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The Medical Practitioner

A Monthly Medical Journal

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AND

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CONTENTS.

Editorials:—

An All-India Medical Council ... 73
All-India Medical Conference, Lahore ... 74

Original Articles:—

Science of Rejuvenation. Steinach's operation by Dr. H. B. Mylvaganam, F.R.C.S. (Eng) ... 76
Endocrinology by Dr. M. S. Krishnamurthi Ayyar ... 81
Madras Medical Registration Act by Dr. V. Rama Kamath ... 83

Abstracts:—

Does the Appendix possess an Endocrine Function? by P. Montiel and R. Fouche ... 84
Pulmonary Hemorrhage ... 85

Notes on Treatment of Diseases

Notes on Diagnosis, Therapeutics and other Medical Subjects ... 87

News & Comments

Correspondence, Reports, Reviews, etc. ... 89

Correspondence, Reports, Reviews, etc. ... 91

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JANUARY, 1930

[No. 4

AN ALL-INDIA MEDICAL COUNCIL.

The Hon. Dr. U. Rama Rao intends introducing at the forthcoming session of the Council of State a bill "To establish a Medical Council in India and to provide for the maintenance of the British Indian Medical Register." A similar bill "To regulate medical education in India" was introduced by Dr. U. Rama Rao in the Council of State in 1926 and he was persuaded by the Government to drop the bill as they found it to be "defective and drastic." The Government of India who took upon themselves the responsibility of launching an All-India Bill, had to drop the idea as they had no support from the provincial Ministers who are in charge of the Medical Departments. In the meanwhile, the General Medical Council of Great Britain has been pressing on the Government of India, the desirability of appointing a Commissioner to inspect and report about the medical education imparted in the universities in this country so as to enable the General Medical Council to judge if the degrees conferred by the Indian universities were of an order entitling them to be recognised by it. Fortunately our national self-respect was upheld by the Legislative Assembly who threw out the proposal of the Government of India for appointing a Commissioner.

At the outset, we would suggest, in view to secure conformity with the designation of the proposed Council,

that the name of the medical register suggested should be the "Indian Medical Register" and not the "British Indian Medical Register."

Under the conditions obtaining at present in this country, a bill on the lines drafted by the Hon. Dr. U. Rama Rao cannot meet the difficulties, hardships and indignities which a large portion of practitioners labour under and feel and contribute to bring about the unanimity, good feeling and co-operation among all the practitioners in India. The invidious distinction made between and grouping under separate classes of the university degree-holders and others now disfiguring the provincial medical registers should be done away with. As long as the medical register is intended to maintain a list of practitioners qualified to practise, the distinction shown in the matter of classification between degree-holders and others is quite unwarranted and the difference made in the classification between the degree-holders of the universities of one province from those in another and inclusion of the latter in the non-degree-holders of the former is an insult to universities in other provinces. If the new bill proposed is intended to be an improvement upon the provincial Medical Registration Act and to secure unanimity among the practitioners of all provinces in India, no difference should be shown in the classification and treatment of the qualified medical practitioners in India. Although in the United Kingdom there

are medical practitioners who do not hold university degrees, still in the British Medical Register all medical practitioners, whether university degree-holders or not, are classed in one group. The same procedure should be adopted in India also.

The contemplated Council should consist of adequate representatives from all the teaching institutions, universities or otherwise, now existing in this country and recognised by the provincial medical councils, the representatives being voted for by the practitioners who passed out from the respective universities or schools. As the number of private practitioners is larger than that of government paid officers, provision should be made in the bill to secure a majority of members from among the private medical practitioners in the Council.

The president should be one elected from amongst the members of the Council and we do not find any necessity of nominating the first president by the Governor-General-in-Council as suggested by Dr. U. Rama Rao. His bill is silent regarding the relationship of the provincial medical councils to the All-India Medical Council. It is highly essential that provision should be made in the All-India Act for the recognition of the provincial medical councils by the All-India Council as its branches as is the case in the United Kingdom. The President of the All-India Medical Council should be an ex-officio member of all the branch councils.

Section 12 in the contemplated Act concerns about the privileges of the registered practitioners. All of us are familiar how the privileges of the registered practitioners bestowed by the provincial Medical Act are set at naught by the Government in the matter of certificates issued by the medical practitioners or in the appointments as physicians and surgeons or other medical officers in government and other medical institutions. For these privileges to be real, the Government in the section

which appears to be almost the same as that in the provincial register should be changed and the privileges should be stated in unequivocal language as follows:

1. Every person registered under this Act shall be entitled according to the qualification or qualifications to practise medicine or surgery, medicine and surgery as the case may be, and to demand and recover in any court of law with full cost of suit, reasonable charges for professional aid, advice and visits and the cost of any medicines or other medical or surgical appliances rendered or supplied by him to his patients.

2. The certificate granted by any registered medical practitioner, as required by any act or under any enactment, shall be valid.

3. All practitioners enrolled in the Register shall be competent to hold any appointment as physicians, surgeons or other medical officers in any hospital, asylum, infirmary, dispensary or lying-in-hospital maintained by Government or by voluntary contribution or as medical officers of health.

Provision should also be made in the Act for the imposition and the collection of the penalties from the medical practitioners found guilty of infamous conduct and also for the publication of an Indian Pharmacopoeia as is the case in the British Medical Act.

Space does not permit us to discuss other details of the contemplated Act and we shall at present rest satisfied with the remarks expressed above, which affect mainly the growth and prosperity of the medical profession.

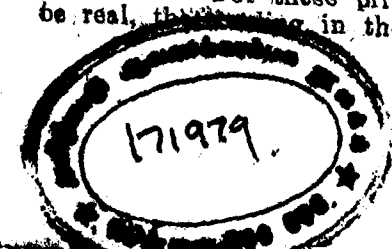
ALL-INDIA MEDICAL CONFERENCE, LAHORE.

The members of the medical profession who are in touch with the lay newspapers must have by this time known that there was a gathering of medical men in Lahore during the National Week. Though this conference

is of an All-India nature, it is not likely, in the present state of medical profession in this country to be really a representative body consisting of delegates from all parts of India. If any organisation requires strong and persistent agitation to awake the medical profession to its sense of responsibility, it is such a conference of All-India nature, that could do this work satisfactorily and worthy of the purpose it denotes. The medical men in this country should be grateful to their brethren at Calcutta for having brought into existence for the third time this All-India organisation, their first attempt in 1917 having proved abortive for want of support and co-operation from other parts of the country. The All-India Conference at Lahore is the third one, the second having met at Calcutta last year during the Congress Session. It is to be regretted that those who were responsible for the gathering at Lahore do not seem to have given sufficient publicity regarding this conference. It is not possible to give first hand information about the proceedings of the conference at Lahore as none from Madras seem to have attended this gathering. Dr. V. Rama-Kamath who has been in touch with the All-India activity of the medical men in Calcutta ever since 1917, being the only delegate from Madras in that year, and who attended the All-India Conference at Calcutta last year, had unfortunately to return half way to Lahore on account of some unavoidable circumstances or else it would have been possible for the members of medical profession here to learn more about the conference at Lahore than what appears in the lay newspapers.

The presidential address of Dr. B. C. Roy, M.D., F.R.C.S. (England) M. R.C.P. (London) is really thought-provoking. His exposure of the true character of the move taken will, we hope, be taken notice of not only by the medical profession but also by the Government of India. The partisan character of the British Medical Council cannot be put in

better words than those of Dr. Roy's himself. He says, "The peculiar methods adopted by the General Medical Council in its enquiry regarding medical education given by the Indian universities cannot but point to one conclusion, namely, that the President and the Executive Committee of the General Medical Council have been to a great extent influenced in their decision by *ex-parte* information obtained from interested sources and that they acted as partisans but not as judges." The time has come for India to tell the British Medical Council that this country cannot tolerate any longer its presumptuous dictation. Whatever defects there may be in the medical education in this country they are due to the system introduced and controlled by the I. M. S. officers from whom are drawn mostly the teaching staff in Indian universities and hence the discredit of the system of education reflects on the universities and other corporate bodies imparting medical education in Great Britain where the I. M. S. officers chiefly receive their education. It is certainly unjust and anomalous that qualification registrable in Great Britain is insisted especially in Madras as a qualification for admission for higher provincial medical services and even for honorary appointments. With all due respect to Dr. Roy many will not agree with him in his method of retaliation against the British Medical Council by boycotting British firms in the matter of requirements by the Indian medical profession. The medical profession in India should start agitation throughout India and bring about legislation either local or All-India amending the existing Medical Registration Act by bringing in reciprocal condition that in case the Indian medical qualifications are not recognised by the British Medical Council, the qualifications registered in Great Britain would not be recognised in this country. There is such a clause in the existing provincial Medical



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Registration Act regarding British Dominions at present.

In the matter of research, every body will agree with Dr. Roy that research departments in India should always be in close touch with the medical practitioners who alone can supply material for research and it is certainly a great loss to the medical science to run them as separate bodies in a far away place like Dehra Dun, unconnected with medical practitioners.

Regarding posts under Government the aim of the independent medical profession ought to be not to crave for or multiply them but start an agitation and compel the Government to hand over medical relief in all its aspects and place it under the direct control of the independent medical profession as is the case in civilized countries. So, in the words of Dr. Roy, "We must organise ourselves. Voluntary organisations have to be formed for social service, for giving aid during the epidemic, for the medical inspection of the school children and for rousing sanitary consciousness amongst the masses," Dr. Roy in concluding his address appealed to the profession to interest itself in the problem of medical education, whether it should be of two grades or one and about many other questions concerning the medical profession and advised those present that such problems could only be solved if the medical men took part in politics which he defined as a science of organisation for the purpose of securing the greatest good of the largest number and he finally declared that the members of the medical profession dare not keep away from politics.

We would invite the attention of the medical practitioners to the remarks made by the President about the importance and necessity of medical men in larger numbers taking more interest in politics for the advancement of medical science and medical relief in India. We are indeed gratified to know that the Presi-

dent shares our views on the subject of medical politics and for the discussion and propagation of which, the "Medical Practitioner" was started, as was clearly stated in the objects and reasons in the first issue of the journal. We shall continue to endeavour to our best abilities to proceed on the same lines without fear or favour.

Original Articles.

SCIENCE OF REJUVENATION.

STEINACH'S OPERATION.

BY

DR. H. B. MYLVAGANAM,
F.R.C.S., (ENG.)

The subject of rejuvenation has created a great deal of interest and curiosity during recent years by the publication of the successful results obtained by scientific workers in this fascinating field of research, most prominent of whom are Steinach, Voronoff, Sand, Tiedge, Berblinger, Peter Schmidt, Lipschutz, Loewy, Zondek, Klika, Skala and others, and from the glowing accounts and the enticing advertisements published in the lay press all over the world. Even in India everyone talks of rejuvenation nowadays, but no one except perhaps a few medical men and some students of biology, appears to possess any definite or concrete idea of the theory of rejuvenation. When one speaks of rejuvenation, even educated people will say, "O yes, I know. Monkey Glands. The thyroid, isn't it?" And they express a fear that any resulting children might exhibit an awkward proclivity for nut-cracking and tree-climbing combined with some even more unconventional characteristics of the monkey tribe. Some even think that one might develop a tail in addition. So the lay mind has become accustomed to associate rejuvenation with increased sexual powers only, but this is not the whole

truth. As will be seen from the classical experiments of Professor Eugen Steinach and his co-workers Peter Schmidt and others, rejuvenation influences the whole body and a sense of well-being is established again in an animal or human being submitted to the treatment.

We owe to Voronoff and his co-workers, the initiation of "monkey gland" treatment for rejuvenation. Many of his published reports on the successful cases both in men and animals, have been very interesting and fascinating, so much so that they have given rise to genuine hopes in the forlorn minds of the aged, who desire to enjoy the prime of life once more. This craving to regain youth is peculiar to mankind, and I crave no apology when I say that those of us who have passed the meridian of life would hail with joy and thankfulness a saviour who could restore to us our lost youth and the blessings attached to that age.

Owing to the cloud of doubt and uncertainty prevailing in this country regarding the real scientific import of what rejuvenation connotes, its scope and limitation, a short review of the scientific aspect of this fascinating subject appears to me desirable.

To understand the theory of rejuvenation, one should know something of endocrinology or the action of hormones or internal secretions on the metabolism of the body. In the maintenance of bodily health and mental vigour, hormones or internal secretions play a dominant role in a normal body. It is only during the last quarter of a century or so that the subject of internal secretion has been investigated more thoroughly and new information added to our ever-increasing knowledge. Mere intake of food even with the necessary vitamins, is not sufficient to maintain one's health if the internal secretions fail to perform their normal function.

In the human body, besides several ducted glands, there are ductless glands which secrete an internal

secretion, or otherwise known as hormones and each of these hormones has an action peculiar to its own. These ductless glands are the thyroid and parathyroids in the neck, pituitary and pineal glands in the brain, the thymus in the upper part of the chest and the suprarenals in the abdomen. These glands are mostly small in size, but their importance is hardly to be over-estimated and disturbance of the function of any of them leads to grave interference with health. The disorders of the pituitary may lead to dwarfing or to gigantism, or to morbid obesity, disorders of the pineal to morbid obesity or to precocious sexual developments, disorders of the thyroid on the one hand to cretinism or mental deficiency, or on the other to a state of hyper-emotionalism.

Some glands have both an external and an internal secretion and the pancreas is one of the best examples of this type. Its external secretion is conveyed by a duct into the intestine where it plays an important role as one of the digestive juices. Its internal secretion is carried away by the blood and helps the body to utilise the sugars and starches taken in as food. Any defect in this internal secretion brings on diabetes, a disease very common in India.

The testicle and ovary really belong to a class of their own, for their external secretion consists of living cells viz., the spermatozoa and ova respectively, though their internal secretion differs in no way from those of other internal secretory glands. The combination of a spermatozoon with an ovum gives rise to a new individual. Their internal secretion is responsible for the sexual characters peculiar to the two sexes. In the case of testis the external secretion is manufactured in the seminal tubules and the internal secretion in the interstitial cells or Leydig and Sertoli's cells. This internal secretion or hormone is carried away from the testis in the blood stream to every

part of the body and is supposed to stimulate other ductless glands and to produce the physical and sexual characters of the male and his sexual desire towards the female. The interstitial cells or cells of Leydig are polyhedral and yellowish in colour and contain various granules and crystals and resemble in appearance the secretory cells seen in other glands. This influence of the internal secretion on the male is not a mere supposition. It is based on experimental facts carried on for years by very able scientists.

We owe to Professor Eugen Steinach more than any one else, for the solid advancement made in this science. It was during the study of this problem in his laboratory in Vienna from the year 1906 that the possibility of rejuvenation first dawned on him. His experiments were carried on mostly on rats and guinea-pigs as it was easy to control.

At first he castrated and spayed a selected number of young male and female rats and produced in them a condition known as "Eunuchoidism". In these operated animals, sexual characters remained imperfect, or even failed to appear at all. The limbs became abnormally long owing to the long persistence of the bone-forming centres. There was defective growth of hair and defective potency.

Next he transplanted male and female gonads from similar animals, beneath the abdominal muscles of these castrated and spayed animals and restored the lost secondary sexual characteristics in cases where the grafts took effect successfully. This was called "homoplastic method" of restoring lost sex characteristics.

He next reversed the experiment by transplanting testes in females and ovaries in males, in castrated and spayed guinea-pigs and produced reversal in the sex characteristics in them, males showing female proclivities and females male.

Obvious deduction from the above experiments was that hormones which governed the sex instincts and cha-

acteristics were manufactured in the respective testes and ovaries which had been implanted and as a corollary that these hormones existed already normally in the ovaries and testes of intact animals.

Next step was to find out from what part of the respective gonads the hormones were produced. This was done by excising the successfully transplanted testes, and by examining them histologically. It was then found that the spermatogenic cells in the transplants had atrophied but the interstitial cells showed marked proliferation. This naturally suggested that male hormone was probably manufactured in the interstitial cells and was not a by-product of the spermatogenic cells as held by others.

Steinach next tried to find out if the same results could not be obtained by tying the vasa deferentia, instead of experimenting with transplanted testis. He knew that ligation of the vas or seminal duct would produce atrophy of the spermatogenic cells by back pressure but was uncertain if the hormone would also cease to function and eunuchism would be produced. Experiments of this nature were carried out and after an interval the testes operated upon were excised and examined. It was then found that the spermatogenic cells were atrophied as in the transplants, but the interstitial cells were increased in size and number as if that eunuchism had not occurred. This proved that the hormone producing body had not been affected by vasoligation. He named the interstitial cells "the puberty glands." In addition it was observed that a new element, in rejuvenation, became a dominant factor in the operated animals.

The same results were obtained by transplanting successfully, fresh testis in castrates and the symptoms of eunuchism disappeared. Testes of young rats implanted intact into old males produced a considerable amount of youthful vigour and these animals lived several months longer than the

allotted span of life in such animals, due no doubt to the effect of new hormone thrown into such animals, by the young implanted testis. It was this discovery that led Voronoff and his co-workers to initiate "monkey gland" treatment as it is humorously called.

But Steinach's vasoligation experiment has produced the same results without the necessity of grafting fresh testes into the experimented animals. Some decrepit old rats that had their vasa ligatured, appeared to take on a new lease of life, their fur came back, they grew fatter, became agile and pugnacious again, even sexually potent once more.

Since then the operation of vasoligation has been performed on human beings and several successful cases have been recorded. The operation in itself is devoid of danger to life and is usually done under local or spinal anaesthesia. After forty-eight hours or so, the patient will be able to move about. Even if no benefit is experienced by any exceptional cases no harm is done.

So far I have dealt with only the male sex. In the case of females, the ovary too has two distinct functions like the testis. It produces ova or egg cells which are necessary for reproduction. This is analogous to the external secretion of testis. In addition, the ovary produces a very important hormone which is poured directly into the blood and is responsible for the female secondary sexual characters, viz., menstruation, enlargement of the breast, general deposit of fat giving rise to the soft rounded contours of the adult female, especially on the breasts, hips and buttocks and sexual desire etc. These changes decline about the age of fifty as the hormonal activity of the ovary declines rather abruptly. Menstruation ceases and ova are no longer produced, so that pregnancy can no longer take place, sexual desire gradually declines and often hair appears on the face.

Implantation of an ovary in a senile female has very striking results. If an ovary from a young is transplanted into an aging female, it ceases to produce ova but continues to secrete hormones which produce great improvement in mental, physical and sexual health and stimulates her own ovaries to renewed activity of both its functions. The senile female becomes more vigorous, shows renewed sexual desire, exerts a renewed attraction over the male and is once more capable of becoming pregnant and producing offspring.

In the females, autoplasmic operation as vasoligation in males, is not possible as the fallopian tubes which conduct ova to the uterus are not in structural continuity with ovary.

In females as in males, X-ray application to sex glands has produced improvement in health, but the dosage is still in the experimental stage and therefore uncertain, and a slight overdose may be very harmful and may actually destroy the tissue it is meant to stimulate.

These experiments on lower animals and the successful treatment of several senile cases already reported, have brought one important fact to our knowledge viz., that the aging of a male or female is due to the diminished internal secretion of the testis or ovary, as the sex may be.

In the bloom of youth when these glands are active, the whole organism seems to work at a high level of efficiency both physically and mentally, and as the internal secretion gets gradually diminished, signs of senility also set in *pari passu*. The senile changes seem to involve the whole body, and every important organ seems to participate in these changes. In the case of human beings there may be other extraneous causes at work to bring on premature senility, such as venereal diseases, alcoholism, excessive sexual indulgence etc., and a prognosis in these cases from this treatment should be guarded. Every case before treatment should be

thoroughly investigated as to its fitness or otherwise for the operation, in order that failure may be considered a remote possibility.

It should not be assumed that this treatment will cure all the ills that flesh is heir to. For instance, it will not cure cancer or restore an irreparably damaged organ to its original healthy condition.

In carefully selected cases with no organic diseases and where senility has not advanced too far, the operation is very useful and is most clearly indicated.

The first change to notice in the operated cases is, an enormous increase in the appetite. They become ravenously hungry, and their body weight rapidly increases. Excess of fatty deposit disappears owing to quickened combustion and increased oxidation. Skin becomes moister and the wrinkles in the face disappear. Hair and nails grow with remarkable rapidity. Muscular power including that of the heart increases. The physical troubles of old age improve and the patients, previously unable to carry on their usual work, are able to resume it and to continue it with marked efficiency. Sexual power, previously extinct returns to a remarkable degree. The waning mental powers are stayed and the patients are able to return to their work. Signs of changes in the blood vessels, such as attacks of giddiness, dyspnea, arterio-sclerotic pains in the extremities, changes in the central nervous system such as tremors of the hands, disappear. Eczema and senile pruritis disappear. Growth of hair especially beard, takes place.

