DRUGS ENQUIRY COMMITTEE.

Our Association feels that whilst under other circumstances and in more favourable times the desirability of such an enquiry might be admitted, considerable misgiving prevails amongst the members of the independent section of the Indian medical profession as to its necessity at the present time. It is apprehended that some of the findings of this Committee will be used with the ulterior purpose of prejudicing the position of the infant drug industry in this country. This belief is strengthened by the fact that up till now very little effort has been made by Government to help this industry by State aid towards manufacture or by supporting the consumption of the products by using them in Government hospitals. This indifferent attitude of the Government has been responsible for making India a good dumping ground for foreign drugs and preparations. It is widely believed that the nascent indigenous manufacturing concerns will not get justice through the enquiry that has been set on foot and that many of them may be unjustly condemned, Colour is lent to this apprehension by the fact that although it was as far back as 1927 that the resolution for the appointment of such a committee has been passed by the Council of State it was not given effect to until a few months ago, when manifestations of a strong national desire for using indigenous preparations and drugs became noticeable. It is strange that for 150 years of British rule no such solicitude has heen evidenced for the control of drugs in India. In 1929 out of Rs. 2,01,84,000 worth of drugs and medicines imported into India medicines worth Rs. 88,99,000 came from the United Kingdom. It should be noted that though the Food and Drugs Act in United Kingdom makes it compulsory to examine all drugs and food substances consumed in United Kingdom the products for export in India are beyond the provisions of this Act. This apprehension is also to a certain extent supported by the fact that in the composition of the Drugs Enquiry Committee although a place could be found for a representative of a British firm no room could be found for a representative from an Indian manufacturing firm. Our Association apprehends that no useful purpose will be served by a committee constituted as it is, without properly qualified expert personnel to represent the various aspects of the chemical, pharmaceutical and biological drug trade.

In paragraph 3 of your letter under reference the following statement appears: "It is well-known that many unscrupulous people realising that to analyse and standardise medicinal preparations requires experienced men and expensive and elaborate laboratory equipment, take advantage of this knowledge to carry out extensive adulteration, use inferior drugs, and in the case where raw material is expensive, purposely reduce the quantity that should be used in order to sell it at a low price. This is not only carried out in India but some European firms export medicines specially manufactured for the eastern bazaars."

Our Association finds it difficult to accept this statement in the absence of accurate and proper evidence. If this had been the real state of affairs any effective control over them would mean the creation of well-equipped laboratories and test houses under the conduct of honest, impartial and competent men who enjoy the confidence of the public in different parts of India as a first and essential requisite. It is doubtful whether the Government would in the present state of financial distress be in a position to find money to give effect to the recommendations, which may be made in this behalf, in the near future. The detection and collection of samples, etc., would require elaborate staff in addition to officers who would have to be employed in analysing and carrying on the standardisation of drugs and medicines in the different laboratories all over India. Whereas, on the one hand, we do not find the picture as gloomy as depicted in your statement quoted above, we do not on the other, see our way to support a scheme of control organised under Government particularly as their attitude towards Indian manufacturers is not likely to be sympathetic and unbiassed. Further, there are ample reasons to apprehend that a quasi-official controlling body created by official legislation would only introduce an engine of oppression in a field in which signs of healthy development are already noticeable. And when the proper time came it may be desirable to appoint a sympathetic and enlightened, competent and interested controlling agency for the purpose of giving guidance and prompting the progress of the young concerns through co-ordination and co-operation.

As regards the question of enquiry preliminary to control we are of opinion that the whole of the drugs and preparations trade should not be placed on one uniform level—there must be differential treatment for indigenous products including manufacture from foreign products. The former should be carefully handled, nursed, helped, supported and encouraged in every way. No restricting or cramping or pruning devitalising legislation should be made applicable to them at this stage. Guidance is required and must be provided with sympathy.

As regards foreign products imported into India, an enquiry might be desirable. But, as we have shown, the machinery required for giving effect to the findings and conclusions of the enquiry would be extremely expensive and if formed under the prevailing circumstances, can hardly be expected to do justice to different parties concerned.

But the Association feels that the present political situation is not the proper time for introduction of legislation of such great importance. Before any legislative action is introduced, standards for the drugs should be set up and this can be done by the compilation of an Indian Pharmacopœia by intensive research work. In the compilation of such a pharmacopœia three categories of drugs will have to be incorporated. (1) Preparations taken from pharmacopœias of other countries, (2) those indigenous medicines which have been already scientifically studied and standardised and can therefore be forthwith incorporated and (3) those indigenous medicines which have been found efficacious on clinical trial but which require further investigation. This means that a good deal of research work will have to be carried out to obtain the necessary knowledge about these preparations and to determine their standards of purity and efficacy. *Pari passu* with research work extensive testing of drugs prepared in or imported into India will have to be done in various testing laboratories in different parts of the country. To establish standards we shall have to study the methods developed by the various League of Nation Committees, American and German pharmacopœias as also of those in Great Britain. This means that we shall have to devote at least the first ten years of this scheme to study and to research with a view to gaining exact knowledge. When this is obtained we will have to think of legislative control. It will be seen therefore that no legislative control can be conceived for the present. It has been stated by some that India has been made a dumping ground for adulterated and inferior quality foreign medicines, but we have no exact knowledge of the state of affairs prevailing. We do not know what preparations are adulterated and to what extent and what preparations are under-strength. Unless and until we have exact scientific information about it legislative control could not be justified. We would like to point out in this connection that in the composition of the Pharmacopœia Committee there should be included all the available talents and special workers in the country and that it should not be an *ex parte* committee haphazardly made like the present one.

Our Association feels that owing to poverty a very great bulk of the population in the villages and small towns resort to indigenous systems of treatment. Though statistics as to the quantity of the different kinds of drugs manufactured locally and consumed are not available, the figures of the imported drugs and medicines available show that the western system of treatment can be only resorted to by a small proportion of the population only. It follows, therefore, that if any legislation is undertaken for ensuring the purity of drugs, it should not be confined to drugs used by one small section of the population, *viz.*, those resorting to the Allopathic system of treatment only. As to how the drugs, etc., prescribed or manufactured according to the indigenous systems of medicine could be tested, our Association has no suggestions to offer as they have practically no knowledge of these systems of medicines or of their pharmacopœia.