It is held that the increased output of hormone from the interstitial cells of the testis stimulates the entire metabolism and sets in motion the rest of the endocrine mechanism, producing a cellular rejuvenation.

It has been found to lower high blood-pressure, increase muscular energy, relieve insomnia and indigestion, improve nutrition of skin and

accelerate growth of hair, improve power of concentration, memory, temper, capacity for mental work and increase sexual desire, and potency.

In fine, it creates a marked physical and mental rejuvenation within 5 to 8 weeks in many and about 5 months in some, from the date of performing the operation.

One-sided operation does not decrease patients' power of reproduction. Transplantation of testes should always be performed in cases of double castration. If a human testis or ovary is available, one would prefer it for transplantation, especially for women. But in the case of a male, testis from a higher ape is the next best substitute.

Transplantation of the young ovaries in sterile women who long for offsprings, is a safe and useful operation. Cases have been reported in which previously sterile women conceived and passed through a normal pregnancy after transplantation. The internal secretion of the grafts is supposed to stimulate the sluggish ovaries of the recipient as proved in animals. These transplants have been proved to persist in the tissues for over 9 years (Natrass of Melbourne.)

While this operation helps to postpone senility, it is not claimed to combat death. As the beneficial results of this operation have been reported to last from 5 to 10 years it would seem well worth one's while to undergo it, as there is no risk whatever and the advantage of leading a normal, and vigorous life until one's life lasts in his body, is not to be despised.

There appears to be an unlimited number of gland preparations, both for oral and hypodermic administration, on the market, very fascinatingly advertised to perform what would appear to be wonders in a meteoric space of time. In the direction of restoring the functions of manhood in the prime of life, to the aged and the jaded. In the absence of any favoura-

ble comment as to the virtues of any of these gland preparations, in any literature of scientific repute, it has to be conjectured, that this branch of science has not developed sufficiently to be depended upon definitely, yet.

I am positive that there are many who would like to undergo the treatment reviewed herein (which is simple and unaccompanied by pain or fatal results,) but are likely to be deterred from doing so, owing to that term "operation," which appears to unreasonably create a moral sense of fear at once, in most people. I have myself performed Steinach's operation on several persons, with gratifying results.

ENDOCRINOLOGY*

BY

DR. M. S. KRISHNAMURTHI AYYAR

IV

ADRENAL GLANDS.

These glands belong to chromaffin system to which also belongs the pituitary and the sympathetic nervous system. They are also included in the kinetic system with thyroid, brain and muscles, and the adrenals are the most important among them. They are catabolic in action and are closely connected in this respect with thyroid, hypophysis and sex glands. They are otherwise called the "fighting glands" and are highly developed in the Negro race.

Origin and Anatomy.

These glands, otherwise called supra-renal glands, are situated one on each side of the abdomen immediately over the kidneys and rest upon them. Accessory adrenals are

* This article, the preceeding articles and those that follow hereafter on this subject are based on Sajous' "Internal Secretions", Harrower's "Practical Organotherapy", and "Monographs", and "Organotherapy in General Practice" Published by G.W. Carrick Co. etc. and several journals.

not uncommon. The supra-renal glands in length, $\frac{3}{4}$ inch in breadth and $\frac{1}{64}$ inch in width and together weigh 4 to 8 grams. They are of yellow colour and the right is of triangular shape while the left is almond-shaped, and usually larger of the two. They consist of two portions, the cortex and the medulla. The cortex is developed from the mesoderm of the genital ridge and appears first and about the fourth week of embryonic development and it forms over 85% of the gland. The medulla has its origin in the neural ectoderm from which also arise the sympathetic nervous ganglia and forms the remaining 15%. The supra-renals are the most vascular organs of the body and the blood-flow is only second to the thyroid glands. The veins of the gland on the right side join the inferior vena cava direct while those from the left join the left renal vein. The nerve supply is from the sympathetic system through the splanchnics and also from the fibres of the supra-renal plexus.

Physiological Function.

The secretion from the cortex is known as "inter-renalin" and the lipoids, which are said to be composed of cholesterol esters, is said to be similar to it. The functions of the cortex relate to the growth of the body and the development of the sexual organs. The cortex in this respect is closely related to hypophysis, gonads and thyroid. The venom of the cobra is neutralised, or has its toxicity destroyed, on mixture with the emulsion of the cortex but not with that of the medulla. The possibility of a lipid formed in the cortex being used in the development of the myelin of the medullated nerve is suggested by Schafer. It is also thought that the cortex is a factor in the development of the highly organised nervous system of man particularly the brain. As regards medulla whose secretion is called "epinephrin" there are several theories regarding its function. One is the "tonus theory" by which is meant that the tone of the blood vessels is maintained by epine-

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phrin contained in the blood. The other theory is called the "emergency theory." It is said when an emergent defensive or offensive occasion arises the pouring of the secretion into the blood and the mobilisation of sugar caused thereby supply energy for the fight. The third is the "anti-toxic theory" according to which the supra-renal secretion neutralises poison, and the fourth is the "metabolic theory" which postulates that the presence of minute particles of epinephrin is necessary for the metabolic activity of the tissues of the body including oxygenation of blood. Of these, however, oxygenation of blood is, according to Dr. Sajous, the most important and fundamental one and others may be explained more or less by this function. The diffusion of gases that takes place between the alveolar air and the pulmonary capillaries cannot be explained satisfactorily by the physical laws of diffusion. The adrenal secretion has great affinity for oxygen in the alveolar air and it is due to this affinity that oxygen is taken in. After absorption of oxygen adrenal secretion becomes a constituent of haemoglobin and of red corpuscles. The red corpuscles after absorbing the oxygenised adrenal secretion yield it to the blood plasma in the form of droplets, the so called "blood platelets." The oxygen laden adrenal secretion is called *adrenoxidase*. The secretion, epinephrin, is derived from tyrosin one of the amino-acids found in the food of human beings. In 1901 Takamine, a Japanese doctor isolated this substance. It has been synthesised in the chemical laboratory. Normal metabolism and tissue-respiration, the latter of which has been under a doubt for many years, depend, first, upon the combined secretions of the supra-renal glands, adrenalin from the medulla, and from the cortex lecithin and the monatomic alcohol and cholesterol. These three chemicals are carried by the red cells to the lungs, where adrenalin combines with the oxygen in the air cells and is con-

verted into *adrenoxidase*. This living chemical is conveyed by the blood stream to the tissues and there it catalyzes the lecithin, creating heat energy. The cholesterol inhibits this production of heat and might have the power to over-control it, but for the fact that the thyroid and parathyroid secretions in the blood energize the action of the catalyzing agent.

Pharmacology of Epinephrin.

The average discharge of epinephrin is calculated at 30 to 100 cc. per day by a man weighing 70 kilograms and the concentration in arterial blood is 1 in 1,000,000,000 and in the supra-renal vein 1 in 1,000,000. The effects are manifest in all structures innervated by the sympathetic system except the sweat glands. The method of pan-anaesthesia named by Crile *anoci-association* consists in supplementing the usual anaesthetic measures by removing such mental and nervous stimuli (by preventing fear and pain and by "blocking" certain nerves) as would tend to stimulate the adrenals and by their depletion bring on shock or collapse.

Circulation and Heart.—The blood-pressure is raised even when introduced into the blood circulation. The chief factor in this rise is the remarkable vaso-constriction effect and secondly the indirect stimulation of the vagus and the cardio-accelerator mechanism. Some few blood vessels as coronary, cerebral and pulmonary respond normally by dilation and in very low concentration. Other vessels are as well dilated instead of contracted. The characteristic constrictor effect seems to be dependent upon the peripheral action. Clinically, the direct application to the infant heart has started the heart-beating after failure of all other means.

Kidneys.—The vessels of the kidneys show a tendency to constriction in a degree beyond other blood vessels of the body. It increases the urea-excreting activity of the kidney and pituitary extract depresses it. In some

persons it may produce dilation of the kidneys though this is usually preceded by brief constriction.

Muscles.—Smooth unstriated muscles innervated by sympathetic usually reacts to epinephrin. The muscles of the hair, although smooth, unstriated and innervated by the sympathetic, usually fail to respond.

Metabolism.—Both metabolism and temperature or raised. Large doses of epinephrin injected into the circulation produces hyperglycemia and glyco-suria and glycogen disappears both from the liver and muscles.

Lungs.—Epinephrin brings about the relaxation of the smaller bronchi and thus relieves bronchial asthma.

Uterus.—Large doses cause intense contraction.

Pupils.—In man, mydriasis is not readily produced except after excision of the superior cervical ganglion and degeneration of the sympathetic. Increased mydriatic action occurs in hyperglycemia.

Intestines.—The typical effect is one of relaxation and peristalsis is usually inhibited.

Blood and Respiration.—Epinephrin acts as a substance altering the property of haemoglobin so as to give it a greater attraction for the oxygen as it passes through the lungs.

MADRAS MEDICAL REGISTRATION ACT

BY

DR. V. RAMAKAMATH.

III

Section 12 of the Act deals with the conduct of the business of the meeting of the Council. Rules framed under this section have so far been violated; the Registrar never forwards all documents in cases to be brought before the Council. While questioned his answer was that he was clinging to an old custom when such documents were never sent to mofussil members of the Council. I have protested against this illegal procedure in the proper quarters and shall wait and see if the baneful custom will be honoured still.

Sections 13 to 18 are concerned about the procedure to be adopted in the matter of registering practitioners and deals with the list of diplomas and degrees that could be registered under the Act. They also deal with the procedure to be adopted in trying medical men for infamous conduct.

Section 19 is an indemnifying section to cover the faults of omission and commission committed in good faith by the Council and the Registrar.

Section 20 is an important one. It confers on the Governor-in-Council power to refuse to recognise medical degree, diploma, or certificate granted in any British colony or foreign country which does not recognise the medical degrees, diplomas or certificates of a British Indian Government or university. At present the L.M.S. degree of the Madras University and the L.M.P. diploma are not recognised outside India even in the British colonies. There is now an open threat by the General Medical Council, Great Britain, that they would not recognise even our M.B.B.S. degree also unless the India Government appoints a Commissioner to control medical education in Indian universities. This is a challenge to the Legislative Assembly which almost unanimously refused to vote for the salary of the above appointment. The Legislative Assembly will do well to accept this challenge. This will give an opportunity to all the Indian members of the Medical Councils in all provinces to be united in maintaining their self-respect and advise the Provincial Governments to alter the schedule of registrable qualifications excluding in them all the British qualifications. There is no need for such an appointment except for the purpose of patronising a particular individual in a particular service.

Section 21 in the Medical Act gives to the Medical Council supreme powers to control medical education be it university, college or school. All the Medical Councils in India either in Madras or outside have more than the necessary number of I. M. S.

officers as their members with the British qualification presided over by an I. M. S. Surgeon-General. Where is the need for another I. M. S. as All-India Commissioner?

Before closing this article let me appeal to all registered practitioners in all humility to take a lively interest in the affairs of the Medical Council. Defective as it is to-day, there is much room to fight for general rights and privileges. Times are rapidly changing and we who belong to the medical profession should keep pace with others and play our part worthy of the noble profession to which we all belong. To such of those of my brethren whom others see in the lowest rung of the ladder, I appeal not to be apathetic and disheartened all through their lives. We are the largest group in the medical profession and form its real back-bone both in service and private practice. United we can stand on our legs as boldly as others do and show to the world that we are second to none in our capacity or zeal in alleviating human sufferings. I will be failing in my duty if I do not appeal to my brethren in the higher rungs of the ladder to lend their hands to the less fortunate in the lower rungs and lift them up so that in the near future we will have in this country an united and contented medical profession with no classes as they exist to-day.

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Abstracts.

DOES THE APPENDIX POSSESS AN ENDOCRINE FUNCTION?

BY

F. MONTIEL AND R. FOUCHE

(From *Presse Med.*, 34 : 1926)

The discussion concerning the harmlessness or danger of extirpation of the appendix is as far from settlement as is that concerning the function of this organ, which is veiled in deepest obscurity. At all events, the appendix is not a retrogressive organ, since we find it only among the higher mammals. It is conceivable that we cannot perceive by macroscopic examination of the appendix, whether it is an endocrine gland or not. On the other hand, its histological structure apparently furnishes some indications for this problem, as we can distinguish three histological systems thereby: the *glandular-intestinal*, which is intimately connected with the cecum; the *lymphoid*, the arrangement of which justifies the designation "abdominal tonsil," hitherto a name for the appendix, and finally the *endocrine*. Masson has actually shown that there are argyrophil cells on the top of the appendix which may give rise to carcinoma, the histological character of which coincides with that of tumors, which are built up at the expense of the endocrine glands.

Numerous investigators claim to have discovered manifold functions of the appendix: various external secretions; vitamin reserves which in times of necessity must be given forth; protection of the organism and secretion of microbes analogous to the remaining adenoid tissues; an important reflex centre, so that disturbances in the appendix exert an especially marked effect on the vagus, resulting in headaches and various painful symptoms, loss of sleep, psychasthenia and psychic depression, asthma, disorders of appetite, vomiting following pylorus spasms, meteorism and constipation.

In this complexity of phenomena, in addition to the intrinsic reflexes, there also figure several which proceed from a toxemic neuritis and among which we can also count pruritus and glycosuria, which Fenwick traces back to a secondary gastric hypersecretion, which in its turn leads to an irritation of the pancreas. On the other hand, Roger clearly demonstrated the toxicity of appendicular extract and the presence of hormones which were able to call forth in experimental animals a vigorous peristalsis, although these hormones (which without doubt represent an internal secretion) are not specific for the appendix but are also found in other parts of the digestive tract. The relations between the appendix and the ovaries are well known, and recently we have conceived the idea of a positive relationship between the insufficiency of the appendix and dysfunction of the thyroid; likewise, the effects of diseases of the appendix on the central nervous system, the sympathetic nervous system and the endocrine system controlled by it, effects which have been attained not directly, but indirectly by way of a long continued constipation (so frequently found in chronic constipation) and the autointoxication resulting therefrom.

The preceding conclusions on the function of the appendix were principally derived from the symptom complex observed in the course of appendicitis, but up to the present no author has approached this question from the standpoint of the injuries which might arise following extirpation of the appendix. Such injurious effects are to be sure infrequent and of differing nature. The most important to come under observation are: obesity, amenorrhea, and other ovarian disturbances, developmental disturbances, dysthyroidism and marked constipation, also a combination of these disturbances. To conclude, according to Fenwick's work, the appendix forms with the thyroid, the ovary and perhaps the

pancreas also, a link in the endocrine chain.

It must be stressed that all of the patients in whom the author observed numerous post-operative disturbances were operated upon in the interval between attacks of appendicitis, and it is probable that a few of the patients never went through an acute attack. Perhaps the matter might be explained in this way; namely, that the sudden loss of a healthy or not seriously diseased organ incites the disturbances, whereas the removal of an appendix which has long been diseased will be borne without damage.

In this latter case, it is easily explained that following the more or less progressive decrease in function or degeneration of the appendix, setting in with each attack, compensation gradually develops. In the case of an appendix which has never been diseased, neither the possibility nor the necessity for the development of compensations has presented.

However, it appears that the function of the appendix in the majority of cases can readily be compensated for following its removal without our being able at the time to discern any phenomena of insufficiency. The question, whether the appendix is to be included in the list of the organs which owing to their internal secretion are in a position to affect the development of some glands and trophism in general, must be reserved for the future.

The investigations on the functions of the appendix will perhaps some day make possible an anatomico-physiological and clinical sifting out and differentiation among the various symptom complexes of appendicitis. (*The Journal of Organotherapy*, No 5, 1929).

PULMONARY HEMORRHAGE

(From the *Clinical Medicine and Surgery*, October, 1929.)

Bleeding is always very disturbing to anyone, especially when the blood comes from an unseen source, as in hemoptysis, and the anxiety of the

patient or his friends and relatives frequently upsets the medical attendant and interferes with his efficiency. It is well that physicians should have a well-planned routine for the treatment of pulmonary hemorrhage, which will spring to mind almost automatically in an emergency; and also that nurses or other attendants, who are caring for a patient or patients who may suffer this mischance, should have definite instructions as to their duties. According to the amount of blood lost, hemoptysis may be classed as: (1) Blood spitting—when the bleeding amounts to less than a teaspoonful; (2) hemorrhage—when more than a teaspoonful of blood is lost.

WHAT TO DO WHILE WAITING FOR THE DOCTOR

1. Blood spitting.—(a) Put the patient to bed in the most comfortable position, and keep him quiet until seen by the physician. (b) Notify the physician at once. (c) If the patient is dressed, undress him carefully.

2. Hemorrhage (a) Put the patient to bed at absolute rest, in a semi-sitting position. (b) Notify the physician without leaving the patient until he arrives. (c) If the patient is dressed, leave the clothes on until the immediate emergency is past; then remove them cautiously. (d) Someone must always be left with the patient. (e) Keep the blood out of sight of the patient as much as possible and change the pus pan or sputum cup frequently. Do everything possible to make the patient think that the blood is small in amount. (f) Help in every way to keep the patient calm; try to assure him the bleeding will probably soon cease. Assure him that the doctor will soon be there. Do not become excited and nervous yourself. Keep the members of the family quiet. (g) Insist that the patient control his cough as much as possible. Instruct him to cough only to raise loose clots. (h) The nurse or other attendant should hold the pus pan, and should wipe the patient's mouth after each expectoration; should give him small bits of ice on a spoon if he

desires; give, through a drinking tube, a small swallow of cool water frequently; and should wait on the patient in every way possible, in order to help him to remain at absolute rest. (i) Fluid should be restricted to a minimum, without making the patient uncomfortable. (j) The diet should be small in amount, limiting fluids and giving dry toast, crackers and sips of ice-cold milk. (k) In extreme condition, crush an amyl nitrite perle and allow the patient to inhale the fumes. Do this in case the doctor cannot be contacted or is slow in arriving.

OUTLINE OF TREATMENT FOR THE PHYSICIAN

1. Rest (a) Semi-sitting posture in bed. (b) No talking; no visiting; no friends in the room. (c) Reassure the patient and avoid becoming excited. (d) Artificial pneumothorax.

2. Lower the blood pressure. (a) Amyl nitrite perles. (b) Nitroglycerin, Gr. 1/100 (0.65 mgm) hypodermically. (c) Absolute rest. (d) Tincture of aconite, in high blood pressure. (e) Tincture of digitalis in low blood pressure, every four hours. (f) Two ounces (60.00 cc) of a saturated solution of magnesium sulphate.

3. Increase the coagulability of the blood. (a) Give a hypodermic injection of atropine sulphate, gr. 1/25 (2.6 mgm). (b) Diet: limit liquids; maintain a highly dry diet; give gelatinous foods, especially meat gelatin. (c) Give intramuscular and intravenous injections of pituitary solution, 0.5 cc. (d) Injection of 20. cc. of horse serum.

Note: In a great number of cases of hemoptysis, the bleeding stops spontaneously. First decide whether the origin is venous or arterial. If venous, it is probably due to passive congestion and should be treated accordingly. If arterial, follow the outline above.

Notes on Treatment of Diseases.

Alcoholism Ch.—Emetine hydrochloride 1/3 gr. to be given hypodermically every second day. (*Leonard Williams.*)

2. Alcoholic habit and morphia habit:—Weekly injection of emetine 0.02 gr.

Alopecia.—Storaxol to be rubbed after inserting the tin into hot water.

2. Thyroid gland to be taken internally (*Endocrine Survey.*)

Amaurotic family idiocy.—The mother must be given adrenal gland 2 grs. doses three times a day and gradually increased to 5 grs. Intramuscular injection of infundibulin extract, of pituitary vaprole to be given to the infant. Goat milk to be given for diet. (*Sajous.*)

Amaurosis caused by tobacco, alcohol, and eye strain resulting from insufficiency of ocular muscles.—Strychnine is good.

Amenorrhea.—Both in functional and organic condition Dewar's emmenagogue mixture is given. Tincture ferri-chloride 3 drs. tincture cantharidis 4 drs., tincture guaiacum 1½ drs., tincture aloes ½ oz., syrup 6 oz. A teaspoonful three times a day. (*Hare.*)

2. Half a dram of syrup ferri-iodide three times a day for ten days before the period or atropine 1/100th of a grain commencing a few days before the period or benzyl benzoate 15 grs., mucilage acacia 1 dr., aromatic elixir 1 oz. Half to one teaspoonful of this every two hours. (*Modern Technique in Treatment.*)

3. Thyroid, pituitary and gonad. (*Leonard Williams.*)

Anal fissure.—As a relief, pending surgical operation nothing is so good as a suppository of iodoform 10 grs., extract of hyoscyamus ½ grs. preceded in the night before by an enema of sweet oil. (*Hare.*)

Anasarca.—Anasarcin to be given.

Anaphylaxis.—For anaphylaxis after injecting anti-tetanus serum,

atropine 1/100th gr. with morphine ¼ gr. is good.

2. After serum injection adrenalin chloride 3 m. of 1 in 1000 to be given hypodermically. For the rash either sodii salicylas or aspirin. Calcium citrate 30 grs. to be given before injection and a few hours later.

3. Tetanus serum—Desensitisation—In all cases with an interval of longer than ten days since a previous injection of serum, anaphylaxis should be expected and desensitising measure taken. 5 c.c. of the serum to be diluted with 50 c.c. of normal saline and 1 c.c. of this mixture to be injected intravenously and 4 minutes after this 3 c.c. of the mixture to be given and two minutes later 10 c.c. to be given and after another two minutes 25 c.c. and after further two minutes 25 c.c. Thus in 15 minutes the full dose of the serum to be given intramuscularly, hypodermically, or intrathecally. (*Modern Technique in Treatment.*)

Notes on Diagnosis, Therapeutics and other Medical Subjects.

Test for acidosis.—An initial dose of 4 grams, i.e. 60 grs. of soda bi-carbonate is taken in a dilute solution and the patient encouraged to drink water freely. After one hour if the urine passed is not alkaline another dose of 2 grams is given and this dose is repeated every half an hour till the urine becomes alkaline. In normal condition among Indians 6.5 grams are sufficient to make the urine alkaline but in malarial fever 14 grams are required showing the amount of acidosis present. (*Indian Medical Gazette.*)

2. A normal person at rest after taking a full breath can hold it for 40 seconds or longer. But when acidosis is present the time for which breath can be held is reduced to 20 seconds or less. The opposite condition known as alkalosis is associated with tetany.

Test for appendicitis.—Phrenic sign. It is said that every person complaining of pain in the abdomen should be examined with regard to the sensitiveness of his right phrenic nerve. To do this the right sternomastoid muscle is rendered tense by rotating the head to the left. The phrenic triangle formed by the two heads of this muscle above and the internal third of the clavicle below is thereby rendered visible. Placing the palmar surface of the end of the index-finger in contact with the skin in the middle of this triangle and releasing the tension of the region by rotating the head to the right, one exerts pressure on the point indicated. It is sometimes necessary to slide the finger below towards the sterno-clavicular articulation. This sign is never found if sought for lateral to the clavicular tendon. If it is positive the pain is very severe. (*J. A. M. A.*)

2. New symptom of chronic appendicitis.—In observing numerous patients with chronic appendicitis, Chatzkelson (*Munch. Med. Woch.*) noticed their peculiar "cautious" walk. On closer investigation of this symptom he found that the skin and the subcutaneous fatty tissues in the right hypogastric region were much thinner than on the left side. In comparing the two, the difference may be noticed. The author assumes that this atrophy of the skin and of the subcutaneous fatty tissues probably extends to the muscular portions of the abdominal wall. As a possible explanation for this symptom he gives the following:—In cases of chronic appendicitis the region of the hypogastrium is in a constant state of protective rigidity; it does not take part in the respiration, and, as a result of the muscular contraction, the blood vessels likewise cannot function properly. These conditions gradually lead to atrophy.—(*J. A. M. A.*)

Mag. sulphate intravenously and subcutaneously.—A saturated solution of magnesium sulphate and saturated solution of granulated sugar in equal parts the dose being 0.1 c.c.

to 1 c. c. in 4 c. c. of distilled and sterilized water is a specific for a number of diseases. 0.5 c. c. of this given intravenously and repeated after six hours is a specific for septicemia. Five injections are sufficient. It is useful in gonorrhea and gonorrheal arthritis, in peritonitis, in perinephritic abscess, influenza, pneumonia, tonsillitis, and erysipelas. (*Clinical Medicine and Surgery.*)

Digitalis.—Should not be given in the following conditions:—

1. When the blood-pressure is high.
2. Not as a diuretic when there is no edema.
3. As the drug acts upon both the arteries and myo-cardium it should not be given in fibrous heart.
4. In aneurysm.
5. In endo- and peri-carditis.
6. For relief of palpitation.
7. To overcome tachy-cardia in Grave's disease.
8. In aortic regurgitation.

Blood coagulation.—If the blood coagulation is too quick the blood may be decalcified by giving sodium citrate and if too slow calcium salts are given. Thus an exclusive milk-diet predisposes to thrombosis as is seen in typhoid fever. Further for the same reason in urticaria and edema due to decalcification calcium lactate 1 dr. will increase the coagulability in 20 minutes and the effect is maintained from 4 to 17 days and it may be given in 15 doses three times a day. (*Langdon Brown*)

Tincture of iodine.—One drop to a quart of water, will make the latter fit for drinking. To each litre of water add 5 drops of tincture of iodine and at the end of twenty minutes 5 drops of hyposulphite of sodium (6 gr. to 1 oz.) are added and well mixed. The water immediately loses its yellow colour and the iodine taste. (*International Medical Digest.*)

News and Comments.

The first anniversary of the South Indian National Association was celebrated on the 26th November 1929 at the Banqueting Hall, Government House, under the presidency of Her Excellency Lady Beatrix Stanley. The main object of the Association is the prevention of disease among the people of the Presidency by educating public opinion. Our people, and our nation live like any other nation in the village and in the cottage. The educative propaganda, to be effective, must therefore reach these "dumb millions" for, in the words of Her Excellency "disease affected one and all and equally must be its prevention." To this end the institution must grow out of a nation. It must have a living touch with the people whom it is intended to serve. In spite of the ignorance, poverty and the squalor in which they are forced to live, it is easy to instil ideas into the masses if one mixes these ideas with a proper dose of sympathy and acts with an eye to real public good and not to the figure one cuts before the upper ten or in the public press. Mrs. Wathen hit the nail on the head when she recommended to the Association a visit to the crowded *charries* so that they might see how people lived there, the housing and the condition of the open spaces there, for it is no good applying ready-made and exotic nostrums without a knowledge of the actual conditions. Again "Government could only spend money and make laws. Unless every man and every woman was willing and ready to play his or her part sensibly and conscientiously real prevention of disease could never be attained." As the Health Minister frankly admitted the real difficulty was not really that people did not know what to eat or what not to eat but they could not eat what they ought to. The welfare workers will do well to bear this in mind when they approach the problem and are tempted to criticise the people for their apparent apathy.

The point was also stressed by Lieut. Col. Hingston when he said, "the study of sanitary conditions in slums and *charries*, the investigation of food and economic conditions which constituted an important factor in the causation and incidence of disease and mortality and the health condition of workers in mills and factories—these were some of the problems which might be usefully investigated." But it is Mohamed that has to go to the mountain and not the mountain to Mohamed. It is the welfare workers that have to get in touch, and keep in touch, constant and sympathetic touch with the people among whom their work lies. To this end we want a net-work of societies all over the province composed of capable men moved by a spirit of service and sacrifice, men who will by their work evoke a spirit of co-operation among the people. The function of Government should be to spot out such men and bring them together and help them with all facilities for conducting the work. Such non-official agencies will prove a power for good and will also have an educative value.

* * * *

Colonel Hingston's survey of the present position of the nursing profession needs consideration. He says that the raising of the standard of nursing in this presidency has been the concern of the Governors' wives, some of whom took a living interest in it. There exists a good number of hospitals and schools in this presidency for training nurses and as a result, many changes have been wrought and still there is much to be done and as nursing is an art it must be sedulously cultivated. The personnel of the nursing profession at present is mixed—there are English, French, Belgian, and Italian nurses. But the most refreshing feature is the growth of a large body of Indian nurses on whom depends the future of nursing in this presidency. He suggested, in closing, that the adoption of a system which is being developed in America in which a school of nursing

Among the "Pharmasols" produced by condensation methods are Pharmasols Aurum, Argentum, Ferrum, Mercury Sulphide, Cuprum, Arsenicum. Many colloids are easily and quickly made. To produce a "sol" of silver iodide, for example, simply add a dilute solution (about 1:1,000) of KI to an equal volume of a solution of silver nitrate of the same strength. The result is a beautiful, yellowish, milky sol. of AgI. Not all colloids, however, are so easily made and for therapeutic purposes far more is required than merely an amorphous precipitate or a hypersensitive "sol."

Characteristics and properties of colloids.—Following in condensed outline are some of the characteristics and properties of colloids and laws of colloidal chemistry upon which we are attempting to focus the attention and interest of the medical profession.

- (1) The maximum of surface energy occurs in the colloidal realm.
- (2) The maximum of catalytic action occurs in the colloidal realm.
- (3) Mutability with violent chemical action makes colloids ideal constructive and reconstructive therapeutic agents.

SURFACE ENERGY

AND ITS SIGNIFICANCE IN
MEDICINE.

BY

HERMANN HILLE, Ph. D.

It is a fact, easily demonstrable, that the total surface rapidly increases with sub-division. A cube of gold, for example, with edges 2 cm. long, has a surface of 24 square centimetres. If we divide its twelve edges into ten equal parts and with an imaginary geometrical saw (having no width) cut through the cube along the lines of division, we obtain one thousand smaller cubes with an aggregate surface of 240 sq. cm. This is ten times the surface of the original cube, the total volume and weight remaining the same.

Acre of surface in cm. cube of colloidal particles.—By dividing the edges of the cube by 1,000 (one thousand) the result would be one billion cubes with a total surface of 24,000 sq. cm. If the edges of the original cube be cut 2,000,000 (two million) times, we would have a total of eight quintillion (8×10^{18}) cubes with edges of one-millionth of a centimetre (10 μ) in length and a total surface of 48,000,000 (forty-eight million) sq. cm. or 4,800 (forty-eight hundred) square metres, which is more than an acre in area.

We now have reached a degree of smallness of particles that lies within the colloidal field. The next step in decimal subdivision would take us into the realm of molecules, and eventually into that of electrons.

Surface increases as size of particles decreases.—Thus we have demonstrated an important fact which for our purpose may briefly be stated as follows:—The total surface of a given volume or quantity of substance increases at the same ratio at which the diameter of the component particles decreases.

Surface is not a dead geometrical abstract, but there are forces at work upon every surface. Soap bubbles and the shape of drops of liquids are proofs of the existence of surface tension. It can be measured in various ways.

Surface energy product of surface tension and area.—Surface energy is equal to surface tension multiplied by surface area. That is, an increase in surface energy in any given volume is produced whenever more absolute surface is developed or the concentration of surface in space (specific surface) is increased.

Surface energy manifests itself in a large variety of forms, which for our purpose may roughly be classified under the collective heading of adsorption.

Adsorption defined.—Adsorption, which must not be confused with absorption, is the concentration of the

adsorbed substance upon the surface of the adsorbent. It may be said to stand half way between solution and chemical combination, therefore adsorption compounds are not as stable as chemical compounds but more stable than solutions. It is a phenomenon caused by the decrease of surface tension of the solvent at the faces of contact between solvent and adsorbent. When chemical reactions occur as a result of adsorption, they do not always obey the laws of mass action.

Adsorption is of the greatest importance, not only in the processes of the living organism, but also in agriculture (manure, salts, rain, nitrogen), industry (dyeing, tanning, clarifying, decolorizing and deodorizing with charcoal, boneblack, etc.), and especially in surgery and medicine.

It is possible to briefly consider here but a few of the most important phases of adsorption. Among them must be mentioned imbibition (swelling), syneresis (shrinking), catalytic-ferment-enzyme action, inflammation, narcosis, immunity reactions, Wassermann reaction, disinfection, action of soap, plasters, liniments, ointments, adsorbent gauze and cotton, dusting powders, etc.

Enzyme action.—Processes in the living organism are largely, if not entirely, catalytic processes. That is to say, most if not all changes constantly going on in the vegetable, animal and human organisms are brought about through the agency of specialized colloidal substances, called enzymes (ptyalin, pepsin, pancreatin, trypsin, etc.).

All enzymes known so far are colloids and their peculiar action must primarily be attributed to their colloidal character, namely enormous surface concentration and corresponding power of adsorption. Their essential action is catalytic. It is largely specific, but not absolutely so.

The beginning of enzyme action is an adsorption compound between it and the substrate.

Some crystalloids paralyse enzymes.—Electrolytes inhibit the action of enzymes, except in low concentration. Some crystalloidal salts paralyse enzyme action, especially those of mercury.

Bredig and others have shown that many catalytic effects may be brought about by highly dispersed surfaces of all kinds, and that the important catalytic reaction of enzymes may be clearly imitated by various inorganic colloids, such as colloidal metals, so-called inorganic ferments. These are adsorption phenomena, which often result in chemical reactions and reaction accelerations.

Colloids maximum catalysts.—Coarsely dispersed and molecularly dispersed metals have little or no catalytic action, while those in colloidal solution act most intensely. Thus, platinum foil decomposes hydrogen peroxide slowly; pulverized metallic platinum does it more rapidly; colloidal platinum acts so intensely that its action is still observable when the quantity is so small, or so diluted, that there is but one gram atom of platinum in seventy million litres (almost twenty million gallons) of liquid. Platinum salts, in molecular solution, again have very little catalytic power.

An important and interesting observation made by E. Wedekind and H. Baumhauer (Koll. Ztschr., 5, 192, 1909), cannot be overlooked. They found that the radio-activity of thorium was almost five times as great after it had been transformed into a colloid.

Disinfection, too, is largely an adsorption phenomenon. Disinfectants are adsorbed by bacteria and either coagulate their protoplasm or flock them out.

The cleaning power of soap is due to adsorption of dirt upon the soap film.

Swelling, a phase of adsorption.—Imbibition or swelling, also a phase of adsorption, is due to a condensation of water or other liquids on the parti-

cles, filling the capillary spaces between them. The energy developed thereby may amount to hundreds of atmospheres of pressure. The ancient Egyptians are said to have used this enormous energy in their quarries (dry wood and water); dentists use it to-day. The swelling of gelatine in water, or rubber in benzol, the turgor of living vegetable and animal organisms, oedema, glaucoma, nephritis, are more or less clear-cut phenomena of imbibition. (See Martin H. Fischer, "Oedema, and Nephritis," 2nd Ed., 1915).

Other examples of adsorption.—

The combination of toxin with anti-toxin does not follow the laws of mass action and appears to be, at least partly, due to adsorption.

The sensitizing of leucocytes by opsonins, resulting in ingestion of bacteria by these leucocytes, must be regarded as an adsorption process.

Complement fixation in the Wassermann reaction is most likely an adsorption phenomenon.

Examples of adsorption could easily be multiplied, for that process is ceaselessly going on in the living organism everywhere and is extensively used in medicine and surgery. But we have seen enough evidence to realize its great importance.

SUMMARY.

Knowledge amounts to little unless we make good use of it. And the best and noblest use in the service of humanity for the establishing of health and healthy conditions everywhere. We can here but facilitate that end by summarising the most important facts and conclusions. It must be left to our readers to make their own application.

1. The total surface of a dispersed phase increases inversely as the diameter of its particles.
2. Surface area multiplied by surface tension equals surface energy.
3. Surface energy manifests itself largely as adsorption,

reaching its maximum in the colloidal realm.

4. Adsorption phenomena are inseparable from physiological and pathological processes.
5. Catalytic-ferment-enzyme actions are largely adsorption phenomena.
6. The maximum of catalytic action occurs in the colloidal field.
7. According to the general law of chemical kinetics governing heterogeneous systems, the amount of chemical change in the unit of time is proportional to the absolute surface (Wenzel).
8. Colloids have smaller particles and greater active surface than substances in the microscopic field and therefore are preferable as therapeutic agents.
9. Colloids have less violent chemical action than crystalloids, especially electrolytes, and therefore are more safe as therapeutic agents.

REFERENCES

H. Bechhold, "Colloids in Biology and Medicine." (Translated by J. G. M. Bullowa, 1919.)

Jerome Alexander, "Colloid Chemistry," 1919.

Extracts from:

"Colloidal Chemistry," Vols. 1-4, 1919/20, Hermann Hille.

The following preparations are available under the name of Pharmasol in the Anglo-French Drug Co. Ltd.

ANTIMONY.

Composition.—Colloidal antimony sulphide.

Indications.—Leishmaniasis, Bilharziasis, etc., also as a substitute for, and improvement on, soluble antimony tartrate in the treatment of Kala-Azar.

Administration.—Intramuscular and oral.

ARGENTUM

Composition.—Colloidal silver metal.

Indications.—Eye, ear, nose and throat affections. Gynecological and surgical treatment, especially in gonorrhea, pyelitis, ophthalmia neonatorum, conjunctivitis, blepharitis, trachoma, corneal ulcers, otitis media, antrum infection, rhinitis, laryngitis cystitis, vaginitis and other mucous membrane inflammations.

Administration.—Intramuscular or hypodermic or intravenous, and oral.

ARSENICUM.

Composition.—Colloidal arsenious sulphide.

Indications.—Therapeutically very active. Being non-irritant and of very low toxicity, it advantageously replaces pharmacopoeia preparations in the treatment of anemias and chronic skin diseases and as a general nerve tonic.

Administration.—Intramuscular and oral.

AURUM.

Composition.—Colloidal metallic gold.

Indications.—Used with success in the treatment of septic wounds by injection into affected tissues; also in certain infective conditions, e. g., influenza, broncho-pneumonia, typhoid etc.

Administration.—Intramuscular.

BISMUTHUM.

Composition.—Colloidal bismuth hydroxide.

Indications.—Used in place of the usual insoluble salts of bismuth in gastritis and dyspepsia, the fine colloidal particles forming a well-distributed coating on the folds of the stomach.

Administration.—Oral.

COLLO-CALCIUM.

Composition.—Colloidal calcium hydroxide in loose combination with organic colloids.

Indications.—Gives very good result in tuberculosis and it is also suggested in rickets and all conditions of decalcification of the organism.

In this form the calcium is rapidly assimilated and causes a rapid cicatrization of tubercular lesions, pulmonary or local, and has a powerful action in the recovery of appetite and strength.

Administration.—Hypodermic or intramuscular and oral.

CUPRUM.

Composition.—Colloidal copper hydroxide.

Indications.—Used in the treatment of malignant disease, particularly in inoperable cancerous conditions in which cases considerable benefit has been reported.

Administration.—Intramuscular or intravenous.

FERRUM.

Composition.—Colloidal iron hydroxide.

Indications.—The treatment of anemias, debility, amenorrhea, neurasthenia and other conditions caused by anemia. In this colloidal form the iron is easily assimilated, and being neither acid nor astringent, has none of the objectionable qualities of inorganic iron preparations.

Administration.—Intramuscular and oral.

FERRUM ET ARSENICUM.

Composition.—Pharmasol ferrum, 0.025%.

arsenicum. 0.1%

Indications.—This valuable combination of iron and arsenic in the colloidal form is largely used as a general nerve tonic as well as in anemia, chorea, etc., in which the arsenic seems to render the iron more

active. Successfully used in the treatment of blackwater fever.

Administration.—Intramuscular and oral.

FERRUM ET MANGANESEIUM.

Composition.—Pharmasol ferrum, 0.025%.

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ganese, 0.1%.

Indications.—This combination by virtue of its powerful hematinic action is successful in the treatment of amenorrhea, dysmenorrhea and chlorosis. The manganese by its specific effect on staphylococcal and streptococcal infections is of particular value combined with iron in cases of anemia resulting from septic and infective conditions.

Administration.—Intramuscular and oral.

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Composition—Pharmasol ferrum, 0.02%.

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ganese, 0.1%.

" arse-
nicum, 0.04%.

Indications.—Rebellious anemias and chronic skin diseases which are not amenable to other or more simple treatment.

Administration.—Intramuscular and oral.

FERRO-MALT COMPOUND.

Composition.—Colloidal Iron, 0.1%.
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Administration—Oral.

HYDRARGYRUM.

Composition.—Colloidal mercurous oxide.

Indications.—Rapidly assimilated and of low toxicity, it is of great value when continued administration of mercury is required. Administered by injection, intramuscularly or intravenously, rapid results are obtained in both early and late syphilis.

Administration.—Intramuscular, intravenous and oral.

IODINE OIL.

Composition.—Contains 3% iodine.

Indications.—Used with success in the treatment of inflamed mucous membranes. It is rapidly absorbed and has the great advantage over tincture of iodine, in that it does not stain. Before application of the oil to unbroken skin the parts may be swabbed with eau-de-cologne or other alcoholic solution.

Administration.—For external application only.

IODUM.

Composition.—Iodine in colloidal combination with protein.

Indications.—Pharmasol iodum exhibits in a most active form the well-known properties of iodine. It is readily absorbed, partly in the form of iodide of potassium and partly as iodine, by the leucocytes. Being only feebly toxic, it does not cause iodism and has no detrimental action on the digestive tract. Of considerable value in the treatment of pneumonia, influenza, tuberculosis, syphilis, rheumatoid arthritis, catarrhal bronchitis, etc. Externally it is used as an antiseptic dressing for wounds, ulcers, etc.

Administration.—Intravenous and oral.

MANGANESE.

Composition.—Colloidal manganese dioxide.