Our Association is of opinion that the profession of pharmacy should be restricted to qualified persons. In this connection our Association feels that there should be provision for the training of pharmaceutical chemists and pharmacologists because without such well-trained personnel, it would not be possible to utilise the enormous raw material that exists in India for the manufacture of drugs which are at present exported abroad and brought back to India in the form of finished products at high cost. Our Association believes that the best method of assuring the purity of drugs, etc., at a cheap cost is by manufacturing them in this country with the help of trained staffs and under adequate supervision. Every possible means should be adopted to develop the pharmaceutical industry in this country, if necessary by bounties or protective tariffs. The various Universities in India may also be requisitioned for helping in the matter of training of pharmacists and pharmacologists. Pending the creation of the training facilities of these pharmacists and pharmacologists every effort should be made to improve the training of the compounder class.

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Therefore get the Genuine Sulfarsenol.

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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

One of the cheated chemists with the connivance of the police set up a temporary export bureau and gave an order to the suspected persons. They duly delivered the falsified goods only to find themselves on arrival in the hands of the police.—British United Press.

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Others are perhaps old or perhaps imitation

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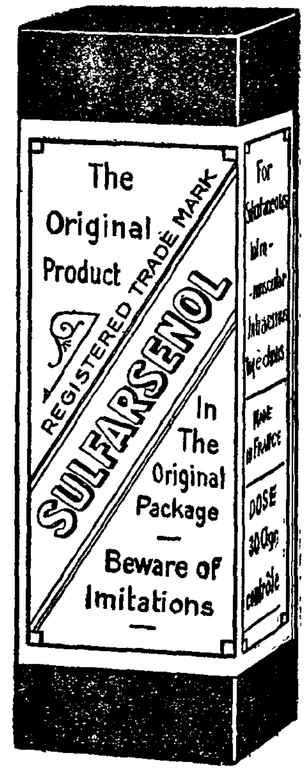

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In conclusion our Association would like to point out certain difficulties with regard to the drug trade in India. (1) There is no system of sampling of raw materials of good quality; the result is that the manufacturer does not know how much of finished product of the required potency he would expect from a certain supply of raw materials. It is the duty of the State to develop this line of vast indigenous drug trade; (2) Unnecessary restrictions and tortuous procedures are imposed by the Excise Department in certain provinces regarding the import of alcoholic medicinal preparations from other provinces. For example, the Governments of Bombay and Madras realise duty on all alcoholic medicinal preparations imported into their provinces and have developed intricate procedures in the issue of Import Permits and collection of duty on arrival at destination. It may be pointed out that in the case of alcoholic preparations imported into India from foreign countries, there is no restriction regarding the export from one province to another after the duty has been once paid at the port of landing. In this case alcoholic medical preparations manufactured in India have to work at a disadvantage when compared with similar foreign preparations introduced into India. Further, Indian made rectified spirits or absolute alcohol have been prohibited into the Punjab and restricted in Central Provinces, United Provinces and Bihar and Orissa. This is a great handicap for the manufacturers.

In this connection our Association would like to point out that a liberal supply of duty free alcohol should be allowed in all *bona fide* research laboratories engaged in medical research, if we conceive that it should be the aim of the Government to help the indigenous drug industry.

BULLETIN

OF THE

SOUTH INDIAN MEDICAL UNION.

MARCH, 1931

Tri-Dosha Theory.*

By Bhisag Ratna A. Lakshmipathi, B.A., M.B., C.M.

This is also called Thri-Dhatu Theory. The three doshas or Dhatus are the fundamental principles, the equilibrium of which is considered essential for the existence of a healthy body. They are described as the three pillars which support the human body. The Thri-Dhatu theory is not the humoral theory of the West. Early western scholars might have borrowed the Thri-Dhatu theory and made up their humoral theory, without understanding the real Ayurvedic conception of this theory. There is yet nothing in our western physiology with which the Thri-Dhatu theory can be properly compared. The starting point of our modern western physiologists is the Cellular theory; on the other hand, the Thri-Dhatu theory goes many steps beyond the cell of our western cellular theory and begins just where the orthodox cellular physiology of western medicine ends. But the time may soon come when such a comparison may become possible. The Biologist is already looking beyond his original comparatively simple cell with its protoplasm, nucleus and centrosome, on to the complexity of chromosomes and bio-atoms. In the field of endocrinology and psychology, western scientists have now begun to talk of body fluids influencing and being influenced by, emotional and mental states.

Let us study the constitution of the Thri-Dhatus, physically, biologically and clinically.

* Read before the South Indian Medical Union.

Physical Constitution.

In order to understand the physical nature of the Thri-Dhatus an idea of the Panchabhutha Theory is to be acquired. The five elements of Prithivi, App, Thazas, Vayu, Akas corresponding to our perception by the five sense organs, namely, Nose, Tongue, Eye, Skin, Ear respectively constitute the Panchabhuthas or the five elements.

Prithivi is predominently solid and is recognised by smell.

App is predominently liquid and is recognised by taste.

Thazas is predominently heat and light energy and is recognised by heat and colour.

Vayu is predominently pressure energy and is recognised by touch.

Akas is predominently ether and is recognised by sound.

Every element in the sthula or concrete form, that we see, is a combination of all the five elements, only one element is most predominating and the others are existing in smaller quantities. These elements are not Fire, Air, Earth, Water of the West. We may say that they represent the five states of matter as conceived by the eastern scientists in the place of the three states of matter—Solids, Liquids and Gases of the west. Fire and Akash (Ether) are states of matter according to Ayurveda.

Even energy like electricity is matter because anything that can be conceived by any of our senses is matter and everything that has Parimanathvam and Prichinnathvam, *i.e.*, anything that can be measured and divided, purchased and sold in definite units like electricity is included under matter according to this science.

The physical elements of Vatha are made up of Vayu and Akas, of Pittha are made up of Thazas and of Kapha are made up of Prithivi and App and they correspond respectively to Rajas, Sathva and Thamas, the three gunas which constitute the fundamental elements of Nature.

The physical properties of Vatha are,

Dryness, lightness, coolness, roughness, subtleness and motion.

"*Tatra Rooksho, Laghu, Seeta, Kharah, Sukshmah, Chalo Anilah.*"—Wagbhata.

The physical properties of Pittha are,

Oily-lustre, penetration, heat, lightness, peculiar smelling (Visram), quickness and liquidity or mobility.

"*Sasneham, Teekshoshnum Laghu visram saram dravam.*"

The physical properties of Kapha are,

Coolness, heaviness, dullness, softness, stickiness and thickness or solidarity.

"*Snigdha, Seete, Guru, Mandam, Slekshna mrutsnah, Stirah, Kapha.*"

Vayu has more the properties of expansion pertaining to gases. Pittha has more the properties of mobility, pertaining to liquids and Kapha has more the properties of stability pertaining the solids.

Vayu is generally denoted by brick-red or black colour if in excess and astringent taste, Pittha by blue (nila), green or yellow colour and pungent (early) or acid (later) taste and Kapha by white colour and sweet (early) or saltishness (later).

Bio-Chemical Constitution.

The Bio-Chemical conception of Thri-Dhatus may be described as follows:—

The body consists of Thosha, Dhathu and Mala.

"*Dosha Dhatu Mala Mulam in Sariram.*"

THOSHAS ARE THREE.

Vatha, Pittha, and Kapha.

DHATUS ARE SEVEN.

Rasa (Lymph), Raktha (Blood), Mamsa (Flesh), Methas (Fat), Asthi (Bone), Majja (Bone narrow) and Sukram (Sperm), the seven tissues of the body, rasa or chyle being the first product and sukra or sperm, being the final product of tissue matabolism.

MALAS.

Muthra (Urine), Virachayana (Fæces), Swetha (Sweat), etc.

The Dhoshas are molecular masses of matter divided by Ayurvedic scientists broadly into three classes.

VATHA-MOLECULES.

1. The highly organised very unstable or so to say, electrically active bodies that are responsible for the formation of brain, nerve, muscle cells, etc., and for the exhibition of functions of intelligence, sensation and motion. (Dr. Deshmukh, M.D.)

PITHA-MOLECULES.

2. The highly organised but less unstable and so to say, chemically active bodies that are responsible for the formation of cells of the glandular tissues and the secretion of all sorts of ferments that cause the digestion and assimilation and the reversible process of breaking down the spent up cells, etc.

KAPHA-MOLECULES.

3. These are responsible for the oily smoothness, smooth working of the joints and the general stability of the body, etc.

These three kinds of elements are present in all parts of human frame and their presence in proper quality and quantity causes health and their presence in abnormal condition causes disease.

THE PRESENCE OF VATHA.

The presence of Vatha in the human body is to be inferred in such mental phenomena as exhibition of enthusiasm, concentration, etc.

And in such physical phenomena as respiration, circulation, voluntary action of every kind, excretion and so on.

Referrable primarily to the activities of the nervous system as a whole (both cerebro-spinal and sympathetic).

THE PRESENCE OF PITTHA.

The presence of Pittha is to be inferred in such mental phenomena as intellect and clear conception.

And also in the physical phenomena such as digestion, assimilation, heat production and metabolism.

Generally referrable to the activities of nutritional system as a whole (including thermogenesis and the activities of glandular and secretory structures, especially of the ductless glands).

THE PRESENCE OF KAPHA.

The presence of Kapha is to be inferred in such mental phenomena as exhibition of courage, forbearance, etc. and also in such physical phenomena as promotion of bodily strength and build, integration of the structural elements of the body into stable structures, maintenance of smooth working of joints and so on.

Referrable to heat regulation and protection.

VAYU—THE CELL-FORCE.

Kaviraj Gananath Sen says 'that Vayu is the motive principle, *cell-force* or the principle of motion. It is born with the first cell, which when impregnated begins to divide and becomes gradually organised through what turns out to be an inherent force. This force is known as Vayu, and it differentiates the cells into different structures. It creates blood vessels. lymphatics and nerves and pervades a complex organism. This inherent cell-force manifests itself later on, on higher evolutions of nerve structure on nerve-force. But this nerve force is not the whole connotation of Vayu as some people understand. It is a different form of Vayu. But the original meaning of Vayu is not nerve-force but cell-force. Whenever there is a living cell, there must be this cell-force. A man, for instance, grown a tumour. It becomes gradually organised. Blood vessels grow into it. Gradually if it comes in contact with hard substance, a horny growth takes place. Who guides all these? It is this cell-force. This is Vayu. Vayu is the force that holds all the functions of the body in equilibrium. It manifests itself in different nerve centres that carry sensations, that carry motion, that control the digestion, the circulation and the glandular activities. It acts in the process of intellection and feeling. The word 'bio' in biology is derived from the root (Vayu-Bio-life. The letters V and B are interchangeable.)

Pittha Guides Metabolic Activities.

I now come to Pittha—the second principle. It is a principle which keeps up the heat of the body. It manifests itself in different forms and in different chemical activities, mainly digestion. It gives the strength to absorb and metabolise the nourishment, that is carried to the body. In one word it keeps up the equilibrium of heat. And on the mental side, it is the substance, that prepares the field for the perception of light. They say that the perception of light and image is made by Vayu but the sensation is cooked by Pittha. They say that at the end of retina a chemical process takes place by which the image is imprinted for the time being on the white surface. You have all read of the photo-chemical substance that is said to exist in the retina. This substance undergoes changes which are attributed to Pittha. The metabolism that occurs in the tissue is also attributed to Pittha. In one word, you can take Pittha as guiding all the metabolic activities of the body.

Kapha Keeps Body Cool.

I will next take up Kapha or Sleshma. It is said just as there is the principle which keeps up the fire, there is another principle which keeps up the coolness. This cooling principle acts like the water jacket of an internal combustion engine. It keeps the body cool by giving normal secretions which are preservative. It always keeps secret a cooling substance in the mouth, in the respiratory passages, in the eyes, in the stomach, in the joints. Wherever there is friction and wherever there is heat production there is this substance. As there are several forms of Pittha as gastric juice, bile and pancreatic juice so also you will find this principle in several tangible forms.

Maintenance of Body Equilibrium.

When one of these principles is disturbed—for instance Pittha, what happens? The subject feels heat all over his body; he feels burning sensation in his eyes and in his feet. His digestion is upset. He would be excreting a greater quantity of acid into the stomach than is necessary and a larger amount of bile than is necessary.

In the whole system, there would be evidence of increased combustion, creating great hunger and thirst. Usually the ayurvedic physician

WHAT OTHERS THINK.

Effective organisation alone can enable a profession to make its voice felt, and we are glad that the non-service medical men of South India are fully aware of it.

We hope that ere long EVERY private Medical Practitioner will join the ranks of the Union, and make it the efficient and effective organisation it ought to be.

Modern Weekly, Madras.

instead of treating this or that symptom treats the deranged principle of cause by removing the cause wherever possible. He wants to bring about an equilibrium of that principle in the body. Take another instance. A man catches cold. What happens? He finds his nasal mucous membranes secreting more than is necessary. The mouth is full of saliva. The stomach does not function properly and becomes full of mucus. These are all the manifestations of that one principle accumulated. You treat him by giving medicines which you know will have a direct effect on that principle and all the symptoms at once disappear.