Indications.—"Pharmasol" Manganese may safely be termed a specific in staphylococcal and streptococcal infections and its field of usefulness is therefore very extensive. Boils, carbuncles, ulcers, skin diseases, gonorrhea, etc.

Administration.—Intramuscular and oral.

PALLADIUM.

Composition.—Colloidal palladium metal.

Indications.—Acute gonorrhea, gonorrheal metritis.

Administration.—Intramuscular and oral.

QUININA.

Composition.—Colloidal quinine iodide.

Indications.—A mild febrifuge and tonic which does not cause quinism or upset digestion.

Administration.—Intramuscular and oral.

SELENIUM.

Composition.—Colloidal elemental selenium.

Indications.—Considerable use has been made of this colloid in the treatment of inoperable cancer, and as a preventative of recurrence after operation. Whilst results have been, in many cases, encouraging, particularly

in carcinoma of the digestive tract, in other cases little improvement has been observed except in a diminution of pain, discharge and sometimes extent of the tumour. It may usefully be employed in conjunction with radium therapy.

Administration.—Intramuscular intravenous oral.

STANOCOL.

Composition.—Colloidal tin hydroxide.

Indications.—Staphylococcal infections, furunculosis, acne, etc.

Administration.—Intramuscular in-

SULPHUR.

Composition.—Colloidal solution of sulphur element.

Indications.—The well-known therapeutic value of sulphur in rheumatism, skin affections and intestinal fermentation is intensified in "Pharmasol" Sulphur whether given orally or by intramuscular injection. It is readily absorbed by the intestines. The sulphur baths are a perfect substitute for sulphur spa treatment.

Administration.—Intramuscular and oral.

TRIMINE.

Composition.—A solution of
Pharmasol manganese 0.1%
" ferrum ... 0.01%
" zinc ... 0.01%

Indications.—Furunculosis, urethritis, erysipelas, gonorrhea, and coccal infections.

Administration.—Intramuscular and oral.

VENEREAL DISEASES.

About twenty years ago the world was offered a chance to be washed clean from one of its venereal taints.

But the world failed to accept the gift of this freedom.

We lay it at the doors of the medical profession chiefly because they did

not take a firm stand and act decisively on the conclusions of Ehrlich.

Twenty years ago Professor Ehrlich demonstrated the fact that Treponema resistant to 606 could readily be produced artificially by ineffective doses 606.

And the world ignored the demonstration and its inferences.

To-day we have the penalty, but not even yet the realization that this is the penalty!

And the resistance of the Treponema is still being intensified. Even to-day the patient goes to a doctor, asks for one dose of 606, and gets it. Gets it and goes on his way, waiting his next chance to transmit a still more resistant infection.

Every day we hear that 606 and 914 are not nearly so good as they were fifteen years ago. People blame the medicine. True, the action is usually different. The toxicity of the same dose is the same, but the curative effects are much less, on account of acquired resistance. The toxic and curative doses are coming nearer and nearer to each other.

We shall require a change, because the thing that science gave us as a cure has been converted by rank carelessness into a weapon which has made the cure more and more difficult.

Fortunately we have something still on which to fall back.

Sulfarsenol remains, with a toxicity of four or five times less than the old remedies. This gives us still a wide margin between the curative treatment and a toxic treatment. The curative efficacy also is much better, infused in the right way. We have long ago been compelled to give up the idea of a "Major Sterilization" which has been relegated to the mythological position which it deserved. We have come to adopt persistent treatments, and it is in this sphere that the greater utility of Sulfarsenol becomes most apparent. If the immediate effect of one or two

injections of Sulfarsenol are not appreciably greater than that of one or two injections of the older remedies, the difference becomes clear enough when a properly regulated course is adopted.

Here of course we are writing of the original genuine Sulfarsenol as marketed by the Indo-French and Anglo-French Drug Companies (now combined in A. F. D.).

Imitations and "Chemical identity" products cannot merit reliance, because of physiological differences.

Now is it any use (it is certainly necessary!) to repeat Ehrlich warning?

To put the matter more plainly than he did, if you leave your cases incompletely treated you leave a residue which will sow the seed of a more intractable syphilis for future treatment.

Remember that sustained effect is the aim to be made, and that subcutaneous or intramuscular injections give a more sustained effect than intravenous administration.

Consider Lt-Col. W. L. Harnett's courses A. B. C. & D. modified for Indians.

Day.		
1	0.24	i. e. dose No. 4
8	0.36	No. 6
15	0.42	No. 7
29	0.48	No. 8
36	0.48	No. 8
50	0.48	No. 8
57	0.48	No. 8
75	0.48	No. 8
85	0.48	No. 8
92	0.48	No. 8

In this course potassium iodide is given from the fifty-eighth to the seventy-eighth day in doses of 5 grains daily for the first week, 7 grains the second week and 10 grains the third week.

WHAT TO DO FOR INFANTS.

First weigh the child.

For abnormally small infants of say two to three pounds begin with test doses of about two or three milligrammes of Sulfarsenol say half of the contents of A dose. Gradually increase to 1 cgm. then 1½ or 2 cgms. The smaller doses are test doses, and at first may be given every three days if no contra-indications appear.

The doses of 1½ to 2 cgms, are the curative treatment, are given once weekly, and should be continued for seven or eight weeks.

For infants of from 4 to 7 pounds in weight the initial test doses may begin at 5 mgrs. i. c. one ampoule of dose A gradually increased to curative doses of 2 ctg. every week or five days or for six or seven pound infants dose E (3 ctgr) once weekly.

For older children of say ten pounds weight there would be no harm in still giving one initial dose of A, then B, then C, then D, and after that the curative treatment may be one ampoule E dose (3 ctgr) every five days.

At 14 lbs. weight the initial preparatory doses may still be the same, but the curative doses may be up to, one ampoule No. 1 (6 ctgr) once a week.

Older children are treated in the same proportion.

If you begin with a few small doses and gradually work up to half a milligramme per pound weight per week of treatment, you cannot go far wrong.

THE TIME FACTOR

Nowadays, since we have been compelled to give up all idea of "Major Sterilization" we are reduced to the necessity of using the Time Factor. That is to say we have to take advantage of continuous effect.

The shock tactics of intravenous injections are very much inferior to intramuscular or hypodermic injections for this purpose. The ethical practitioner should therefore rule out

completely (except perhaps for one or two doses in primary chancre) the intravenous method in general treatment of syphilis.

This point having been settled, the next decision must be to adopt Genuine Original Sulfarsenol because it is by far the best product for this purpose. There are others that can be used of course, but that is about all that can be said.

NATURE OFTEN DOES IT

Post Mortem examinations of thousands and thousands of cases have shown conclusively that a very large proportion of the human race suffer from an attack or at least become attacked by a tubercular lesion, and subsequently become completely well, with a permanent healing of the lesion. These cases are not usually diagnosed during life as having been tuberculosis. Evidently nature has healed the lesion.

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Professor Mouriquand in his work on nutrition in tubercular cases was the first to make a suggestion of the aminoacids, and the studies of Dr. Hervouet more completely demonstrated their importance.

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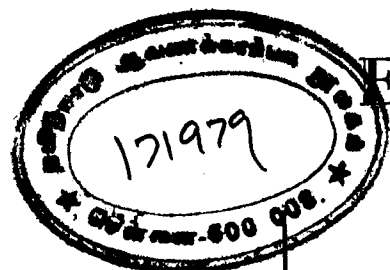
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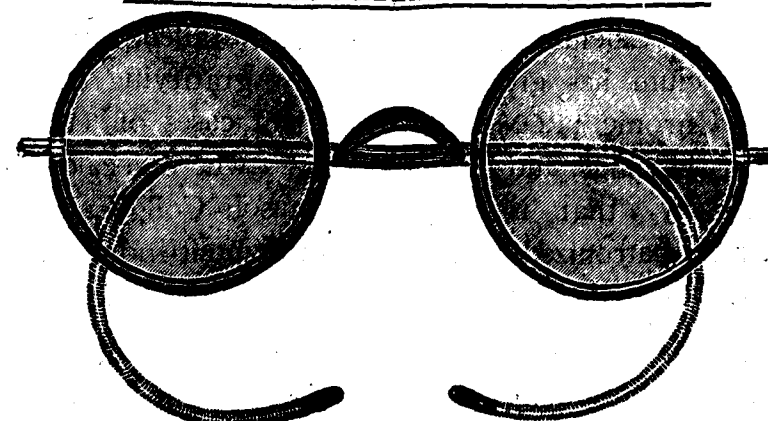
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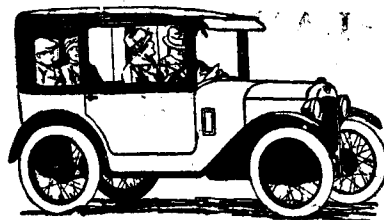
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A Monthly Medical Journal

EDITED BY

Dr. M. S. Krishnamurthi Ayyar, M. B. & C. M.,

Retired Sanitary Commissioner, Travancore State,

AND

Dr. V. Rama Kamath.

CONTENTS.

Editorials:—

Triennial Report of the working of Civil Medical Department for the years 1926-1928* 106
Maternity and Child Welfare 109

Original Articles:—

Endocrinology, by Dr. M. S. Krishnamurthi Ayyar, M.B., & C.M. 106
The Madras Eye, by Lt.-Col. R. E. Wright, M.B., C.I.E., I.M.S. 109

Abstracts:—

The Superiority of the Soluble Bismuth Salts by Dr. Henri Drouin 112
Kurchi Bismuthous Iodide, its value in the treatment of chronic amoebic infections of the bowel, by Hugh W. Acton 115

Notes on Treatment of Diseases 120

Notes on Diagnosis, Therapeutics and other Medical Subjects 121

News & Comments 122

Correspondence, Reports, Reviews, etc. 131

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MANUFACTURE OF INDIGENOUS BIOLOGICAL PRODUCTS IN INDIA, BENGAL IMMUNITY LABORATORY.

The basis of vaccine and serum therapy is the phenomenon of acquired 'Immunity' which means the non-susceptibility to a disease of *organism* developed under conditions experimentally produced. This acquired Immunity against diseases is produced either by immunisation with actual injection of dead bacteria directly into the patient or by injection of a specific serum. In the former the subject actively takes part in the production of immune bodies in the system. This is 'Active Immunity' and forms basis of vaccine 'therapy'. In the latter the patient does not take any active part in the production of immune bodies but advantage is taken of immune bodies collaborated in other animals (chiefly horses). This is 'Passive Immunity' and forms basis of 'Serum Therapy'.

For the supply of useful therapeutic agents we had to depend entirely on the foreign manufacturers till of late. The year 1919 will find a place in the annals of the medicinal industry in India as in that year a beginning was made in India in the direction of the manufacture of Sera, Vaccines and Organotherapeutic products by the starting of the Bengal Immunity Laboratory under a Board of Directors and Working Committee consisting of prominent and renowned members of medical profession.

In the preparation of indigenous biological products, this pioneer concern has successfully maintained and by merit strengthened its reputation in the estimation of the general public.

They enjoy confidence and support of many Medical College Hospitals, State Dispensaries throughout India, Burma, Singapore, Malaya Peninsula, Mesopotamia, East Africa etc. The demand for its products from all quarters has been increased quite remarkably. The shifting of the laboratory and other departments to a suitable site in the suburbs of Calcutta, where a fairly big landed property with commodious buildings, out-houses, stables, etc, has been acquired by purchases, has ensured the much needed larger out-put of products and provided ample scope for research work even, on other lines.

Treatment of Arthritis has all along given a lot of troubles to the medical profession. Injections of vaccines act beneficially only in some cases which are of definite infective origin but in most cases baffle our effort of bringing about cures, by means of specific immunisation. Arthritin (solution of Casein in Organic Iodine Compound in different strengths) has proved successful in the treatment of different chronic and sub-acute forms of Arthritis. They have been used by several eminent physicians, both in their daily private practice as well as on their hospital patients, and up to this time the results have been satisfactory in almost all the cases. The therapeutic action of the preparation is based on the principle of "Non-Specific Stimulation." The treatment aims at curing inflammation by stimulating the affected tissues by means of certain substances given parenterally. Arthritin has been used successfully in

almost all chronic or sub-acute inflammatory condition of joints, whether of infective origin or not.

With a view to give to the profession a genuine preparation of Hæmoglobin of red blood corpuscles together with the hormones of the hæmopoietic organs, the Bengal Immunity Laboratory has put in the market Syrup Hæmogen. The different combinations of Syrup Hæmogen have received high recognition from the medical profession for their efficacy in anæmia with numerous complications as evinced by the extensive use thereof by the medical profession.

Besides the above the laboratory has a pretty long list of very useful organo-therapeutic and other injectable products.

The confidence and support that this laboratory has steadily gained from the medical profession, are conclusive proofs of the genuineness and efficacy of the products. The products have been tested from time to time in several of the well-established laboratories and they have received recognition from the highest authorities on the line.

The other day Dr. G. V. Deshmukh M. D., (London). F.R.C.S. (England), Ex-President of Bombay Municipal Corporation and President of the "All India Medical Association" visited

the Bengal immunity laboratory with many other delegates and members of the "All India Medical Conference" and were very much impressed with up-to-date methods of manufacturing Sera, Vaccines etc, the following being his remark about the working of the Laboratory:—

"Through the courtesy of the Directors and medical gentlemen of this Institute I was privileged to go round the Institute this morning. It is rare that I have ever spent such a useful and instructive morning. I was shown all the scientific stages of preparing Vaccines and Sera and I must say that the methods are very scientific and accurate. They have very healthy and beautiful surroundings and what is more they keep a Biological farm of their own where they have their own horses and animals. I wish them every success. They are doing a great scientific and national work"

This concern has proved quite clearly that success can be achieved in the preparation of Sera, Vaccines and Organo-therapeutic products, in this country and under physical conditions similar to those in which the diseases for which they are to be utilised, flourish. It has done a really useful work by providing fresh, reliable and safe products to our country. The company has made arrangements for further facilities for research along these and other lines.

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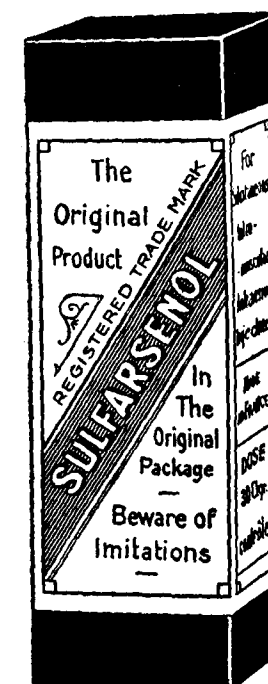
FRAUD ON CHEMICAL FIRMS. Special to "Times of India."

PARIS. (By Mail). 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.

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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Vol. I]

FEBRUARY, 1930

[No. 5

TRIENNIAL REPORT OF THE WORKING OF CIVIL MEDICAL DEPARTMENT FOR THE YEARS 1926 TO 1928.

The report is short and shorter than annual reports, but as far as it goes it is clear. It does not give a complete view of the organisation and working of the department. It is stated that a special survey of the medical department is being made and a report will be submitted to the Government. We await it anxiously as we think the whole outlook of the department requires radical change.

PROVINCIALISATION OF MEDICAL INSTITUTIONS.

The outstanding event in the triennium is the provincialisation of the 106 local fund and municipal institutions, and the reason given for taking such a step is for the development of up-to-date centres of medical and surgical treatment. The reason is not convincing and the step is one which is in the reverse order seen in the process of development obtained in civilised countries where the progress is from the local and municipal to private agencies. Perhaps it may be one of the reasons though not the chief one. It is believed that after the inauguration of the reforms, the pay of the officers in the medical department was inordinately raised. The municipal and local fund authorities expressed their inability to meet

the expense in maintaining them and in consequence the Government finding no market in the local boards and municipalities for the sale of their costly commodities have had to keep them themselves. Till now the contemplated development is not in evidence in any of the institutions.

RURAL MEDICAL RELIEF.

The number of rural dispensaries has increased much and the total number of patients treated in them during the year 1928 was 1,261,110 out of a total of 11,000,000 in the whole Presidency in all institutions. Complaints are frequently heard about the unsatisfactory working of the scheme and we have pointed out them in several of the issues of this journal. The Surgeon-General states that the working of the scheme is being studied and that a separate report would be submitted shortly. The subject will be taken up after the report is published.

MIDWIVES FOR RURAL AREAS.

It is satisfactory to note that arrangements are being made for the training of large number of midwives. It is said that the pay of the midwives working in the rural dispensaries has been raised and that the D.M.Os. have been asked to arrange for their employment in rural dispensaries. If rural dispensaries mean the dispensaries under the rural medical relief staff, we believe that according to the terms of appoint-

other at the Gosha Hospital. It is understood that the Director of Public Health has recommended the appointment of a woman assistant director and in due course a children's hospital will be provided in the city.

THE UTILITY OF THE MEASURES SUGGESTED AND TAKEN.

Now the question for consideration is whether the above measures which may satisfy the deputation and the agitation carried on will really meet and relieve the conditions for the amelioration of which they are intended. The maternal mortality is indeed very high in India and chiefly caused by the ill-nourished condition of the mothers brought on by poverty, the large number of women who become mothers and the large number of children they bring forth with short intervals between successive pregnancies. The only sensible and satisfactory remedy for this is the relief of poverty by opening of better and more avenues for employment to earn decent livelihood, and the restriction in the number and frequency of birth by birth control. Agriculture, the chief occupation of very large proportion of the people leaves very little margin of profit to provide for comfortable living and therefore industries which will bring more money and will employ larger number should be started. For this purpose money should be saved, and all useless expenditure stopped. The number of appointments is too many and the pay attached to many is fabulous and these should be cut down mercilessly though the persons enjoying them will throw obstacles in the way. The innumerable commissions which have become regular annual visitors and assumed epidemic proportions and the reforms so far made have practically resulted only in the multiplication of appointments and increasing the cost of establishment and made the people poorer and increased their sufferings more than before. Any reform, therefore, if it is to improve the prosperity of the people should cut down the expenditure on establishment.

BABIES AND THE PRE-SCHOOL CHILDREN.

Child welfare centres where only advice is given and progress noted but no treatment afforded and the health visitors to visit houses and give advice about health matters will be of no use in India, whatever they may be in other parts of the world. Taking into consideration the illiteracy of the majority of the population, the heavy work they have to do to earn one meal a day, very few would take the advice volunteered at their cottages by the health visitor and fewer still will go to child welfare centres for taking advice. Except that the scheme will provide appointments for a few it would not go to the least extent to help the situation for which it is organised. Education, free and compulsory in which hygiene is an important subject taught by medical men, should be advanced. The turning out of a large number of midwives is of course desirable, nay necessary, but if they are to do their work satisfactorily they should work in co-operation with medical practitioners and not independently of them. As children between 2 and 5 years do not attend schools, the family doctors alone are competent for the detection of predisposition to diseases or their early onset among them. The government paid medical officers, for obvious reasons, cannot be expected to remain permanently in a place and become the family doctors. Only the private medical practitioners are the persons that can be looked upon to carry on this work and the strengthening of the independent medical profession, therefore, becomes apparent both in the interests of curative and preventive medicine. The growth of the independent medical profession is only possible if all the obstacles and the difficulties in their legitimate sphere of work are removed and they are left uninterfered with in the discharge of their duties. Until the paid medical civil service, a service unknown and unheard of in civilised countries, is abolished, the paid medical officers

should be debarred from private practice in places where there are sufficient number of medical practitioners to satisfy the need of the people.

WOMAN ASSISTANT DIRECTOR OF PUBLIC HEALTH

As regards the appointment of a woman assistant director in the Public Health Department urged by Dr. Muthulakshmi Reddy both on this occasion and in the deputation of the Social Hygiene Council that waited on the Surgeon-General on the 20th November last, there does not seem to be any necessity. About the usefulness of a woman Deputy Director of Education, opinion may differ and she is only a third wheel in the administrative machinery in common with other departments which swells the establishment charges. A third wheel in a locomotive machinery does not in any way contribute to the prompt and efficient working and this is the case in all departments where these intermediate appointments are made. There may be, in the Educational Department, a show of excuse for the appointment of a Deputy Director as there are several girls' schools in the Province. But in the Public Health Department even this excuse is wanting, as there are no women health inspectors or officers. If any real work is to be done in the child welfare centres they must be converted into birth control clinics. There are at present several dispensaries and hospitals in taluk headquarters and other places under men doctors. In places where there are sufficient number of medical practitioners these men may be replaced by honorary men and in their places women doctors may be appointed. They can not only attend to the treatment of women cases who are much in need of it as there are no private women medical practitioners, but also conduct birth control clinics. The medical inspection of children in primary schools is more necessary than that of grown-up boys and girls reading in secondary schools and

colleges. The girls as well as boys require inspection. If it is to be of any use and not regarded as a mere formal ceremonial function as done at present, medical men should be appointed for each school or a group of schools in a place and they should not only conduct the medical inspection but teach hygiene and physiology in schools. They need not be full-timed officers but may be allowed to take up private practice. For inspection of girls and teaching of hygiene and physiology in girls' schools the women doctors appointed to dispensaries and hospitals may be entrusted with these duties. If these steps are taken the necessity of the appointment of a woman Assistant Director of Public Health may become necessary and not otherwise.