If one is suffering from derangement of Vayu, he finds there is either generally nervous debility or high nervous tension. In the first case he finds himself giddy. He finds his digestion below par. He finds his general physical and mental activity getting low and low. Such a case you call neurasthenia or nervous debility and the Ayurvedists call it Vayu-Kshaya, *i.e.*, the normal function of Vayu is below par. Take the other case say one of hysteria. A woman gets violent contractions of the muscles, her fingers, toes and feet cramp. She gets fits. These are all manifestations of Vayu Vriddhi. I may further point out that in such a case the functions are so accentuated that the patient is able to hear the doctor coming 500 yards away while you or I will hear nothing.

Clinical Utility of Tri-Dosha Theory.

Clinically :—Vatha, Pittha and Kapha serve as three flags signifying three different groups of symptoms which help us in the diagnosis and treatment of a disease. Just as we identify the nationality and other details of an individual army or company by the colours and inscription of the flag that they carry, so also the Indian physician, learns to classify the clinical symptoms according to the Tri-Dosha theory, recognise the nature of the disease, the various stages, the curability or otherwise and the drugs indicated at any particular moment suitable to the combination of the Dhoshas presented at that time. The properties of all known articles of diet and drugs and all substances that are found around us, have been systematically studied, classified and indexed according to physiological and therapeutical properties. Dictionaries are prepared, which show whether a drug or a substance, or a climatic condition increases decreased Vatha, Pittha and Kapha according to its Guna, Rasa, Vipaka and Prabhava which have their own influence individually and severally as Vatha, Pittha and Kapha.

The Gunas or Physical Properties.

A. *The Gunas* are twenty; the following ten and their opposites :—

1.	Guna	...	Heavy.
2.	Mantha	...	Slow.
3.	Hima	...	Cool.
4.	Bnigtha	...	Oily.
5.	Slashna	...	Smooth.
6.	Santhra	..	Thick.
7.	Mruthu	...	Soft.
8.	Sthira	...	Stable.
9.	Vishatha	...	Clear.
10.	Pichala	...	Viscid.

Rasas or Tastes.

B. *Rasas* are six :

1.	Mathura	...	Sweet.
2.	Amala	...	Sour.
3.	Lavana	...	Salt.
4.	Katu	...	Pungent.
5.	Thiktha	...	Bitter.
6.	Kashaya	...	Astringent.

VEERYAS.

C. *Veeryas* (remote action of the drug) are two :

1. Oshna Veerya (Heating).
2. Seetha Veerya (Cooling).

VIPAKAS.

D. *Vipakas* (action of a substance after assimilation) are three :

1. Mathura (Sweet)
2. Amala (Acid)
3. Katu (Pungent)

PRABHAVA.

E. *Prabhava* : Specific action.

The actions of seasons and the influence of environments have also been classified according to their effect on Vatha, Pittha and Kapha, principles in the human body.

There are three causes of ill-health or disease.

1. "ASATMYENDRAIARTHA SAMAYOGA" *i.e.* incompatible combination of sense with their objects.

2. "PRAJNAPARADHA", Faulty Judgment.

3. "PARINAMA", Unhealthy or unnatural influence of climate, etc.

These three causes vitiate Vatha, Pitha and Kapha in the human system and give rise to disease. Injuries or infections by parasites or germs are included in these three cases.

Vatha, Pittha and Kapha when they are in equilibrium, maintain the body in health. Then they are called three Dhatus. When the balance is disturbed say after an infection, they are known as Dhoshas or morbid affections. They are then termed the three Doshas

The business of the physician is to study and sort out the symptoms into so many pigeon holes, as it were, and to find out the corresponding medical or other treatment which suits the symptoms sorted in that particular pigeon hole.

You may take for a crude example that all letters received at the Madras Central Post Office are sorted out in three pigeon holes corresponding to three lines of railway running to the north, west and south. It would be easier for the sorter to first sort them in the three groups and then sort them further to each station or branch office to which the letter relates. Here the pigeon holes are marked Vatha, Pittha and Kapha mainly and secondarily according to their combinations and their sub-divisions then and then according to causes, etc. If Vatha symptoms are predominent we have to use the treatment of drugs which lessen the Vatha.

If Vatha is less than normal, we should have recourse to drugs and treatment which increase Vatha and so on. This classification helps us in tracing out easily the types of infection, virulant, acute or sub acute, etc., and also the organ or area in the body which is the seat of disease.

NORMAL VATHA IS RESPONSIBLE FOR :

Enthusiasm,
Inspiration and expiration,
Voluntary actions like talking and walking,
Due circulation throughout the body of its supporting elements like chyle, blood, etc.
Due discharge from the body of its excretary products.

INCREASED VATHA IS RECOGNISED BY :

Twak Parushyam	...	Roughness.
Karsyam	...	Wasting.
Karshinyam	...	Dark colour of skin.
Gathra Spuramam	...	Shivering of fitts.
Ooshan Kamitha	...	Desire for heat.
Nithra Nasam	...	Loss of sleep.
Alpa Balathvam	...	Loss of strength.
Gadhuvarchasthvam	...	Constipation and decrease of excretions.

DECREASE OF VATHA IS RECOGNISED BY:

Mantnacheashta	... Slow action or Paralysis,
Alpa Vakyam	... Feeble voice or loss of power of speech
Alpaharsham	... Decreased irritability or Neurasthenia.
Moodhasamgnatha	... Loss of sense.

NORMAL PITTHA IS RESPONSIBLE FOR:

Vision (as opposed to perception) which is due to Vayu.
Digestion,
Heat production,
Hunger,
Thirst,
Softness and suppleness of the body.
Lustre,
Intelligence.

INCREASED PITTHA IS RECOGNISED BY:

Peeta Avabhasatha	... Yellow complexion
Santhapam	... Burning sensation.
Sithakamithvam	... Desire for cold.
Alpa nithratha	... Loss of sleep.
Moorcha	... Unconsciousness.
Balahani	... Loss of strength.
Inthira Dourbalyam	... Sensory and motor weakness.
Peetha Vinmoothra	... Yellow colour in urine, stools and eyes.

DECREASE OF PITTHA IS RECOGNISED BY:

Manthagnithwam	... Loss of appetite.
Nishprabhathvam	... Loss of normal colour or complexion.

NORMAL KAPHA IS RESPONSIBLE FOR:

Oily smoothness,
Smooth working of the joints,
General stability of the body,
General build,
Potency,
Strength,
Forbearance,
Courage,
Greedlessness.

INCREASED KAPHA IS RECOGNISED BY:

Suklavarnam	... Whiteness.
Saithyam	... Coolness.
Sthairyam	... Solid or rigid feelings in limbs.
Garavam	... Heaviness.
Avasathah	... Drooping
Thanthra	... Drowsiness.
Nithra	... Sleep.
Sandhi Vislasham	... Loss of power in joints.