CONCLUSION

To improve the conditions existing in India at present the four fundamental items on which action is called for are: 1. Reduction of birth-rate and of the general and infant mortality rates by birth control. 2. Improvement of the economic condition of the people and raising their standard of living by starting industries and opening up of avenues for employment to earn decent livelihood. 3. Spread of education among both boys and girls. 4. Curtailment of the cost of the administration by reducing the pay and the number of appointments to suit the limited wealth of the people and utilise the savings for starting industries and making the country more industrial than agricultural producing only raw materials. Any form of Government, Swaraj or Foreign, Hindu or Muslim, Brahmin or Non-Brahmin, if it only proceeds on the lines indicated above, will improve the prosperity of the people and earn their gratitude.

Original Articles.

ENDOCRINOLOGY

BY

DR. M. S. KRISHNAMURTHY AYYAR,
M. B. & C. M.

V.

ADRENAL GLANDS.

Hyperadrenia.

Hyperadrenia as such is not so common as hypoadrenia, though the latter is very often a terminal condition which follows excessive stimulation. As adrenalin does not remain long in blood but destroyed soon, pure cases of hyperadrenia are rare. There are, however, several clinical findings which are of adrenal origin. The tendency to "goose pimples" is one. Chills are commonly produced artificially by adrenalin injection and it is believed that the rigor in malarial fever is due to the adrenal stimulation caused by the sudden appearance of the toxins of the plasmodia. In tuberculosis, the continued stimulation of the adrenal glands pours into the blood increased amount of adrenalin and this is responsible for the dry mouth, impaired digestion and rapid heart met with in that disease. It is quite possible that in certain cases of pure functional hypertension without renal or vascular affection, adrenal stimulation is the causative factor. Diabetes mellitus may also be caused by frequent pouring of adrenal secretion into the blood. Hyperadrenia precedes adrenal hæmorrhage in any febrile infection or intoxication and is the danger signal of hyperpyrexia. In the new-born, adrenal hæmorrhage occurs within a few moments or days after birth. Reddish or bright red spots of purpura appear on the face, neck, buttocks and legs followed by convulsions. The hæmorrhagic form of small-pox is said to be due to adrenal stimulation. The chief signs and symptoms of hyperfunction are premature development of hair, acne, coarse and rough skin, hirsutism

in women who show moustaches, beards and triangular arrangement of the pubic hair with marked general hyper-trichiosis, general patchy pigmentation, rapid growth of bones and muscles and abnormal strength, virilism in women, vomiting, diarrhoea abnormal psychomotor activity, egotistic overbearing, irritable temper, pubertix præcox including premature enlargement in girls of mammary glands, early onset of menstruation, hypertrophy of clitoris, obesity especially of hips and abdomen. The canine teeth are long and powerful and the teeth are of reddish brown colour.

Hypoadrenia

Hypoadrenia or insufficiency of adrenal means the effects of lowered blood pressure and inadequate destruction of muscular wastes, insufficient oxidation and therefore imperfect tissue metabolism and nutrition and also impairment of the autoprotective function of the body at large. Hypoadrenia may be discussed under the following three divisions.

Functional Hypoadrenia.—According to Dr. Sajous, functional hypoadrenia is the symptom complex of the deficient activity of the adrenals, due to inadequate development, exhaustion by fatigue, senile degeneration or any other factor which without provoking organic lesions in the organs or their nerve paths are capable of reducing their secretory activity. Asthenia, supersensitiveness to cold, cold extremities, urticaria, hypotension, weak cardiac action and pulse, anorexia, anemia, slow metabolism, constipation and psychasthenia are the main symptoms of the condition. Hypoadrenia is a contributing factor to neurasthenia. In infants though the adrenals are large they do not function during the first year of life and hence the necessity of mother's milk which supplies the antitoxic products capable of protecting them against the exogenous or endogenous toxins. The liability of hand-fed infants to infective diseases is thus explained.

The pale, emaciated pasty child with cold hands and feet, fatty muscles, capricious appetite are all due to adrenal insufficiency. In adults, tendency to adiposis, feeble heart action and presence of brown spots on their body and their liability to infection and fatigue point to the deficiency of adrenal secretion. The old age is caused by the degeneration of the ductless glands and that there exists a condition of auto-intoxication is quite in keeping with the decline of the antitoxic power of the adrenals.

Progressive Hypoadrenia.—Addison's disease, a condition in which the function of the adrenals and their secretory tissues are progressively impaired by organic lesions such as tuberculosis, cancer, fibrosis etc. The chief signs and symptoms of the disease are well-known. They are hypothermia coldness, dyspepsia, progressive weakness, weak heart action, hypotension, emaciation, anorexia, vomiting, bronzing, diarrhoea and abdominal pain, tendency to syncope, impairment of vision and hearing, headache, irritability, hallucination, delirium, convulsions and sudden death.

Terminal Hypoadrenia.—This occurs late in the course of an acute febrile disease, as a result of exhaustion of the adrenals. The principal clinical manifestation of Asiatic cholera (the algid stage) is adrenal in origin and has been successfully and promptly controlled by heroic dose of adrenalin. In lobar pneumonia, broncho-pneumonia, typhoid fever, this form of hypoadrenia is frequently observed. In senile pneumonia termed by Charcot "the great enemy of the old people" hypoadrenia is common. Osler referring to old persons of 60 years and above stated that from its fatality in some places one may say that to die of pneumonia is almost the natural end of old people. Senile pneumonia may drop upon old people unexpectedly right in the midst of their daily occupation and carry them away without provoking fever, cough, pain etc. The blood pressure falls rapidly, marked lividity, edema of the

lungs and extreme asthenia followed by death closes the scene.

Tests for Adrenal Function

Adrenal Sensitisation.—One c. c. of adrenal chloride in 1000 is given hypodermically. In cases of adrenal irritability in hyperadrenia a temporary increase in the blood sugar begins in about half an hour and glycosuria lasts from five to six hours.

The Oculo-Cardiac reflex.—Pressure over the eyeball causes fall in the pulse rate by 6 to 8 beats in normal persons. In adrenal affection it may increase or not fall at all.

Sergent's white line.—With a blunt pointed instrument the figure of a rectangle is traced on the skin over the abdomen. The figure should be made by mere superficial stroking. After half a minute a pale line or band begins to be noted following the tracing gradually and becomes more and more distinct, wide and larger so that eventually the lines exceed the size of the actual tracing. The white lines attain the maximum clearness in a minute and they persist for one to three minutes and then gradually disappears. This is characteristic of adrenal insufficiency.

Pendes' Sign.—Rub the skin when "goose flesh" will be formed in adrenal insufficiency.

Asthenocoria.—In hypoadrenia the iris although acting readily to light, the contraction is flabby and lazy. By making the patient to look at the light immediately after the initial miosis, the pupil starts to dilate slowly as if it does not want to, seems to try to contract again but dilatation gains the upper hand and after a fight between miosis and mydriosis lasting for about 40 seconds, the pupil remains dilated in spite of the persistency of the exciting agent.

Pilocarpine reaction.—In adrenal insufficiency, patients violently reacts to pilocarpine after taking a milligram or half that quantity; they have an intense desire to evacuate with sweating and intense salivation, all

accompanied by a general discomfort which renders necessary the use of adrenalin or atropine.

Therapeutics

The preparation of adrenal glands used in medicine are epinephrin or the extract of the whole gland. As epinephrin is the secretion of the medullary portion of the gland and as yet no secretion suitable for administration has been extracted from the cortical portion, to get the combined effect of both the portions, the extract of the whole gland is preferred. Epinephrin is now synthetically prepared. It is given in solution usually 1 in 1000 of the adrenal hydrochloride by hypodermic injection. The solution is used locally for external application and also given orally or by inhalation. Idiosyncrasy is very common. After hypodermic injection psychic symptoms, apprehensive feeling, trembling, paleness, rapid and irregular heart action are observed; but they are neither lasting nor serious. As epinephrin contracts blood vessels it is better to knead slightly at the site of injection to favour absorption and circulation. It is contraindicated in high blood pressure, myocardial heart disease, dilatation of the heart, aneurysm and arterio-sclerosis.

Addison's disease.—The whole gland is better than epinephrin in this disease.

Anesthesia.—Epinephrin is added to solutions of most drugs given for local anesthetic effect. By contracting the capillaries it delays rapid absorption of the drug and permits a larger duration of anesthetic effect.

Asthma.—It is invaluable in bronchial asthma and acts by relaxing the tension of the bronchial muscles and by preventing the contraction of the bronchial muscles from taking place.

Asthenia.—In all forms of asthenia adrenal therapy is of value. It is however more effective when combined with thyroid or other gland substance.

Blood pressure (low).—Adrenalin is commonly used in conditions attended with low blood pressure to restore a normal arterial pressure.

Heart failure.—By reason of its direct effect in the stimulation of the heart action, epinephrin has been found of some use in restoring heart's action in conditions of emergency. Action has been established in hearts which have stopped beating by the direct introduction of epinephrin solution into the heart substance or pericardium; but great caution is necessary.

Hæmorrhage.—In addition to its use as a local application for the control of all hæmorrhages, epinephrin has been used in pulmonary hæmorrhage.

Hæmorrhoids.—Hæmorrhoids may be reduced in size and bleeding controlled by epinephrin suppositories.

Laryngitis.—Spraying with a solution of epinephrin in oil is of value in acute laryngitis and in localised inflammation of the naso-pharynx.

Rickets.—Epinephrin has been found useful in the treatment of rickets and osteo-malacia.

Salverson.—Some of the untoward effects of salverson may be avoided by oral administration of the epinephrin previous to the injection (2 c. c. of 1:1000 solution).

Sea-sickness.—Epinephrin orally or by hypodermic injection has been found to be effective in the control of sea-sickness.

Urticaria.—An injection of epinephrin is found at times to act miraculously in this disease.

Vomiting.—To relieve vomiting particularly in pregnant women, an injection of 1 c. c. of 1:1000 of adrenalin-chloride is effective.

* THE MADRAS EYE.

A note on the extensive epidemic of superficial punctate keratitis which has been prevalent in Madras and the surrounding districts for some eighteen months.

BY

LT-COL. R. E. WRIGHT M.D.,
C.I.E., I.M.S.

In collaboration with the staff of the Government Ophthalmic Hospital, Madras.

About May 1928 we became aware that cases of keratitis were reporting at the out-patient department of the Government Ophthalmic Hospital rather frequently. They corresponded most closely to the affection described by Herbert in Bombay in 1901, (1) but agreed fairly well with the classical description of superficial punctate keratitis given by Fuchs and others in 1889. It may be well at the outset to give the more common clinical characters as the condition as we have observed it, but it must be understood that there are considerable variations. The affection starts with a mild conjunctivitis confined to one eye (most often the left) in the vast majority of cases; only about one per cent of the cases are bilateral when first seen, or become so later. There is no initial catarrh or febrile disturbance. There is variable redness; no discharge, moderate irritation very little lachrymation or photophobia. Sometimes the patient notices the redness, at other times slight dimness of vision attracts his attention. It is difficult to see the lesions on the conjunctiva, but they are sometimes visible as tiny elevations. After a few days, minute grey spots appear on the cornea. They vary from a fine diffuse curdy deposit only visible with the corneal micro-

scope, apparently confined to the epithelium, to large grey spots easily visible to the naked eye, and obviously extending into the substantia propria. Certain cases after a time become indistinguishable from the macular keratitis described by Kirkpatrick; (2) others come to resemble the keratitis disciformis of Fuchs, and numerous transitional forms may be noted. There is always a disturbance of the deeper layers of the cornea of greater or lesser extent, and evidence of anterior uveitis in the various fine deposits which one can see on the endothelium with the corneal microscope. There is no obvious iritis, and uveitis is never so severe as in herpes zoster ophthalmicus. Staining is observed in about two-thirds of the cases. The corneal spots are sometimes elevated, but just as frequently the epithelium is perfectly smooth. For the most part the course of the disease is short, and the cornea clears within a month. In some cases, however, the spots enlarge becoming like those described by Kirkpatrick, and may persist for over a year. It is rare for the vision to be permanently interfered with although convalescence may be very protracted. Prof. Fuchs, when he originally described this affection, considered that it was similar to herpes febrilis, and probably of the same nature as keratitis disciformis. Verhoeff, (3) who made an extensive histopathological study of the condition, regarded it as a neurotropic affection identical with keratitis disciformis. He demonstrated that the lesion lay on either side of Bowman's membrane and was presumably related to the corneal nerve terminals where they pierced Bowman's membrane. The investigations started by Gruter, and carried on by numerous other workers established the fact that herpes febrilis was due to a filter passing virus transmissible to rabbits, and capable of producing encephalitis. Paton, (4) in 1926, writing on the subject of herpes states that the commonest ocular manifestation of herpes febrilis is the dendritic ulcer, and

*Originally contributed to the Madras Medical College Magazine and reprinted in this issue with the kind permission of Lt.-Col. R. E. Wright.

regards the aetiological identity of herpes febrilis and herpes zoster as not proven, although certain workers have put forward the view that these two affections are merely clinical variations of the action of the same virus. Levaditi, in 1927, in classifying the virus diseases, includes both herpes febrilis and herpes zoster ophthalmicus in his group of neurotropic ectodermoses. Although Fuchs originally considered that superficial punctate keratitis showed affinities with herpes febrilis, there is no suggestion in the literature that superficial punctate keratitis should be regarded as aetiotologically similar to herpes febrilis or herpes zoster. There was formerly considerable confusion with regard to this affection, and it is evident on going through the literature that the type description did not cover the wide variations of this disease, and that it might occur quite differently under sporadic, endemic and epidemic conditions. Prof. Salzmann of Gratz recently called attention to this, and Prof. Kuffler remarked on its appearance with epidemic frequency in Berlin last year. The Madras epidemic has been so extensive (3500 cases up to end of 1929) and protracted that we have had the opportunity to see the enormous variations in the clinical features which this disease may present. Under such epidemic conditions, where the presumption of an identical causative agent is hardly questionable, one may observe clinical types similar to some well-known descriptions of keratitis which appear in standard works such as the keratitis disciformis of Fuchs, the epidemic punctate keratitis of Herbert, the macular keratitis of Kirkpatrick, the keratitis epithelialis punctata of Koeppe, and intermediate transitional forms between them. The macular keratitis of Kirkpatrick described in 1920 is probably familiar to most doctors in Madras. We now realise that such pictures as he described may be seen on following up some of the cases which start with the typical clinical picture of superficial punctate keratitis.

It would take too long to deal with the extraordinary variations of the disease which we have met. Patients have been referred to us with such marked conjunctival disturbance that this condition has been mistaken by competent doctors for gonorrhoeal conjunctivitis. On the other hand, certain cases presented such mild conjunctival features that they would have been overlooked except that a trivial disturbance of visual acuity brought them to the eye hospital. In these the corneal microscope revealed the true nature of the disease. It would be out of place to describe all the appearances seen with the corneal microscope. It is sufficient to point out that there is just as great a variation in the degree of anterior uveitis as there is in the conjunctival symptoms which are more obvious to the ordinary observer. Up to the present we have not observed any serious iritic phenomena or late sequelae such as glaucoma. There has not been any case so far in which synechiae have developed. It may be seen from the above that this disease, which is closely related to the well-known clinical affections known as herpes zoster ophthalmicus and herpes simplex or febrilis (which is familiar to most doctors as the so-called "cold on the lip", and to most ophthalmologists as dendritic or vesicular ulcer of the cornea) embraces a variety of affections of the cornea which have hitherto been regarded as independent affections, or not understood at all. Hardly a week passes in which we do not see some new clinical feature. It may be readily understood, therefore, how easy it was for ophthalmologists in the past to miss the true nature of cases occurring sporadically and place an example of this affection as one of the hundred and odd varieties of keratitis which have been described as separate entities. Our experience in the Government Ophthalmic Hospital, Madras, when carefully recorded, ought to be of the greatest possible assistance in the future in enabling ophthalmologists to diagnose

isolated and rare cases of this affection.

We naturally seized the excellent opportunity which this epidemic gave us of investigating the nature of this disease. We tried to confirm Herbert's findings but were unable to isolate any constant bacterial agent either by culture or with the microscope in stained or dark ground preparations. With the aid of our colleagues at Guindy, we were enabled to undertake animal transmission experiments. Direct transmission to the cornea of monkeys was negative both with filtered and unfiltered material. Without going into tedious detail it may be stated that we eventually showed that the disease was transmissible to rabbits and man both with filtered and unfiltered material. We had anticipated this would be so as it was fairly obvious that the condition closely resembled herpes febrilis in many respects, one of the great differences being that there is, as a rule, no fever or antecedent febrile condition associated with superficial punctate keratitis. In order to confirm our transmission experiments we undertook a histopathological investigation of epithelial layers removed from the affected eyes, and finally were able to demonstrate inclusion bodies in the epithelial cells. They were sharply defined, intranuclear, and cytoplasmic, more suggestive of Negri bodies or the inclusions of variola than of other varieties of cell inclusions. This finding confirmed our view that we were dealing with a condition which might be regarded as a disease of the herpetic group due to a filter passing virus, that it was probably closely related to herpes zoster ophthalmicus and herpes febrilis, but not identical with them.

Of the nature of the virus we know nothing. Like that of herpes febrilis, it appears to have a predilection for manifesting itself in regions supplied by the fifth nerve. It is presumably air borne, and enters by the conjunctival-corneal route following the arborisation of the corneal nerves from

the epithelium through the apertures where these nerves pierce Bowman's membrane, and thence into the substantia propria. It is doubtful if any damage is done to the nerves as far back as the ciliary ganglion, and none of our experimental animals developed encephalitis. Unlike herpes zoster and herpes febrilis, skin lesions are not present.

ACQUIRED IMMUNITY

At first we supposed that there might be an acquired immunity, but recently we have seen attacks in patients who less than sixteen months before suffered from the affection. In two cases, the second attack was in the same eye. It appears therefore that an attack does not protect in all cases, but there may be a transient protection or even a modification of severity.

CONFUSION IN DIAGNOSIS

A red eye on one side (even if it be the left) is not necessarily superficial punctate keratitis, but one is liable to jump to this conclusion just because an epidemic is raging. Unless the corneal microscope shows characteristic lesions, and the conjunctival smear is negative, it is not a pure superficial punctate keratitis. The disease must not be confused with "pink eye" which is usually an acute Koch Weeks conjunctivitis. The general public frequently makes this error. It is very easy to mistake superficial punctate keratitis for other affections, and in the rush of out-patient work we sometimes get caught and diagnose superficial punctate keratitis when it is really something else.

TREATMENT

All cases show a marked tendency to get well: mild cases seem to make a perfect recovery without treatment, but our experience shows that even in mild cases it is better to keep the eye covered as the corneal lesions seem to be more persistent and more dense in uncovered eyes. It is also well to keep the eye at rest as the severity of anterior

arguments against the insoluble salts, no matter which.

I will, with your permission, give you the conclusions reached by Galliot:

".....The present tendency is to use bismuth in a close series of injections, either in association with the arsenobenzenes at the commencement of infection, as a subsequent treatment, or as a treatment in itself, many physicians being nervous of administering intravenous injections.

".....For these reasons, bismuth is the medicament largely used at present in the anti-venereal campaign. Without emphasizing the therapeutic value of the product, any appreciation being in any case unnecessary, I believe that the method advocated for its use is purely theoretical, and that it would be more advantageous, taking experience into account, to use the insoluble bismuth salts more judiciously.

".....I myself have several times said that the action of the insoluble salts of bismuth depends on their content of bismuth metal, and I now believe that I was carried away by theory, and I admit my mistake."

".....When using insoluble bismuth salts and after a radiographic demonstration such as I have just given you, it is very difficult to extricate oneself from the following difficulty.

".....Either when injecting, say 1 gm. of bismuth metal, the action of the bismuth continues as long as some of it remains in the organism, that is to say, for some months or even years, and therefore renders further treatment unnecessary.

".....or, only part of the medicament is assimilated by the organism, and therefore the injection of massive doses becomes useless.

".....In conclusion, I am of the opinion that there is every reason for further study of the action of the insoluble bismuth salts, if not from the point of view of quality—this having already been tested—

at least from the point of view of quantity to be administered."

I very humbly confess that I am at a loss to understand the issue at which Galliot would arrive.

It is obvious that he no longer believes—as indeed nobody else does—in the probability of the primary hypothesis. No doctor would dare to cease attending a syphilitic patient on the plea that the latter had a sufficient quantity of bismuth metal in the gluteal muscles. Everyone knows that this reserve of bismuth—even admitting that a small quantity is absorbed daily (an entirely unfounded theory) would be impotent against the evolution of syphilis. It is therefore rational to continue treatment.