DECREASE OF KAPHA IS RECOGNISED BY:

Rukshata	... Dryness.
Anthardaham	... Internal burning.
Sleshma Sunyatha	... Feeling of emptiness.
Sandhisaidhilyam	... Looseness in joints.
Thrishna	... Thirst.
Durbalyam	... Weakness.
Prajagara	... Wakefulness.

It is the care with which the physician studies the minutest details of the patient's condition and of the suitability of the treatment that determines the success or otherwise of the physician. Even the half educated village physician who learns the methods of identifying the three flags and the properties of drugs and dietary relating to the three cardinal principles is able to manage successfully at the bed side and he sometimes scores remarkable success even over the thoroughly trained and more scientific modern practitioner merely by regulating the diet in many cases.

" Dushyam Desam Balam Kalam Analah, Prakruthih Vayah,

Satvam Satmyam Thathaharam Avasthascha Prudagvidhah

Sukshma Sukshamau Samiksha Yesham Dhoshoushada Nirupane

Yo Varthathe Chikitsayam Na Sa Skalathi Jathuchit."

He who observes carefully the minutest details of Dushya, Desa, Bala, Kala, Anala and the various stages of the disease, etc., as detailed above and determines the disease and the particular medicine required accordingly, never feels nervous or timid in the treatment of diseases.

Dushyas (literally those that can be vitiated) is an examination of Tri-Dhoshas and the investigation of the seven Dhatus (chyle, blood, muscle, bone, etc.) and the Malas (excretions). This includes the macrosopic and microscopic examination of blood, stools, urine, etc.

Desha literally the field, includes the investigation of both Bhumi Desha (locality) and Athura Desha (or the portion or organ, affected which is the field of disease. This includes a thorough physical examination of the body.

Balam (literally strength) includes both Bala or natural strength or power of endurance of patient as also strength of disease, whether it is Alpa Bala, Madhya Bala, mild, medium or severe.

Kala—Time or seasonal factor and the day of disease and the hour of day and night.

Anala (literally fire) means the investigation of the state of digestive fires.

Prakriti Specific Dhatu—Equilibrium *e.g.*, whether Vathala, Pitthala or Sleshmala (inherited constitutional tendency of the individual).

Vayas (Age)

Diet (vegetarian or non-vegetarian, etc.)

Satwa (mental condition).

Satmya (compatibility or habit, *i.e.*, what drug, diet, exercise, etc., suits the patient according to his race, family, social status or other idiosyncracy.)

Once a physician recognises whether the predominant cause of disease is Vatha, Pittha and Kapha, and the nature of their combination and all the details according to the questionaire above noted, the treatment is easy.

For Vatha as a rule enema is recommended, for Pittha as a rule purgative is recommended, and Kapha as a rule vomiting is recommended.

I do not propose to enter in the details of the treatment as it should form a separate subject but give a definition of health to which a patient is to be restored by the treatment given to him.

DEFINITION OF HEALTH.

Samadhoshah Samagnischa
Samadhatu Malakriyah
Prasannathmendriya Manah
Swastha Ithya Bhidhiyathœ."

Equilibrium of dhoshas, equilibrium of digestive power, equilibrium of bodily tissues, equilibrium of excretions, perfect condition of Asthma (ego), Indriya (motor and sensory organs) and Manas (mind), these are the requirements of a healthy person.

Deafness—II.

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V. TREATMENT OF DEAFNESS.

As it is impossible to go into details in a brief paper like this, I shall only mention some of the broad principles underlying the treatment.

External Ear.—Deafness caused by wax, foreign bodies, fungus, etc., is temporary and cured by their removal. In passing I wish to mention that the growth of the fungus aspergillus in the ear is much more common in India than is believed or recognised. When a mass resembling wet newspaper and covered with tiny black or yellow specks is syringed out of the ear, this fungus should be suspected and can be confirmed under the microscope. It has a tendency to quickly reform after removal and so the ear should be daily painted with a strong parasiticide, *e.g.*, 2% solution of salicylic acid in 90% alcohol for a long time after the disappearance of the fungus.

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Stenosis of the Meatus.—In the *Congenital* variety as a rule nothing can be done, as the tube and tympanum are usually malformed. In the *acquired* variety, a preliminary trial by dilatation through sea-tangle tents followed by the use of vulcanite tube should be tried. If this fails some form of plastic operation is usually necessary.

Middle ear lesions.—It cannot be too strongly emphasized that in deafness occurring in the course of middle ear lesions *the treatment* of deafness is PREVENTION. By prevention, I mean the prevention of those gross or minute pathological changes, more or less of a permanent character which destroy the efficiency of the middle-ear structures as a sound-conducting mechanism. For instance in cases of "throat-deafness" associated with a mass of adenoids in children there is absolutely no justification in waiting for the adenoids to shrink with the growth of the child and hoping the deafness will clear up, because all the while precious time is being lost in waiting, definite changes taking place in the tympanum, which may or may not respond to treatment later.

One factor common to all middle-ear inflammations is the fact that the predisposing causes in the majority of cases are in the nose and throat, and therefore the treatment can never be complete, until these conditions are fully investigated and their bearing correctly appraised. Of course, it does not mean that in every case the nose and throat should be indiscriminately attacked. For example spurs and deviations of the septum may be quite innocent in a large number of cases and it is only when such conditions, cause a chronic Rhino-Pharyngitis, interfering with nasal ventilation and drainage, that their relation to the pathology of middle-ear disease is investigated, as follows :—

(1) Is there any abnormality in the nose or throat ?

(2) Can it be the cause of the middle-ear condition ?

(3) Is there any other cause superadded since ?

(4) Is the primary cause still active ?

(5) Does the prognosis of the ear condition justify removal of the cause ?

(6) or are Partial removal or conservative measures enough ?

The *principles* that must guide us in the treatment of middle-ear infections are :—

(1) *Cleanliness.*—It is obviously undesirable to complicate the pathology still further by secondary infections as B. Coli, etc.

(2) *Adequate drainage.*—In acute catarrh Politzerisation will suffice to disperse the fluid; so also in mild cases of acute suppurative otitis media ; but if there is no improvement within a week, paracentesis should be performed. So too in cases of acute suppurative otitis media, where otoscopic appearances show that perforation is imminent or in cases of defective drainage through a perforation paracentesis should be performed. The drainage can be further assisted by dry heat —half-filled hot water bag or better still radiant heat, producing hyperaemia and liquefying the pus. After subsidence of the pain, politzerisation helps drainage, keep the paracentesis wound open and prevent adhesions. If the pain does not subside within two or three days after paracentesis and if there are other evidences of mastoid involvement, as recurrent mastoid tenderness, fever, rapid pulse, too copious a discharge of pus otherwise inexplicable, etc.,—under these circum-

stances drainage through the mastoid affords the best chances of complete recovery with full hearing.

(3) *Improvement of general health* and assisting where necessary by vaccines, etc. Middle-ear infection during the course of acute specific fevers, etc., is apt to become chronic.

(4) *Treatment of the naso-pharyngeal condition.*—This has already been dealt with in detail.

Chronic suppurative otitis media.—The principles underlying the treatment of this condition are about the same as those of the acute. It is important not to forget politzerisation in the routine treatment of this condition, as this helps not only drainage, but prevents adhesions by mobilising the tympanic structures. The routine treatment, *e.g.*,

(1) Softening debris with hydrogen peroxide drops, (2) Syringing, (3) Drying with sterile cotton mops, (4) Politzerisation, (5) Drying again, (6) Boric alcohol instillations, is successful if efficiently carried out in the majority of cases. Certain special methods are useful in suitable cases, *e.g.*,

(1) In tube-tympanic infections.—After syringing and politzerising in the usual way, 2 to 10 per cent solution of argyrol is injected with a Provaz syringe and Eustachian catheter into the tube and blown up the tube with a Politzer's bag.

(2) In attic suppurations, associated with perforations in the Shrapnells membrane, intra-tympanic syringing with Milligan's syringe is useful. In these cases the disease is usually confined to the attic and the hearing is good and therefore conservative treatment should be patiently carried out.

(3) Ionization is useful, where the disease is confined to the tympanic mucosa and perforation is large enough. Zinc sulphate solution or sodium iodide solution are used. If the case does not respond within two sittings, once a week, it is not advisable to continue the treatment.

(4) Granulation, polypi and similar causes which tend to keep up the chronic discharge should be suitably treated.

(5) If the case shows no improvement or when extensive caries, cholesteatomatous masses, rapidly recurring polypi, etc., exist a radical mastoid or a suitable modification depending upon the extent of disease and amount of hearing are necessary.

In this connection I wish to say a few words about the effects of mastoid surgery on hearing.

Mastoid operations and hearing function.—The aim of every mastoid operation is three-fold :—

(1) Eradication of a pathological condition which is always a danger to life.

(2) Preservation as far as possible of the hearing function or what remains of it.

(3) Rapid healing of the wound.

The nature of the pathological condition present necessarily determines the method of operation, and influences the results. While formerly there were only two operations—Simple or Schwartz for acute mastoid and radical for chronic mastoid, to-day there are a large number of modifications, all tending to approach the simple operation, the details however being suitably modified keeping in view the above three aims.

In *acute mastoiditis* the inflammatory process has had little time to bring about irreparable damage to the delicate tympanic structures and so the

Schwartz operation is the method of choice, the tympanum and its contents, as also the tissues of the external auditory meatus are left untouched, since interference of any kind, except perhaps, paracentesis, for better drainage, may, when resolution has occurred, readily cause an impairment of hearing.

In *chronic mastoiditis*, however, the disease has become more firmly established and brought about some degree of irreparable damage to the conductive mechanism or even to the labarynth itself and hence we are forced in the process of elimination of disease to employ more radical methods. Those however, cannot be counted as successes which impair still further the hearing or render useless a previously useful organ.

These considerations have therefore evolved various modification which while dealing successfully with the various pathological conditions present, at the same time preserve as far as possible, a useful auditory function.

Our latest conception of the physiology of hearing appears to lay more and more stress on the function of the tympanic membrane and ossicular chain as being one of auditory accommodation rather than sound-conduction. On the free mobility of the two windows of the labarynth, depends the normal functioning of the labarynthine fluids in the conveyance of sound vibrations to the receptor organs of the cochlea. Hence, we may conclude, that provided these two membranes are kept mobile, the transmission of sound waves to the cochlea is quite possible. This truth is borne out in the light of practical experience. Many a radical mastoid operation has left the ear with useful hearing, while other similar operations have resulted in loss of useful hearing. The only explanation of these contradictory results is that, while in the latter case, the mobility of the delicate membranes of these windows, has been interfered with, by some sclerosing process, in the former case they have escaped either intentionally or accidentally. In Oto-sclerosis for example a similar cause for loss of hearing can be traced to the disturbance of normal action of the two membranous windows. If we accept this theory, in planning any modified mastoid operation, we should consider which is the best way of keeping the inner wall of the tympanum in as natural a state as possible, consistent of course with ridding the cavity of disease. Fortunately, in a great majority of chronic suppurations of the middle-ear cleft without cholesteatomata, etc., and in attic disease, a large portion of the tympanic mucosa can be preserved, and thus a suitable modification planned. Access to the attic can be easily obtained by removal of its outer wall and likewise the aditus can be opened to expose, and if necessary, resect the incus, without causing further destruction of the tympanic structures or even the meatal walls. The postero-superior attachments of the drum membrane and the terminal portion of the meatus, must necessarily be broken down on such occasions, but these succeed in finding attachment to the surrounding structures again, during the hearing process.

Chronic Middle-ear Catarrh and Chronic adhesive process.—During recent years, there has been a tendency to diagnose chronic middle-ear catarrh less and less frequently and decide cases of deafness in which such diagnosis was formerly arrived at into :—

(1) *Chronic adhesive process or cicatrised tympanum.*—Due to past attacks of catarrh or suppuration of middle-ear.

(2) *Oto-sclerosis.*—A hereditary disease, fortunately rare in India and consists of a rarefying osteitis, replacing normal bone by spongy osteoid tissue, advancing along the blood-vessels, and later becomes non-vascular

and sclerosed. The commonest site of the disease is the promontary in the region of the anterior margin of the oval window. Later the stapes becomes ankylosed in position by this new mass of spongy bone.

In the condition designated as *chronic adhesive* process, previous attacks of catarrh or suppuration have resulted in a variable amount of cicatrisation of the tympanum. The prognosis on the whole is not very satisfactory and depend on the improvement in hearing after inflation and duration of such improvement. Operative treatment formerly freely resorted to, has now been practically abandoned. The routine treatment of this condition consists of :—

(1) Dilatation of the eustachian tube.

(2) Inflation of the middle-ear.

(3) Introduction of medicaments into the eustachian tube and tympanum.

(4) Pneumatic Massage of the tympanic membrane and chain of ossicles.