The first part of the second hypothesis is true: that only part of the medicament is absorbed by the organism: this however does not prove that it is unnecessary to inject large doses. In fact: an insoluble salt, given its chemical constitution and its stability, will be absorbed by the organism only in certain quantities, varying certainly according to individuals, but nevertheless relative.

That is to say, 10 cgms. of an insoluble salt, containing 50% of bi-metal, or 5 cgms. will give up 10% of its metal, i.e. 5 mgms. to the muscle into which it is injected. If double the quantity is injected into a mass double the size, it stands to reason that double the quantity will be absorbed, i.e. 10 mgms. (3). As in a test tube a base may be saturated by an acid, so in the organism a chemical reaction takes place, the quantity absorbed depending on the chemical constitution, the physical constitution and the mass of the injected body.

It is certain that the insoluble salts of bismuth could not be functional of their chemical constitution, or more exactly of the fragility of their molecular structure. Further, in the case of oily or even aqueous suspensions of insoluble products, it would seem that the mass to be injected must play at

least as important a part as that of the chemical constitution. Indeed, the injected product forms in the interior of the muscle pockets of smaller or larger volume, and there is every reason to suppose that the interchange between the tissues and the therapeutic mass, apart from the absorption, cannot take place but on the surface of the contact. Therefore, the larger the surface area, the greater will be the quantity of active principle absorbed. In consequence, the muscle which puts up a defence against the foreign body introduced will establish a sort of barrier more or less impermeable around the metallo-oily cyst. These are old principles of chemico-therapy or to put it more simply common sense truths.

But, if it all comes back to the quantity of bismuth absorbed during the days following the injection, and as the quantities which are not then absorbed, never will be absorbed, what reasoning can be given to us which would be sufficiently convincing to help us out of the following dilemma:

Either to inject an insoluble salt of which it is impossible to judge the absorption, a salt which, on account of the bismuth left in the organism will prove irregular in action, and which on account of the quantity being entyted and therefore useless, very probably even dangerous (delayed supurations, sudden absorption, creation of bismuth-resisting types).

Or to inject in the form of soluble salts, the strictly therapeutic quantity of bismuth metal and so protect oneself from all unlooked for reactions either immediate or distant.

Finally, may I be permitted to say a word against a very general mistake engendered by the inventors of the method themselves, who have always insisted that soluble salts because they are well tolerated in massive doses. This comes from the fact that they have always confused the quantity injected with the quantity absorbed. In any case, the soluble salts alone permit of the absorption of the

maximum therapeutic dose by each patient, after having judged their susceptibility by varying the rest period between injections, and by augmenting or diminishing the doses injected.

Nevertheless, I affirm that soluble bismuth salts, handled with experience and in efficacious dosage, have permitted me—and have enabled me to instruct others—to make hundreds of thousands of injections during the last 8 years without a single accident.

References:

- (1) Editions Paul Martial.
- (2) On sait que ce reactif est d'une sensibilité extreme, permettant de decider des traces infinies de bismuth (N.D.R.).
- (3) Il va sans dire que ces proportions sont purement arbitraires et ne correspondent a aucun sel en particulier.

KURCHI BISMUTHOUS IODIDE ITS VALUE IN THE TREATMENT OF CHRONIC AMOEBIC INFECTIONS OF THE BOWEL

BY

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Introduction

Plant:—*Holarrhena antidysenterica* belongs to the natural order Apocynaceae, and is a small deciduous tree with white flowers. There are many Sanskrit names for it, the better known being *kutaja* and *kulinga*. The other vernacular names are Bengali—

kurchee, Hindi *kureya* and *dudhi*, and Tamil *kulappalai*.

Historical:—The value of *Holarrhena antidysenterica* has long been known to the indigenous systems of medicine in India as a cure for dysentery. Kanai Lal Dey (1896) was so struck with its therapeutic value that he advocated that it should be included in the British Pharmacopœia.

Conessine & Kurchicine:—As regards the active principles of the bark in 1858 Haines first isolated an alkaloid which he named "conessine." In 1880 R. C. Datta in collaboration with R. D. Ghosh isolated an alkaloid which they named "kurchicine" and gave 2 to 5 grains as a dose in the treatment of dysentery. Pyman (1919) isolated two alkaloids, conessine and another which he named "holarrhenine." More recently Drs. Sudamoy Ghosh and N. N. Ghosh (1928) isolated three alkaloids from *Holarrhena antidysenterica* viz. conessine, an alkaloid differing from holarrhenine which they named "kurchicine," and a third with a low melting point—"kurchine." Chopra, as the result of his researches from the pharmacological point of view, commenced using the total alkaloids of kurchi bark, which we will speak of as "kurchi alkaloids," in the treatment of acute amoebic infections by intramuscular injections.

Emetine Bismuthous Iodide:—Dale and Dobell (1917) first showed the value of emetine bismuthous iodide in the treatment of chronic amoebic infections, and got constant curative results by their method of treatment. Their results hold good when dealing with young soldiers in England, but the drug is not so successful when dealing with the class of case we have to treat in India. Knowles (1928) clearly brings this point out in his paper by the numerous failures he had with all the different combinations of emetine he used in the treatment of these chronic cases.

Importance of Hydrogen Ion concentration:—Acton (1921) first point-

ed out the importance of the pH of the solute on the behaviour of *Paramœcium caudatum* towards the cinchona alkaloids. At the time he performed similar experiments with emetine; these were not published, but he found that emetine like quinine was ten times more powerful in its action in an alkaline substrate of a pH of 8 than in an acid one of a pH of 6. During the War, Acton also noted the marked acidity of the stools in cases of acute amoebic dysentery when tested by litmus paper. Later Knowles Napier, and Das Gupta (1923) worked this point out, estimating the pH of the stools in these cases in detail and with more accurate methods. Naturally Acton regarded the failures in treatment by emetine as due to the alkaloid not being in a sufficient concentration in the acid contents of the large gut. The stools in these cases were usually between a pH of 5 and a pH of 6; this meant that the emetine would have to be in a concentration of 1:8,000 to 1:10,000 to be effective on the amœbæ in this substrate. We first tried to remedy the acidity of the bowels by giving by the mouth large doses of bismuth carbonate as recommended by Deeks, but we found this treatment was not successful in bringing about a complete cure. Acton next commenced to try and ascertain the reason of the increased acidity of the stools, and gradually accumulated sufficient evidence to incriminate the following organisms. Most commonly there was a streptococcal infection present, shown by the numerous fine colonies seen on the glucose Conradi plates; next in frequency a co-existing bacillary infection due to the *B. dysenterica* (Flexner or Strong); and lastly, other acid-producing organisms such as the *B. lactis aerogenes*, *B. acidi lactici*, etc. A different line of treatment was then started by him in those cases which had failed to be cured by a course of emetine bismuthous iodide. These patients were first given a course of autogenous vaccine made from the particular organism isolated from the stool—usually a streptococcus or

Flexner's bacillus, and after completing three weeks of immunisation were then given a course of emetine bismuthous iodide. This modification of treatment cured every case that failed to be cured by emetine bismuthous iodide alone. The combination of a vaccine and emetine therapy is not a very practical one in India, however, as vaccines can only be prepared in the main laboratories, and hence people in the districts would always have to come to the larger towns for treatment. Chopra and his co-workers were investigating the action of the different alkaloids of kurchi bark (*Holarrhena antidysenterica*), and found that the total alkaloids of this bark were just as powerful in their action on cultures of *Entamœba histolytica* as conessine. This was an important finding, as it meant that we could use a mixture of these alkaloids which would be easier to obtain in larger quantities and therefore cheaper than isolating one alkaloid like conessine.

They observed that the total alkaloids of kurchi were more powerful in their action on cultures of *Entamœba histolytica* than emetine, and moreover the total alkaloids of kurchi bark had no emetic or irritative action on the gut and did not depress the heart. Chopra then commenced to use the total alkaloids, giving them by subcutaneous injections in cases of acute amoebic dysentery. The results were more striking than with emetine, yet failures still occurred in spite of the treatment. In one of the cases of failure, the bacteriological laboratory isolated *B. dysenterica* (Flexner), and after a course of vaccine the total alkaloids of kurchi bark were again given and the patient was cured by the combined treatment. As the total alkaloids of this bark, which we will call "kurchi alkaloids," have no emetic action, and only slightly lower the blood-pressure, it is possible to give them in much larger doses than is feasible with emetine. Acton suggested that as potassium bismuthous iodide forms an insoluble bismuthous

iodine compound with all alkaloids, a kurchi bismuthous iodide could be prepared which would be insoluble until it came into the large intestine, and by increasing the dose a greater concentration of these alkaloids could be attained, sufficient to overcome the hindering action of the acidity in the large intestine. In the first case treated we commenced with two grains and gradually increased the dose until four grains of kurchi bismuthous iodide were given twice a day. The dose is given early in the morning and the last thing at night in order to avoid ionisation occurring, as the stomach contents may be acid in reaction. The dose is well tolerated; there is no appreciable effect on the pulse rate or blood-pressure. The depressant, emetic or intestinal irritation that is usually caused by emetine was not observed by us. If cures only took place with the same certainty as with emetine, we would have a safe and efficient drug in these kurchi alkaloids, that would replace emetine in the treatment of amoebic infections of the bowels.

The low toxicity of the kurchi alkaloids enabled us to overcome the hindering effect of the acidity in the larger gut by increasing the dose and thus attaining a greater concentration of these alkaloids, and so making cures more certain.

Pharmacological action.

(a) **On the circulation.**—Small doses, 2 mgms., injected intravenously into the saphenous vein of a cat weighing 2 kilos., caused a persistent fall of blood-pressure, but without any alteration in the intensity or frequency of the heart beat. In much larger doses there was slowing of the heart beat. Perfusion through the isolated heart rarely showed any effect on the frequency or force of the contraction. Doses of 2.5 mgms. in a cat of 2 kilos. showed no alteration in the auricular and ventricular contractions as seen in

myocardiographic tracings. Although there is a marked rise in pulmonary pressure with conessine and holarrhine, the rise is only slight when the total alkaloids are injected into the animal. As the fall in blood-pressure is not due to a direct action on the heart or heart muscle, we next proceeded to study where the dilatation of the vessels occurred in the body.

(b) **The volume of various organs and structures in the body.**—We found that the limb volume, and that of the liver, spleen and kidney were all decreased after intravenous injections of the total alkaloids, indicating that vaso-constriction was occurring at these sites. On the other hand, there was a very marked increase in the intestinal volume with complete inhibition of intestinal movements; this was recovered from after a few minutes. From these results we concluded that the fall in blood-pressure is due to the dilatation of the intestinal vessels and to a lesser extent to engorgement of the lung.

(c) **Local effects on intramuscular or subcutaneous injections.**—When a 6 per cent. solution was injected into the tissues no hæmorrhages or necrosis were observed, but a good deal of oedema at the site of the injection was seen. The oedema was most marked after 4 hours and began to disappear after 24 hours and disappeared completely in 48 hours after the injection; most of hyperæmia and oedema were caused by the acidity of the salt of the alkaloids.

(d) **On the uterus.**—The total alkaloids have very little effect on the excised uterus or on the uterus in situ except in strong concentrations which it is impossible to attain in the circulating blood. The alkaloid kurchine with a low melting point is the most powerful, causing contractions in a concentration of 1: 50,000. Most alkaloids circulate in the blood at a concentration of 1: 150,000 to 1: 500,000. Therefore these alkaloids

would have no effect if given to a pregnant woman. *

There is no emetic or depressant effect when 20 grains of the kurchi bismuthous iodide are given daily for 10 days. The pulse remains normal in frequency, tension and rhythm. There is no alteration in the heart sounds, even in a case of cardiac disease. The drug does not cause irritation of the alimentary canal with diarrhoea as does emetine. *

Injections into the muscles.—One to two grain doses of the total alkaloids give rise to no signs of bruising (hæmorrhages), as is seen with emetine, or necrosis as with quinine. Further, there are no general symptoms of mental depression.

Treatment by the total alkaloids of kurchi bark injected intramuscularly.

The total alkaloids of this bark do not cause any marked local reaction or necrosis of the tissues, other than a slight and transient oedema. Chopra commenced to use this drug in the treatment of acute *Entamoeba histolytica* infections by injections into the tissues. The toxic effects of these alkaloids were unknown in man, so he decided to give the same dose, e.g., one grain, as is given for emetine.

Muscles.—The local effects were found to be practically nil, no hæmorrhage, pain, or local swelling were observed such as occur with emetine, unless these alkaloids are injected superficially when there is slight congestion and swelling. Patients who had experienced the effects of intramuscular injections of emetine and of these alkaloids of kurchi bark commented on the difference in the local reactions of the two drugs.

The combined treatment with vaccines and emetine bismuthous iodide in chronic cases of amoebic dysentery.

The type of case that is sent to the school is rarely an acute one that readily responds to emetine, but generally are those who have resisted all varieties of emetine treatment, in combination with stovarsol, yatren, rivanol, etc.

Most of these cases were placed under the care of the senior author as a final test, before deciding whether these patients should take permanent or temporary leave from the tropics. For the first five years there were many failures in spite of administering large doses of alkalies by the mouth, intravenous injections of emetine, etc. After considerable experience with plating such stools on McConkey's neutral red agar and latter on a glucose Conradi Drigalski medium, one could almost diagnose an entamoebic infection of the gut by the numerous fine streptococcal colonies on these plates. One then gradually realised that these organisms must play a very great part in increasing not only the acidity of the tissues but also of the gut content in such cases, thereby hindering the lethal action of emetine on these protozoa. The obvious thing to do was to treat the patient first with a vaccine to reduce the bacterial infection of the ulcers, and then administer emetine. *

The main cause of acidity in the gut seems to be streptococcal infection of these ulcers, then the *B. dysenterica* (Flexner) and occasionally other organisms. For India this method of combined treatment is not practical however certain one may be about a cure, as it involves the necessity of a competent bacteriologist as well as a laboratory sufficiently equipped to carry out these tests. In this country these two rarely coincide, except in presidency towns. As the toxicity of

the total alkaloids of kurchi bark is low for animals, it would be possible to give much larger doses of them than of emetine to increase the concentration of these alkaloids in the gut, and so overcome the acidity present in the large intestine without having to resort to vaccine treatment. We therefore decided to try the effect of kurchi bismuthous iodide only in the treatment of these cases. * * * The results show that out of 18 cases in which doses of 4 grains twice daily were given by the mouth there have been six failures. This result is far better than that of Knowles (1928) who gives the cure rate for a 10 days' course of emetine bismuthous iodide to be about one out of every two cases. *

Discussion.

We have shown that in acute cases the total kurchi alkaloids are as powerful as emetine in their immediate effect on the symptoms as well as their curative value, even in one-grain doses. Except for the production of slight hyperæmia and congestion at the site of inoculation, there is no local hæmorrhage or marked swelling as is seen with emetine. No toxic effects of any kind were observed when larger doses, viz. two grains, were injected intramuscularly. There is no doubt that the intramuscular route is the method of choice when treating acute cases of amoebic dysentery.

Conclusions.

- (1) In the laboratory, and to a greater extent clinically, the total alkaloids of kurchi bark are far superior to emetine.
- (2) The kurchi alkaloids can be given in large doses, and so far no depressant emetic, or irritative effects have been observed by us. They are much less toxic than emetine.
- (3) Intramuscular injections of 2 grains of the total alkaloids cause

transient hyperæmia and œdema; this is not visible to the eye unless the dose is injected subcutaneously, and the swelling passes off in 24 to 48 hours. Injections should be used for acute cases of amœbic dysentery.

(4) The kurchi bismuthous iodide can be given orally in 10-grain doses twice a day for 10 days without any deleterious effect.

(5) In chronic amœbic colitis, 4 grains of kurchi bismuthous iodide given orally twice a day for ten days cured 12 out of 18 cases, compared with one out of every two with emetine bismuthous iodide.

(6) Intramuscular and oral administration of the total alkaloids of kurchi bark cure non-suppurative hepatitis.

(7) The administration of the total alkaloids of kurchi bark, instead of conessine only, means a larger yield of the drug, and therefore cheapness in production.

(8) As *Holarrhena antidysenterica* grows in the submontane areas all over India from the Himalayas to Travancore, it is easily procurable in this country.

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Notes on Treatment of Diseases.

Anemia—acute.—In these cases said to be due to toxic or nutritional derangements—Cacodylate of sodium hypodermically and hæmoglobin extracts are useful (*Harrower*).

2. In those cases associated with chronic nephritis the following mixture is useful.—Tr. ferri perchloride 4 parts; dilute acetic acid 6 parts; liq. ammonia acetatis 50 parts; aromatic elixir 12 parts; glycerine 12 parts and water 16 parts. One to four drams to be taken t.i.d. well diluted with water after meals. (*Sajous*).

Anemia—aplastic.—In this disease, young and immatured red cells are absent i.e., in which the formative process in the bone marrow does not take place. Adrenalin 5. ms of the 1:1000 solution may be injected daily leaving one day a week. (*Endocrine Survey*).

Anemia—general.—Cholesterol 0.2 gram in 5 c. c. of olive oil by hypodermic injection is useful. Ten weeks, treatment is required (*J.A.M.A.*).

2. Chlorosan (phyllosan) a combination of chlorophyll with iron (Merck) is good.

3. Ferric citrate is better than ferrous salts and if given with vitamin E. contained in liver substance, it is very efficacious (*J.A.M.A.*).

4. Arseno-chlorosan (Merck) which is chlorophyll with arsenious acid in combination with organic iron, is good.

5. Manganese cacodylate either by the mouth or by injection.

6. Nucleic acid by injection. (Nuclein solution P. D. & Co.).

7. Fruits containing iron such as apricots, raisins, grapes, apples are good (*Journal of Organotherapy*).

8. In anemia of children characterised by the deficiency of the red blood cells Hg.Cl 2 1/60 to 1/40 grains t.i.d. is good. (*Sajous*).

9. In infants looking white and putty face children who are anemic and strumous and who have no good appetite and subject to middle ear trouble and general debility "Stilllingia" is useful; but it must be used for a long time. (*Hare*).

10. In anemia which follows dysentery liver diet is useful. (*Journal of Organotherapy*).

Anemia—pernicious.—Cacodylate of sodium 1: 2 grains should be given hypodermically every other day until direct renal irritation or garlic odour of the breath develops or arsenic in large doses. (*Sajous and Hare*)

2. Iodine or thyroid gland may be given; parathyroid is useful. (*Endocrine Survey*).

3. Intravenous injection of mercurio-chrome 220 soluble one per cent solution from 15 to 30 c c every third or the fifth day. (*J.A.M.A.*)

4. Charcoal 20 grs. three times after meals.

5. Dilute hydrochloric acid, 1 to 2 drams with orange juice to be taken before or with or after meals.

6. Transfusion of blood and the protein high diet. (*J.A.M.A.*)

7. Liver substance. (*J.A.M.A.*)

8. Fowler's solution.

9. Horse serum by mouth or by injection. (*M.T.T.*)

10. Liver substance made fresh by mincing the liver and mixing with orange juice to be given between meals. Eosine either by mouth or intravenously. (*J.A.M.A.*)

11. Gentian violet in solution of 1: 1000—5 to 15 c.c. given by the mouth or 1 to 20. 5 grs. of entero-coated tablets after each meal. (*Practical Medicine*).

12. Sometimes the disease is preceded by sprue and in which case HCl. dil. upto 1½ drams to be taken with water during or after meals.

13. Hæmophilin (A.F.D.) injection twice a week and liver extract daily. (*I.M.G.*)

14. Sodium nucleate is good. (*J.A.M.A.*)

15. Hepar-nucleate is good. (*Harrower*).

16. Metatone. (P. D. & Co.) is useful.

17. Along with liver extract inorganic iron compound (Reed Carnrick & Co) containing iron, copper, manganese, zinc, nickel, cobalt, iodine etc is good. (*C.M.J.*)

Anemia—secondary.—Spleen and red bone marrow 2½ grains to the given in capsules t.i.d. and in asthenic type spermin and hæmoglobin with thyroid gland. (*Endocrine Survey*).

N.B. These notes are intended to supplement the treatment given in ordinary text books and neither to be expected nor possible to be exhaustive.

Notes on Diagnosis, Therapeutics and other Medical Subjects.

Anemia differential diagnosis.

There are seven kinds of anemia viz. simple, chlorosis, secondary, pernicious, lymphatic, myelogenous, and splenic and these can be differentiated by consideration of the following facts. (a) colour index, (b) hæmoglobin contents, (c) changes in red blood cells, (d) changes in white blood cells, (e) red blood cell count and (f) white blood cell count.

Simple anemia.—(a) Reduced, (b) moderately diminished, (c) may be slight, (d) little, (e) slight decrease and (f) moderate increase.

Chlorosis.—(a) Low (b) markedly decreased, (c) pale and slightly smaller, platelets usually decreased, (d) no change, (e) slight decrease and (f) little if any increase.

Secondary.—(a) Usually lowered, (b) variable decrease, (c) may vary in shape and size, (d) no change, (e) diminished slightly and (f) usually increased.

Pernicious.—(a) Usually high, (b) decreased, (c) vary in size with tendency to general enlargement, (d) lymphocytes usually increased, (e) progressive and often extreme decrease and (f) normal or diminished.

Lymphatic.—(a) Slightly lowered, (b) greatly reduced, (c) vary in size and shape, (d) lymphocytes greatly increased, (e) markedly increased and (f) markedly increased.

Myelogenous.—(a) Usually slightly lowered, (b) markedly diminished, (c) vary in size and shape (d) myelocytes numerous and lymphocytes decreased, (e) notably diminished and (f) greatly increased.

Splenic.—(a) Little change, (b) decided decrease, (c) irregularities in size and shape in advanced cases, (d) relative increase of lymphocytes (e) decided decrease and (f) moderate decrease.

Plasmochin in the treatment of Malaria.—Dr. Mellow reports the results of his experience in Portuguese East India that plasmochin has a destructive action on the gametes of all types of the malarial parasites and also on the asexual forms of plasmodium vivax and plasmodium malarie. When combined with quinine it destroys also the sexual forms of plasmodium falciparum. Plasmochin is harmless and can be taken in quinine haemoglobinuria. The preparation "plasmoquine compound" (Bayer-Meister-Lucius) is very handy and satisfactory.

Lime juice.—5½ fluid drams of lime juice if mixed with a quart of milk do not cause curdling and may be given as a substitute for human milk for infants.

Carlsbad salt—artificial.—Contains sodium phosphate 8 ounces, sodium chloride ½ an ounce, sodium carbo-

nate 1 ounce. 2 to 4 drams to be taken in water.

Iodine.—For external use of iodine the following preparation is better than the tincture as it dries soon, does not spoil clothing and contains larger quantity of iodine than the tincture. Iodine 5 drams, alcohol 10 drs. æther 10 drs.

Coffee.—Coffee contains empyreumatic acid ½ to 1 teaspoonful in a breakfast cup of coffee and the acid causes biliousness and upsets digestion.

Hexamine and methylene blue.—The combination of these two substances—3 grains of the former and ¼ grain of the latter as in B. W. & Co. "tabloids" acts in both acid and alkaline conditions of urine and useful in biliary and genito-urinal complaints, in pyelitis urethritis and septic urinary conditions.

Spinach.—This contains secretin even after being dried and so useful for constipation.

Insulin.—This contains sulphur and sulphur is useful in diabetes mellitus.

Oatmeal.—Myrtillin which is the vegetable insulin, is contained in oatmeal and hence is useful as a diet in diabetes mellitus.

News and Comments.

It is very much to be regretted that the rural medical practitioners are not treated well by some of the taluk board presidents who evidently have not or rather would not, understand the object with which the Rural Medical Relief Scheme was brought into existence by the Government. It is wrong on their part to consider that these medical practitioners are their subordinates because they get a subsidy too meagre to maintain them. It may be that these practitioners cannot be expected to have the ambition of city practitioners though many of them may be as good as their more

fortunate brethren in the city. This is no reason why they should be treated in the way they complain. Some say that they are treated as menials, others grumble that the taluk board presidents pass remarks on their registers concerning professional matters while a few more complain that the taluk board presidents insist on their applying and getting previous sanction for leave of absence though the terms of agreement require that they are only to report their absence and return to duty, and in case the leave is not applied for, the taluk board presidents reduce the amount of subsidy for the days the medical practitioners were absent. We wish the taluk board presidents treat the rural practitioners as honorary workers in no way inferior to anybody in their zeal to serve and that their work as medical men should not be counted in rupees, annas and pies. Villages are places where real national work of reconstructive nature has to be done and in this work the medical men can play a great part. Every facility should be given to them in their attempts to alleviate human suffering and they should not be denied the independence they deserve to maintain the dignity of the noble profession to which they belong. All the same we suggest to the rural practitioners to represent to the Government their real and legitimate grievances through the Surgeon-General in case the terms of agreement between them and the taluk board are in any way violated and we trust that the Surgeon-General who is the adviser to the Government on all professional matters would by his advice enable the public to realise the benefits of rural medical relief which, if properly worked, will solve the problem of cheap yet efficient medical aid to a large proportion of the public in this Province. In fact the scheme of honorary medical service should first begin in villages.

Some of the candidates who sat for the competitive examination for recruitment in the cadre of civil assistant surgeons and the L. M. P. practitioners who were selected for recruitment in the civil sub-assistant surgeon cadre are anxious to know the cause of the inordinate delay on the part of the Government in not publishing the results of the examination in the case of assistant surgeons and in not getting orders of appointment in the case of L. M. P. practitioners. On enquiry at the proper place we learn that orders have already been issued to 26 candidates to fill in the vacancies for assistant surgeons. The delay was due to the fact that only four candidates got 60% of marks in the competitive examination and as per the then existing G. O. others could not be selected from amongst those who got less than 60% of marks. But the Surgeon-General wanted 26 assistant surgeons, so the Government had to modify their previous orders and this naturally took sometime. Regarding the sub-assistant surgeons we may, with authority, assure them that all who have been selected will be required in the order of selection. But this could be done as vacancies arise. There were, no doubt some vacancies but these were filled up by sub-assistant surgeons who were till recently in the local board service (their service being lent out by the Government) and who have since been discharged from that service as some of these bodies wished to have their own medical men.

When at present about 40 honorary assistant surgeons and physicians have been entertained, there is no meaning in appointing 26 permanent civil assistant surgeons now and that when only 4 of the candidates have secured the minimum marks in the competitive examination held for the purpose. The object of the introduction of the system of honorary appointments is, as in the case of all civilised countries, to replace the paid officers as vacancies occur among them, so as

to make the Civil Medical Department ultimately, run by honorary men and not to keep the honorary men supernumerary for ever. The system has been working in the city for 6 years and was found satisfactory. We would like to know how many of the permanent appointments in the department have been abolished and made honorary? We are afraid, if the existing honorary men were to come to know, as they would surely do when they see that 26 permanent appointments are to be made immediately after their entertainment as honoraries, that they are to remain for ever as supernumeraries, they would rather try to get away and new men may not be forthcoming. If it comes to that, the fault lies not with the honorary men but rests entirely on the Government. One may seriously doubt whether these permanent appointments are now being made with a view eventually to damn the system of honorary appointments?

Mr. M. R. Jayakar M.L.A. has to be heartily congratulated on his being able to pass a resolution without division in the Legislative Assembly which as amended runs as follows:— "This Assembly recommends to the Governor-General-in-Council that he be pleased to revive the competitive examination for recruitment to the I. M. S., which has been held in abeyance for 14 years and hold it annually simultaneously in India and England and make it obligatory for the entrants to the examination in India to hold a medical qualification registrable in India." Though Mr. Macworth Young, the Army Secretary opposed Mr. Jayakar by taking refuge in the untenable plea that the I. M. S. being an army service should have special consideration at this stage of the constitution of the Government, he had to confess that the present position was not wholly satisfactory. Thanks to Col. Sidney who persuaded the European block to support Mr. Jayakar

with slight modifications in his original resolution. The independent medical profession in India is highly obliged to the Members of the Assembly for having taken up their cause with success.

Two important facts were elucidated during the discussion of Mr. Jayakar's resolution referred to above. Mr. Macworth Young, Army Secretary mentioned that Indians in future should be recruited to Indian vacancies in the I.M.S. in the proportion of one Indian to two Europeans irrespective of the rate at which European candidates were forthcoming for European vacancies. Sir Frank Noyce brought out the fact that the Government desired to institute a Statutory Medical Council for India whose relationship with the General Medical Council in England would be the same as that of similar councils in Australia and other dominions. We warn the members of the independent medical profession who do not hold university qualifications and who form the biggest group in the profession though the least cared for, to bestir themselves in time and make all concerned feel their existence. Will they wake up before it is too late?

At the instance of Dr. B.S. Moonjee the Standing Finance Committee of the Legislative Assembly has postponed to sanction a provision of Rs. 7,50,000 required by the Dehra Dun Research Institute for the next financial year on account of the objection raised by the independent medical profession against the location of the Institute at Dehra Dun. In the meanwhile Hon'ble Sir George Schuster, the Finance Member has demanded a note from Dr. Moonjee putting therein the nature of objections. Dr. J. Mehta, Dean, King Edward Memorial Hospital, Bombay has made a statement to the Press that he had reasons to believe that some appointments are made without the matter being consi-

dered by the Fletcher Committee as was once thought necessary. The Selection Board and the Consultative Committee are reported to have not been consulted. Dr. Mehta appeals to the Standing Finance Committee to turn down a recurring expenditure of Rs. 58,000 for the revival of four unspecific appointments. He suggested that the amount may be more profitably spent in founding of fellowships at the Central Medical Research and Public Health Institutes as also at the School of Tropical Medicines and other medical colleges in India. We trust the Finance Committee will remember Dr. Mehta's valuable suggestions when this subject comes before them a second time.

Now Dr. Mehta's valuable suggestions have been since embodied in the report which Dr. Moonjee has submitted to the Government of India as demanded from him when he first placed his objections before the Standing Finance Committee. If a research institute is required at all, it is for the benefit of the independent medical profession in whose hands lives of the public are entrusted. It is quite reasonable, nay, logical that the Government of India should listen to the protest and advice given by the profession so that the proposed institute may serve the purpose for which it is started. The suggestion of Dr. Moonjee for the appointment of a committee consisting of members of The All-India Medical Association to confer with the member in charge of this subject is as modest as it is reasonable and therefore should be given effect to by the Government. In the meanwhile we wish to point out to the executive committee of The All-India Medical Association that in case the Government request them to choose their members for the committee as suggested by Dr. Moonjee, they make it really a representative one, consisting of members of the profession of different grades not excluding those who have not been fortunate to hail from any of the Indian universities

and yet form the largest unit in the independent medical profession in this country. If there should be representation at all, it should be on sound democratic principles consistent with the spirit of the times.

Private practice by the Medical College staff was the subject of one of the interpellations on 23rd January in the local Legislative Council. Mr. Basheer Ahmed, M.L.C. who interpellated the Government on this subject has evidently confused the issues. His information regarding this subject seems to be very meagre. Private practice by government paid medical men and maintenance of dispensaries by these doctors are two quite different subjects. A government servant who either visits patients in their houses or sees the patients at his own residence, if he is not prohibited from private practice by virtue of his appointment, cannot be charged with having violated service regulations as they are now in vogue though it is fundamentally wrong in principle. But a government doctor owning and running a dispensary even though he is allowed private practice ought to have been the proper subject for interpellation and an answer from the Government would have certainly cleared all doubts from the minds of such of the "State Paid" doctors who openly run dispensaries, nursing homes, laboratories under the very nose of the Government. Many a time some of the M.L.C.s, in their zeal to serve the public are a bit hasty and rush to the floor of the Legislative Council not properly armed with correct statistics and information. A few do not pursue in their attempts to get what they want. The result is that the subject matter about which interpellations were asked gets a direct or indirect sanction from the Government though such a sanction is baneful in public interest. Sometime ago another M.L.C., a medical practitioner to boot, inter-

pellated about "Chit" system for admitting their private patients in the Government General Hospital. Though the interpellations were not satisfactorily answered by the Government on the floor of the House, the then Surgeon-General made a statement in the Press and came to the rescue of such officers who issued these "Chits". The medical M.L.C. did not pursue the subject with the result that this custom instead of being condemned became sanctified. We wish all luck to the Saidapet "State Paid" doctor till the private practitioners get more courage to approach the Government in the proper way if they have any grievance at all.

* * *

Many practitioners who registered their names in the Medical Register in 1928 complain that the Registrar, Madras Medical Council has not as yet supplied them with Medical Register inspite of repeated requests. To those who know the affairs at the Registrar's office, these complaints will never cause a surprise; all the same it is well worth repeating section 11 of the Madras Medical Registration Act for the information of all the registered practitioners to whom *The Medical Practitioner* may reach:—

"It shall be the duty of the Registrar to keep a Register of medical practitioners and from time to time revise the Register and publish it in the prescribed manner. Such Register shall be deemed to be public document within the meaning of the Indian Evidence Act, 1872 and it may be proved by a copy published in the Fort St. George Gazette." In spite of such a mandatory section, the Registrar, Medical Council has not been compiling the Medical Register in time. The Register for 1928 is not as yet ready though the rules say that "Every year, the Registrar shall in the month of January cause to be printed and published the Register prescribed above and corrected up to the 31st December preceeding". The Registrar is a paid executive officer

of the Medical Council directly under the control of the biggest Medical Officer of the Government, the Surgeon-General, and yet the Medical Register for 1928 cannot be had even in 1930. It cannot be said that neither the President of the Council nor the members constituting this body are ignorant of this grave and culpable omission due to the gross neglect on the part of the Registrar. Next to the Council we have the Government who at the time the Medical Registration Act was on the anvil, were very zealous in guarding public interest and would not transfer the power to non-officials and had their own officer at the head of the Medical Council with official ridden Council consisting of 9 nominated and 6 elected members. Yet the Government would not find their way to reform the Medical Council or at least the Registrar's office though this grave omission had been brought to their notice by Dr. V. Rama Kamath (now member of the Medical Council) long ago when he stood as a candidate for election to the Medical Council. We understand that Dr. V. Rama Kamath has reminded the Government once again about this serious omission on the part of the Registrar. We shall wait and see the result.

* * *

The medical profession has its share in the matter of resignation of seats in the Legislative Bodies. The Hon'ble Dr. U. Rama Rau who has just sent in his Bill referred to in the editorial columns of the last issue, has resigned and does not seek re-election at present and so his Bill automatically dies. Dr. B. S. Mallaya who used to keep the Council room lively during the medical budget speeches, will be missed by all during the next budget debate. Farther away Dr. K. S. Roy, who has been doing silent work towards the medical profession in Bengal is really hampered to continue his work of usefulness. Sitting on the Opposition benches he was able to

amend the Bengal Medical Registration Act and make it a body having a majority of elected element though he did not succeed to have a President elected by the Council on account of the casting vote of the then President of the Bengal Council. He was able to get a contribution of a lakh of rupees towards the construction of a private charitable tuberculosis hospital known as "The Chandra Mohan Ghosh Memorial Sanatorium." It will be interesting to know that this institution was started by the executors of the will of the late Sjt. Probhas Chandra Ghosh, a young man of culture who while executing his studies in England as a medical student fell a victim to this fell disease. Dr. K. S. Roy would have had more constructive work to his credit if he was allowed to serve his country through the Council.

* * *

The first rejuvenation operation in India was performed in Bombay on 24-1-'30 by Dr. Voronoff on a young Indian lawyer, aged 34, who through illness, became physically and mentally weak in recent years. The operation was witnessed by 200 members of the medical profession. During the operation the patient was perfectly comfortable and cheerful and even chatted with the surgeons. Two operation tables, one for the patient and another for a monkey were placed. After giving chloroform to the monkey, which was a male Chimpanze, specially brought by the doctor from Paris, a gland was exposed and a graft was taken from it and was transferred to the patient who in the meanwhile was prepared by a local anaesthetic.

* * *

It is really very sad tale indeed to read in the editorial columns of the January issue of *The Indian Medical Journal* that "The year 1929 to a great extent, was not of much encouragement. The list of members has gone only a bit up. The veteran workers who contributed their quota

towards the development of the Association since its inception have almost ceased to work and there is disheartening atmosphere prevailing in the camp as the result of disunity and dissension to stem the tide of progress. The younger section has not come forward in hundreds with their youthful ambitions and zeal to strengthen the position of their elders." We commend the sage-like advice appearing at length towards the end of the same editorial to the careful and serious consideration of the members of *The All-India Medical Licentiate's Association*.

* * *

Col. Cuthber Allen Sprawson, C.I.E. M.D., M. R. C. P., I. M. S. has been appointed as the Surgeon-General with the Government of Madras. His last appointment was Inspector-General of Civil Hospitals of the United Provinces of Oudh and Agra. He got his commission in 1900 and for 7 years he was on military service. In 1907 he was appointed as Civil Surgeon and in the capacity of Deputy Sanitary Commissioner served till 1909 when he was made Professor of Physiology, King George Medical College, Lucknow which place he occupied till 1913. From 1913 to 1917 he was Professor of Medicine in the same institution when he went on military duty. In 1921 he was appointed as the Principal King George Medical College Lucknow and was a professor in the same institution till October 1925. Later, he was appointed as Inspector General. His past career qualifies him most fittingly for the Surgeon-Generalship. Thus he comes with an open mind without prejudices or ties of any past attachments and as such he could well afford to be just in all his dealings. We can certainly expect much from such an officer who must have had exceptional opportunities to gain experience in all departments of medical relief both in its curative and preventive aspects. His long connection with the medical college will surely help him to grapple

the medical educational problem in our province.

* * * *

The reply given to Dr. S. Rangachariar by the Registrar, Medical Council as per the opinion of the President—a registered medical practitioner cannot accept consultation with or require the assistance of the diploma holders of the School of Indian Medicine—raises important issues for consideration. Before proceeding further it should be known whether the opinion given by the President was his private and individual one or given after discussion of the subject in the Council and he only communicated the result of the discussion. The School of Indian Medicine is opened and maintained by the Government and the Principal and some of the teachers there are registered medical practitioners. In the hospital attached to the school the registered medical practitioners and those qualified in Indian Medicine are working together assisting one another in the treatment of patients in the hospital. If in a government institution the registered medical practitioners and persons qualified in Indian Medicine can work together and assist one another, why not the same practice be allowed in private practice. Does the opinion of the President bind only the private medical practitioners if it binds anybody at all? Another important issue for consideration is whether a responsible Government spend the public money and maintain institutions to turn up persons who are considered unfit to be associated with those turned out from other government institutions. While much agitation is being carried on against "untouchables" the Government are creating a new species of "untouchables." The local boards and municipalities are now opening dispensaries and hospitals and place them under *Vaidyans* qualified in Indian Medicine. In some remote parts there may be only one such

dispensary in each village and registered practitioners may be found far away from those villages. If the *Vaidyans* in charge of those dispensaries find that for some of their patients, consultations with registered medical practitioners is necessary and if the latter find it inconvenient to undertake the whole treatment of cases, are the poor patients to be denied the benefit of consultation with the registered practitioners simply because the *Vaidyans* in charge and the registered medical practitioners are unassociable? This is rather inhuman to say the least.

We are glad to note that Col. Hingston's reply as the President of the Madras Medical Council has given rise to interesting yet complicating developments. The Minister of Public Health seems to have started investigation to be made by his department regarding this question, while Dr. Tajuddin of Tanjore, Secretary to the Chief Minister has given notice to amend the Madras Medical Registration Act so as to make the association between the regd. medical practitioners and the practitioners of other systems of medicine including homeopathic, possible.

We are highly pleased to note that the South Indian Medical Union has decided after consideration by its Governing Body, that honorary men though they get allowance for acting in appointments under Government, are still members of the independent medical profession and so it is presumed that they could discharge their duties as independent men and that Drs. Sadagopan and Krishna Menon would continue to be the members of the South Indian Medical Union and of the Editorial Board of "The Bulletin" the official organ of the Union. We are afraid, however, that honorary men acting in appointments belonging to the cadre of paid appointments and getting allowance for them, are dif-

ferent from those who are given allowance or honorarium for performing duties unattached to the cadre of paid appointments. But this of course is a matter for the Government to decide. The term "Honorary" under the system obtaining at present here where only honorary men are appointed in hospitals may refer to hospital appointments but there is nothing incompatible in it if it is used in the teaching profession also as is the case in countries where professors and lecturers in medical colleges and schools are honorary men and the independent private medical profession are agitating here to make these appointments honorary.

Messrs. Smith, Stanistreet & Co., Ltd. whose name is familiar to the medical profession, have done good service to the public and to the medical profession specially, by publishing a small pamphlet dealing with inferior drugs which are now abundantly found in the market. They are either deficient in the active principles or deliberately adulterated in order to increase the bulk and thus reduce the price. The firm has taken the trouble of buying such inferior drugs in the market and got them analysed. A sample of *Eucalyptus Oil* which is at present being largely used in India in every household or rather misused was found not to contain any cineol whatever, that being the active medicinal principle. The British Pharmacopoeia insists that eucalyptus oil should contain at least 55% of cineol. The label on the bottle of the eucalyptus oil bore the name of a well known European firm who seem to have deliberately omitted to state B. P. on the label to absolve themselves of all responsibility of fraud. *Citrate of iron and Quinine*:—A widely used drug was found deficient in quinine to the extent of 50 per cent or over. *Bismuth salicylate* was also found deficient in bismuth content 20 to 25 per cent less than B.P. standard. Such instances are found in many

other drugs such as, santonine, pot. iodide, liq. paraffin and many more. Adulterated or inferior drugs are a real menace to the public and all those interested in the welfare of the public should represent to the Government the necessity of introducing legislation of an adequate Food or Drug Act in India on the lines that exists in England and the United States of America. In the meanwhile the members of the medical profession would do well in their own interest more than anything else to insist on using drugs and pharmaceutical preparations of known definite strength which should be indicated on the labels and in case of drugs, use only such with a label in which there is a clear print B. P. After all a few annas or a couple of rupees economy will certainly mar the good reputation of a doctor if the preparations or drugs which he uses, do not act in the way they ought to if they were pure. Apart from all consideration, the profession which is considered to be the noblest should value the lives of their patients more than they love money and thus keep up the prestige.