Dilatation of the Eustachian Tube is done by means of bougies of silver, gum-elastic or celluloid or whale bone, etc., through a Eustachian catheter. The application of 5% cocaine with adrenalin will facililate the passage of the bougie. In any case it is not passed for more than one inch above the orifice. After dilatation silver nitrate 1% may be applied or medicated bougies may be employed. If resistance is met with the bougie should be used with great caution and after the constriction is passed it should be left in position for five or ten minutes. After removal of the bougie, inflation is carried out and in successful cases air is heard to enter the tympanum more freely than before. If there is improvement the procedure may be repeated 2 or 3 times a week for several weeks; otherwise the process should be abandoned.

2. *Inflation of Middle-ear* has been described.

3. *Introduction of Medicaments*, Silver nitrate 1%, argyrol solution 25% to 50%, Mandl's paint, and vapour æther and glacial acetic acid, etc., have been used.

4. *Pneumo Massage.*—This is done by Delstanche's massage or any modification of the same, worked by hand or electricity. It consists of vibratory massage of drumhead and ossicular chain by alternate condensation and rarefaction, of air in the external meatus, through a small piston and cylinder arrangement, the cylinder being connected to the ear nozzle by a length of rubber tubing. The improvements on the original invention have been chiefly in the direction of increasing the rapidity of vibrations.

Combined treatment.—A very ingenious invention combining all the four methods of treatment in one, consists in massaging the ear both through the eustachian tube and external ear, simultaneously.

A special pump manufactured by the Sklar Surgical Co., New York, is used for this purpose. It consists of a two cylinder apparatus with pistons so arranged that when one is in the compression stroke the other is in the exhaust stroke. The cylinders having independent outlets, develop their own compression and rarefaction but alternately like a twin-cylinder motor.

By means of a catheterising Eustachioscope, a 4 to 6. Kidney catheter, adapted for this purpose is introduced into the eustachian tube as far as the Isthmus. The catheter is much more flexible than those of hard rubber, but not too soft for the purpose. When it meets with any resistance it bends on itself at the nasal orifice, warning the operator not to use too much force. It has also millimetre markings at its forward end to show to what extent it has entered the

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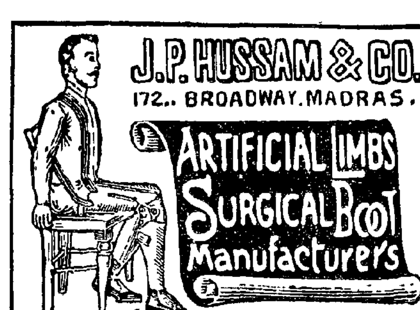

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eustachian tube before encountering the obstruction.

With a *2* c.c. syringe fumes collected from a bottle half filled with equal parts of ether and glacial acetic acid are injected slowly into the middle-ear through the catheter. The aim is to break up adhesions and hasten evaporation. Next the outer end of the catheter and the external ear are connected to the two cylinders of the pump respectively, the motor is started and allowed to run for ten seconds, stopping for an equal length of time. This procedure is repeated five or six times. In this way, the drum-membrane is vibrated laterally, and along with, the ossicles are moved laterally by the alternate compression and rarefaction of air in the external meatus, and antero-posteriorly by alternate compression and rarefaction of air in the eustachian tube.

Again, the same apparatus may be employed when it is desired to prevent abnormal relaxations of the drum-membrane. Pressure on the drum may be eliminated and still exerted on the ossicles. In this case only one cylinder of the pump is used and with the help of a Y-tube it is connected both with the eustachian tube and external meatus. Therefore when the pump is going there is compression and rarefaction to an equal degree on both sides of the drum, keeping it stationary. The ossicles are however, subject to antero-posterior movement, brought about as before, by compression and rarefaction of the air within the eustachian tube. This tends to break up ankylosis. The advantages of this method are :—

(1) Four separate methods of treatment ordinarily used are combined in one, thus shortening the period of treatment and enhancing the effectiveness of each.

(2) The catheter, which acts likewise as a dilator is introduced into the eustachian tube under direct vision, allowing the operator to observe also the condition at the eustachian orifice.

(3) The use of kidney catheter obviates abrasions to the mucous membrane.

(4) A method of avoiding abnormal relaxation of the drumhead is also described.

(5) The method of treatment described here brings antero-posterior as well as lateral movements to ossicles.

Oto sclerosis is fortunately rare in India. The disease is progressive and treatment on the whole unsatisfactory. Some of the commonly used drugs are Phosphorus ($\frac{1}{60}$ gr. pills), Sodium Iodide (2 to 5 grs.) doses, Thyroid and parathyroid extracts. Anaemia, if present, should be treated and patient warned against the excessive use of alcohol, tea and tobacco.

NERVE DEAFNESS.

1. *Congenital*—No treatment is of any avail.

2. *Senile*—Unsatisfactory. The ear should be protected from noises by cotton wool.

3. *Acute specific fevers.*—Treatment is unsatisfactory. In some cases especially after typhoid it may disappear spontaneously. Potassium iodide internally and injections of pilocarpine have been recommended. But the weak condition of the heart following these fevers should be borne in mind.

4. *Constitutional diseases*—(*a*) Syphilis—The prognosis is worse in congenital than in acquired cases. The

first course of arsenicals often worsens the symptoms, by acting as a sort of stimulant to the spirochaetae. The treatment should be persistent, and improvement results during the subsequent course. Some claim beneficial results by the inoculation of malaria, followed by injection of arsenical compounds.

In the other cases the constitutional diseases should be appropriately treated. If on the other hand the blood picture shows a focal infection as evidenced, by the W. B. C. increase with mononuclear predominance, and fall in the polymorpho nuclears, the focus of infection should be systematically looked for and treated, the commonest being the teeth.

5. *Drugs.*—The administration of the drug should be stopped at once and if spontaneous cure does not occur, injections of strychnine may be tried to help recovery.

6. *Occupational.*—The ears must be protected from the noises by wearing plugs of cotton wool during work.

7. *Traumatic.*—Syringing the ear, etc., should be scrupulously avoided. The only treatment is rest in bed, gentle laxatives and quietness.

The Story of Digitalis.*

No medicinal plant has been more fortunate in its introduction to general use, and none more lauded, abused and discredited than the foxglove. It was first described in *Companula sylvestris* (Waldglocke), by Hieronymus Bock in 1539. It was named *Digitalis purpurea* in 1542 by the botanist and professor of medicine, Fuchs of Tubingen. The word "foxglove" occurs in English herbals as far back as the eleventh century Saxon "Leechbook." The plant was primarily used for external application, although it had some reputation in the cure of scrofula, cough, and epilepsy. However, by 1770 it seems to have been widely used, chiefly by laymen, in certain parts of England for treating dropsies. Hearing of such cures, William Withering of Birmingham began prescribing the drug to his patients, but toxic symptoms caused him to hesitate in continuing its use. Often, with drugs used by quacks, the cure of some prominent person leads to intensive study by competent physicians. It was such a cure of hydrops pectoris in the Principal of Brazen Nose College, Oxford, that led Withering to continue his investigations on digitalis. His friends also took up the drug for the treatment of dropsical patients; its use was begun at Edinburgh in 1779 and it was included in the pharmacopœia there in 1783.

Mr. Charles Darwin, uncle of the great naturalist, had learned of this use of digitalis, and his posthumously published papers contain the first account of its curing dropsy. They appeared in print in 1780, one year after his death at the age of twenty, and were abstracted in 1783 in the *Medical Commentaries.* The case there described is of particular interest since the patient had been seen in consultation by Withering, who ordered the digitalis.

In 1785 appeared William Withering's " An Account of the Foxglove and Some of its Medical Uses: with Practical Remarks on Dropsy, and Other Diseases." With this book Withering, an experienced physician and botanist, had produced the world's therapeutic classic. The modesty, caution and accuracy of this presentation are all equally remarkable. He says, " It would have been an easy task to have given

* By courtesy of California and Western Medicine.

select cases, whose successful treatment would have spoken strongly in favour of the medicine. I have, therefore, mentioned every case in which I have prescribed foxglove, proper or improper, successful or otherwise." He laid down intelligent advice on dosage and exhibition of the drug: "Let it be continued until it either acts on the kidneys, the stomach, the pulse, or the bowels; let it be stopped on the first appearance of any one of these effects." His usual dose was one to three grains of powdered leaf per day. While we may smile at some of the diseases he benefited with it, we can agree with his main conclusion: "It seldom succeeds in those with a tight and cordy pulse. On the contrary, if the pulse be feeble or intermitting, we may expect the diuretic effects to follow in a kindly manner." Case 4 of his series of 160 patients is apparently the one included in Charles Darwin's account. Withering states her "pulse was extremely weak and irregular," after digitalis it became "more full and more regular." He concluded that digitalis "has a power over the motion of the heart, to a degree yet unobserved in any other medicine, and that this power may be converted to salutary ends."

Three years before this book, Saunders had written an account of cures of consumption by digitalis. The difficulty of differential diagnosis between phthisis and mitral heart disease, in the days when even inspection of the thorax was rarely practised, is obvious. We must not be surprised that Withering's work was largely ignored and for twenty years most reports on digitalis dealt with its effects on phthisis. Regular and miraculous cures were reported, particularly about 1792 and 1799-1802, with a hiatus along toward 1797, when the drug was wholly neglected. The discoverers were hailed as equal to Harvey, and one author concluded that "consumption will henceforward as regularly be cured by the foxglove, as ague by Peruvian bark." At this time began the discussion, still warmly argued, as to whether digitalis was a circulatory stimulant or sedative. Ferriars first urged the latter, Beddoes who had measured pulse pressure with a rude device, the former theory of its action.

In 1807 William Hamilton gave a review of the history of the drug, together with his success in giving it to patients with scarlatinal nephritis, phthisis, dropsy, but more particularly in cases of hydrothorax. He followed Withering closely in his work and stressed the importance of Withering's book. Like the latter, Hamilton regarded hydrothorax as distinguished not only by orthopnea, but by "the intermission and irregularity of the pulse—the most marked and common symptom." Withering too had thought hydrothorax to be usually curable with foxglove.

In the same year appeared a treatise "proving that the Medicinal Properties of the Digitalis are diameterically opposite to what they are believed to be." This work, by "James Sanders, one of the Presidents of the Royal Medical and Royal Physical Societies of Edinburg," proved that digitalis, in two thousand observations, had accelerated the pulse and stimulated the heart. It was translated into many languages and seriously debated for half a century by Continental authors. I fear they overlooked the scorching review of this book in the *Edinburg Medical and Surgical Journal*, for they would have learned that Sanders was a medical student, whose observations were made at student "digitalis parties," and who is contrasted by the reviewer with "those weak minds, Cullen, Darwin, Rush, Willis." "His hopes are raised, his imagination is excited by the prospect of being the champion of truth, against error sanctioned by great names." Fifteen years later the stimulant theory of digitalis action was revived by Joeg, a Leipzic obstetrician, who observed in himself and fellow members of a club, marked aphrodisiac and cardiac augmentation after minute doses of the drug.

In the main we may conclude that for a century after Withering's first observations, digitalis was considered a cardiac sedative and, except for Hamilton and Blackall (1811), there were no records of intelligent use. Some, like Laennec, considered it of little value, others of the great clinician (Hope, Latham, Stokes, Flint, Walshe) used it fearfully in ineffectual doses.

In France, Germany, and Italy its successful use was occasionally reported. Traube confirmed Blake's observation that it raised blood pressure, but considered it a sedative which diminished blood flow and oxygenation. About 1870, as we may see by comparing the first and second editions of Flint's (1859 and 1870) and Walshe's (1862 and 1874) treatises on heart disease, the role of digitalis as a cardic tonic became firmly established. Walshe, acknowledging the error of his earlier views, points to Withering's remarks on the difference in effect of digitalis on the "tight and cordy" and the "feeble and intermitting" pulse as proving that Withering had known from the start that digitalis' stimulant action alone is important in the cure of disease. Not until the work of Cushny and James MacKenzie was it realized that digitalis does not act on all patients in the same way, but slows the pulse most brilliantly in those who have auricular fibrillation. Only after this was it possible to investigate its effect on heart failure uncomplicated by arrhythmia.

Review.

A Manual of Indian Materia Medica.

Dr. Ramachandra Mudaliar, G.B.V.C., etc., Superintendent of H.E.H. Nizam's Veterinary Department, has brought this handbook dealing with the medicinal properties and uses of the more common Indian medicinal plants and drugs and deals with their uses both in human and veterinary practice. The book is written in plain and simple language and is free from the usual terminology, unintelligible to the allopathic practitioner, that one associates with books dealing with Indian drugs. A small index gives the names of the drugs in the various Indian languages. But what mars the book is the bad printing, easily avoidable spelling mistakes and bad proof reading, as is evinced by 10 pages of errata. We hope that with a little more care this could have been avoided and in a later edition of this *very* useful little book we trust to see these rectified.

The Publicity Section, South Indian Medical Union, will be pleased to receive Books, Reports, New Instruments, Drugs and other appliances for review.