If examples are needed to demonstrate that at times the Government and its servants violate legislative Acts we could without fear of any contradiction point out that it is the Madras Medical Registration Act. The Medical Council which is a body brought into existence to work out the Medical Registration Act, has not so far shown any inclination to bring to the notice of the Government how and who set at naught the provisions of this Act. This is why we often hear complaints regarding medical certificates issued by the members of the independent medical profession. Out of these, we wish to bring to the notice of our readers two typical instances where two registered medical practitioners were treated with contempt and in violation of the provisions of the Act. A clerk was treated by a medical practitioner in a

village in Coimbatore District. The head of the department where the clerk was working, sent a requisition to this practitioner through the District Medical Officer, Coimbatore and this officer instead of sending it to the village practitioner, forwards the same to the Assistant Surgeon in charge of the Taluk Headquarters Hospital. There does not seem to be any sense or reason in the course adopted by the District Medical Officer Coimbatore. He has not only violated the ethics enunciated in the Medical Registration Act but also taken upon himself the responsibility uncalled for and unjustifiable of misdirecting the requisition which, if he is not prepared to forward it to the private practitioner, should have it sent back to the head of the department to address it to the assistant surgeon. In another case, an officer of the Postal Department in Tinnevely, would not send a requisition to a private practitioner who had been treating a clerk in his department but deliberately sends a requisition to the District Medical Officer of Tinnevely who has nothing to do with the patient under reference and expects him to grant a certificate. In a case like this, if the D.M.O. minded the prestige of the profession to which both he and the private practitioners belong, he might have sent back the requisition to the Postal Officer asking him to forward the same to the medical practitioner under whose care the patient was. When those in authority who have ears, would not listen, and who have eyes, but would not see, the remedies consist in having recourse to persistent agitation till those against whom we complain recognise their sense of responsibility.

* * * *

Royapuram Medical School Day Celebrations took place on the evening of the 8th instant under the presidency of The Hon'ble Mr. S. Muthia Mudaliar, Minister of Public Health. After tea and refreshments, a pretty big programme of entertainments was

gone through and the students played their parts splendidly. The Hon'ble Minister while congratulating the students on their achievements in sports and amusements reminded them that it was not always they could be in the environments they were that evening as many of them after passing from the school would have to live in out-of-the way places on account of exigencies of service and consequently they should have training to get accustomed to such lives also. They should cultivate the spirit of tolerance regarding other systems of medicine which are as scientific as their own, the underlining principle in each system being to allviate the human sufferings. He compared the three learned professions, the ecclesiastic, the legal and the medical and said that unlike in the first two where delay and differences of opinion would not endanger human lives in the medical profession one had to be quick and sure in his methods of arriving at correct judgment or else human lives would really be in danger and difference of opinion will surely tell upon human lives. He made a few important statements which were received with applause by those present. He said that the committee on the medical education appointed by the Government sometime ago, had reported their opinion that the course of studies in the Medical Schools should be increased to a term of five years and the Government would keep an open mind on this subject and would publish the report of the above committee to gauge the opinion of the medical as well as the lay public and would decide accordingly. He also felt that though there was a need of several standards for the granting of diplomas in the medical profession in the past as was the case in the legal profession, time was fast approaching to consider the question of bringing into existence a minimum standard of qualification, entitling the holder of it eligible for all the appointments in the Government service. He expressed that he was

conscious of the fact that many holding L.M.P. diplomas at times felt that they were treated inferior to those that possessed the university qualifications and advised those who passed out from Medical Schools to try to dispel these feelings from their minds as he knew personally that in actual practice, there were instances where L.M.Ps. proved themselves superior to the medical graduates. The merit and experience of a doctor would weigh more with the public than his academic qualification. He advised the students to avail themselves of splendid facilities of studies now given in the schools and equip themselves to be useful and capable medical practitioners.

The Minister's speech ushers a freak of dawn in the gloomy horizon in the vision of the present and past students of the Medical School and we wish that the Government will not falter in bringing out reforms in the Medical Schools and raise the standard of education in the schools to that of the universities and bring about harmony and contentment in the medical profession.

We are obliged to The Hon'ble Mr. S. Muthia Mudaliar for his having announced on our behalf about our offer to award a gold medal to the best student in the final year both in the Colleges and the Schools whose proficiency is to be tested by holding competitive examination by a board of examiners consisting of two editors of this journal and another to be nominated to this committee by the Surgeon-General.

Correspondence, Reports, Reviews Etc.

VENEREAL DISEASES

(Continued from the last issue.)

We have already drawn attention in our last month's issue to Ehrlich's warning regarding 606 treatments.

The Professor demonstrated the fact that where a strain of *Syphilis* Pallida is submitted to 606 treatment and survives, the surviving strain does not now yield so easily to 606. Cases infected with that strain are more difficult to treatment with arsenic.

This is a warning never to be forgotten, and a repetition can never do any harm. Our own wording puts the matter quite plainly. "If you leave your cases incompletely treated, you leave a residue which will sow the seed of more intractable syphilis for future treatment."

In a paper by Lt. Col. Harnett, M.A., M.B., (Camb.) F.R.C.S. (Eng.), Superintendent, Campbell Medical School and Hospital, Calcutta, read at the annual conference of the All-India Medical Licentiates' Association on the 25th January 1927 at Calcutta, some highly commendable courses of treatment by Sulfarsenol were clearly set out.

These courses of treatment, and how to use them should have the widest publicity in medical circles, if we in India are to do our duty by our suffering millions.

Suggestions by Lt. Col. Harnett such as referred to Sulfarsenol, and how to use it.

COURSE A

Day.				
1	...	0'24	See, Dose No. 4	
8	...	0'36	" "	6
15	...	0'42	" "	7
29	...	0'48	" "	8
36	...	0'48	" "	8
50	...	0'48	" "	8
57	...	0'48	" "	8
75	...	0'48	" "	8
85	...	0'48	" "	8
92	...	0'48	" "	8

In this course potassium iodide is given from the fifty-eighth to the seventy-eighth day in doses of 5 grains daily for the first week, 7 grains the second week and 10 grains the third week.

5L
Lm2H, N30MP
N30.1.44

COURSE B

The same as Course A, but omitting the last three injections.

COURSE C

A continuation course, as follows:—

Day.		Sulfarsenol grms.	Bismuth grms.
1	...	0.42	0.2
8	...	0.48	0.2
15	...	0.48	0.2
29	...	0.48	0.2
36	...	0.48	0.2

COURSE D

This is specially intended for nerve cases and the doses are kept very low, but they are administered more frequently.

Day.		Sulfarsenol (deep subcutaneous)	Bismuth (intramuscular).
1	...	0.24	0.2
4	...	0.24	0.2
8	...	0.24	0.2
11	...	0.24	0.2
15	...	0.36	0.2
18	...	0.36	0.2
22	...	0.30	0.2
25	...	—	0.2
29	...	0.48	0.2
32	...	—	0.2
36	...	0.48	0.2
39	...	—	0.2
43	...	0.48	0.2

The doses in the above tables have been fixed partly in accordance with their relative therapeutic effect and partly according to the tolerance of the average patient. Using the courses outlined above the following are the plans on which patients in different stages of infection are treated:—

I

Primary Cases with Negative Serum Reaction

- (a) Course A.
- (b) No treatment for five weeks.
- (c) Potassium Iodide for three weeks (grs. 15 a day for the first week, grs.

21 a day for the second and grs. 30 for the third).

(d) Course A.

(e) Suspend all treatment but test the blood serum every three months during the first year after stopping treatment and every six months during the second year, the test and the end of the first and second year respectively being preceded by a provocative intravenous injection of 0.45 grms. of '914'.

II

Primary Cases with Positive Serum Reaction

- (a) As in I (a) to (d).
- (b) No treatment for ten weeks.
- (c) Potassium Iodide for three weeks.
- (d) Course C.
- (e) Suspend treatment and observe patient as indicated in I (e) above.

Cases with Clinical Signs of Secondary Syphilis.

III

- (a) As in II (a) to (d).
- (b) No treatment for ten weeks.
- (c) Potassium Iodide for three weeks.
- (d) Course C.
- (e) Suspend treatment and observe patient as indicated in I (e)

IV

Cases which are later than Secondary.

- (a) Course B.
- (b) Potassium Iodide for three weeks.
- (c) No treatment for ten weeks.
- (d) Course C.
- (e) Potassium Iodide for three weeks.
- (f) Repeat (c) to (e) twice.
- (g) No treatment for sixteen weeks.
- (h) Course C.
- (i) Potassium Iodide for three weeks.

(j) No treatment for eighteen weeks.

(k) Course C.

Treatment may have to be prolonged considerably beyond this because the serum tests show that it is particularly difficult to eradicate syphilis discovered to be still active some years after infection.

V

Syphilis of the Nervous System.

- (a) Course D.
- (b) Potassium Iodide for three weeks.
- (c) No treatment for three weeks.
- (d) Repeat (a) and (b)
- (e) No treatment for eight weeks.
- (f) Repeat (a) and (b).
- (g) No treatment for twelve weeks.
- (h) Repeat (a) and (b).
- (i) No treatment for fourteen weeks.
- (j) Repeat (a) and (b).

The above treatment is controlled by periodical examinations of the cerebro-spinal fluid.

WHAT ABOUT WOMEN?

It is well-recognised fact that for the treatment of syphilis in women (as also in children) Sulfarsenol is the most preferable remedy.

Dose:

The dose depends on the weight of the patient just as it does in men. For a man of 10 stone, such as might be the average in Europe, they give for the curative course injections of 60 ctgr. (Dose No. 10) weekly, and in India where the average weight may be found about 100 lbs., we usually give, after a few preparatory injections, 48 ctgr. (No. 8 Dose) per week. Women of the same weights can be given about the same dose, but a woman of about 60 to 80 lbs. in weight would be given 30 ctgr. to 42 ctgr. per week or if injected twice a week an ampoule of No. 3 or No. 4 at each time.

Now if you will kindly look at the table of doses you will see how simple the whole matter of dosage becomes after Sulfarsenol has been adopted as the routine treatment.

TWICE A WEEK

It seems a logical conclusion. If continuous effect is the aim (and it is), then surely we could obtain a more steady and continuous effect during a curative course by giving 24 ctgrs. Sulfarsenol (No. 4 Dose) twice a week rather than 48 ctgr. (No. 8) once a week.

As a matter of fact many users of Sulfarsenol favour that method, and are so pleased with both the facility of trouble-free injections and the clinical effects that one must conclude that there is something in the suggestion.

RESOLUTIONS PASSED AT THE ALL-INDIA MEDICAL CONFERENCE HELD AT LAHORE DURING X'MAS 1929.

1. The Report of the Central Executive Committee of the All-India Medical Association was read and adopted.

2. That the rules and regulations of the All-India Medical Association drafted by the Central Executive Committee be adopted with the exceptions of clauses 11 and 29, referring to the amount of subscription and distribution of funds and these two questions be referred back to the Central Executive Committee for reconsideration and decision in consultation with the provincial branches.

3. This conference is of opinion that to meet the medical and sanitary needs of the civil population of the country no medical service constituted on the present system is required but pending the realisation of this ideal, as a temporary measure, this conference is further of opinion that a civil medical service be created for each province.

the incumbents to be appointed on a temporary basis.

4. This conference is of opinion that the civil appointments should be entirely dissociated from the military side.

5. This conference is of opinion that the transfer of I.M.S. and I.M.D. officers to civil side should be stopped at once and I. M. S. and I.M.D. officers in civil employ should be made to revert to the military side.

6. This conference is of opinion that the competitive examination for recruitment to the Indian Medical Service, which has been held in abeyance for the last fourteen years, should be revived early and that it should be held annually at a convenient centre in India, and that all entrants thereto must possess a qualification registrable in India.

7. This conference is of opinion that there should be no distinction between Indian and non-Indian officers of I. M. S. with regard to pay, overseas allowance, passage, concession etc.

8. This conference is of opinion that the appointment of military assistant surgeons in the I. M. D. be opened to all Indians.

9. Whereas the medical departments in the provinces are transferred subjects, this conference is of opinion that the civil medical services in the province contemplated in the resolution above be placed under the control and direction of a minister of health who should preferably be a medical man.

10. This conference is of opinion that the recruitment to the W. M. S. be made largely from the Indian medical women and that proper provisions be made at an early date, for giving facilities to Indian women to qualify for such posts.

11. This conference is of opinion that energetic steps should be taken by Government as well as by various authorities in charge of public hos-

pitals to recruit Indian women on the nursing staff of hospitals.

12. (i) This conference condemns the policy of Government of locating Central Medical Research Institute at Dehra Dun inspite of unanimous protest of the independent medical profession throughout the country and urges Government to appoint a small committee including representatives of the medical profession and of medical faculties of the universities :

(a) to report on the most suitable university centre for locating the proposed institute, and (b) to recommend the constitution of the Governing Body of the Indian Research Fund Association and of the Selection Board for recruitment in the Medical Research Department.

(ii) This conference emphatically protests against the reservation of appointments in the Medical Research Departments for the members of the Indian Medical Service and requests the members of the Central Legislatures to move the Government of India to remove such reservation.

(iii) This conference is of opinion that the Government of India should institute medical research fellowships in the different medical colleges and hospitals in India.

(iv) This conference recommends that no appointments in the Medical Research Department or in the Central Medical Research Institute be made till the Selection Board for recruitment in the Indian Medical Research Department or under the Indian Research Fund Association is constituted.

(v) This conference further resolves that no steps be taken to give effect to Fletcher Committee's recommendations unless and until the Committee as already suggested has submitted its report.

(vi) This conference protests against the low scale of pay fixed for the assistants for the proposed Public Health Institute at Calcutta and urges

Government to so fix the scale as to make the assistant professors real colleagues of the professors.

13. This conference recommends to the principals of medical colleges and superintendents of hospitals in India to start periodically special post-graduate classes at reasonable fees for medical practitioners or to give facilities to such practitioners to work in the laboratories or walk round the wards during the regular hours of instruction.

14. This conference calls upon the members of the provincial legislature to move the Councils of Medical Registration so as to have an elected non-official majority in them with an elected president.

15. This conference expresses its gratitude to the members of the Indian Legislatures for taking interest in medical problems and those affecting the profession and more particularly for their refusal at the last session of the Assembly to sanction the appointment of the Commissioner of Medical Council and thus upholding the dignity of the Indian universities and of the Indian medical graduates and requests them to continue taking the same interest in medical problems when they come up before legislatures for discussion.

16 (a) This conference recommends to the Government that an All India Medical Council be formed on the lines of the British Medical Council for the purpose of co-ordinating and developing medical studies in the different provinces and for the registration of medical practitioners. The conference regards it as essential that the constitutional powers and functions of the Council be determined by a committee on which shall be representatives of the universities, medical institutions and non-official medical practitioners.

(b) That pending the creation of such a council, this conference recommends the necessity as a temporary measure of appointing immedi-

ately an All-India Medical Board consisting of representatives of universities from their medical faculties one from each such university and two nominees of Government of India for determining and supervising medical qualification and standard in Indian universities.

17. In case a satisfactory solution with regard to the recognition of Indian medical degrees by the General Medical Council is not arrived at, this conference calls upon the Central and Provincial Governments and Legislatures to restrict the registration of British medical qualifications to India.

18. This conference condemns the recent attitude of the British Medical Council towards the Indian medical degrees and is emphatically of opinion that the appointment of a commissioner of medical qualifications and standards as recommended by the G.M.C. is not in consonance with the best interests of medical education in India.

19. This conference urges the medical practitioners to encourage the use of drugs, sera, vaccines, surgical dressings, surgical instruments and other appliances etc. of Indian manufacturers.

20. This conference urges upon the Government of India and Central Legislatures the immediate necessity of taking adequate steps to introduce measures for the licensing of chemists and druggists and for providing a suitable number of public analyst in all provinces.

21. This conference is of opinion that the laboratory or laboratories which are proposed to be established for testing the standardisation of drugs, sera, etc. should be located in the important provincial cities and not at Kasauli as proposed.

22. This conference is of opinion that grants be made from provincial revenues for instituting scholarships for post-graduate medical study and research abroad.

23. This conference urges upon the licensing bodies in India to take early steps to make five years the minimum period of study for the medical course.

24. In view of the high rate of mortality and the excessive prevalence of preventable diseases throughout India, this conference is of opinion that statutory provisions be made in the Acts for adequate representation of medical men on the local bodies, district boards, municipalities and legislatures.

25. This conference is emphatically of opinion that in all matters relating to medical education, administration and public health brought before the legislature, the Indian Medical Association should be consulted.

26. This conference is of opinion that in order to secure proper medical aid in rural areas suitable subsidies be granted to medical practitioners to encourage them to settle in practice in these areas on a panel system.

27. This conference desires to point out to the authorities that the present system of allowing all persons without discrimination to obtain medical aid in spite of restricted accommodation in hospitals gives facilities to the rich and keeps out the poor and the deserving patients.

28. This conference urges upon the legislatures the immediate need of taking steps towards early introduction of measures for Health Insurance on a panel system.

29. With a view to provide facilities for post-graduate training and research this conference urges upon the Government and the local bodies the immediate necessity of allowing private and medical practitioners opportunities and facilities of working in all the hospitals and that the staff of these hospitals should no longer be kept reserved for the medical services.

30. This conference is of opinion that steps be taken for proper representation of independent medical

practitioners on the senate of the universities.

(31) This conference resolves that same office-bearers of the Indian Medical Association excepting the Vice-Presidents who will be elected now, do continue for another term.

(32) This conference places on record its protest against the Indian Government's preferential treatment accorded to the European I.M.S. officers as against Indian temporary I.M.S. officers in matters relating to pay and gratuity.

(33) This conference resolves that the Bill proposed to be introduced by the Hon'ble Dr. U. Rama Rau in the Council of State be referred to the Central Executive Committee of the Indian Medical Association for disposal and requests Dr. U. Rama Rau to withdraw the introduction till the Central Executive Committee has deliberated on the different clauses of the Bill.

(34) This conference places on record its gratitude for the valuable service rendered to the association by Col. Gidney during the tenure of his office as President of the association.

(35) This conference places on record its gratitude to the members of the Reception Committee and of the medical practitioners of the Punjab for enabling the association to hold the conference so successfully in the face of great difficulties and offers its thanks to the members of the medical profession of the Punjab for the warm welcome accorded to the delegates and the attention given to them.

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THE SECOND INTER-UNIVERSITIES CONFERENCE.

BY

DR. JIVRAJ N. MEHTA, M.D., (LOND.),
M.R.C.P. (LOND.), F.C.P.S.

Dean, Seth Gordhandas Sunderdas
Medical College, Bombay.

Dr. Mehta has brought together in a single and small pamphlet the three articles he contributed to the *Bombay Chronicle* and the letter addressed to the *Times of India* on the Indian medical degrees, with the hope that it will be useful to persons interested in the subject of university developments to form their views and arrive at a decision on the important matter of the recognition of the Indian medical degrees by the General Medical Council of Great Britain and of Research now engaging the attention of the Government. We have already adverted to the subject editorially and otherwise in the previous issues of this journal. The institution of an All-India Medical Council which ignores the comparatively large number of non-degree holders turned out by the several Provincial Governments and who form the rank and file of the

medical profession in India will not function and advance properly the interest of medical relief in India. University degrees are at the best mainly passports for admission to public service, in the absence of any other means of assessing the merits of the candidates seeking entrance to the service. Even the General Medical Council in Great Britain does not show any difference in the registration between university and non-university diploma holders and in the matter of appointments in the public service no distinction is made between them. Not only in the medical but in other sciences, the non-university men have done a great deal and risen to high eminence as much, if not more, than university degree holders. We are, therefore, of opinion that for the real advance of medical science and uplift of the medical profession and mutual improvement, of both the university and non-university men and women, they should stand united. If the education imparted to non-university diploma holders is found defective, it is open to the proposed All-India Medical Council to rectify the defect.

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THE PANCREAS IN DIABETES.

The function of the pancreas in the evolution of diabetes was actually observed in 1902.* Since then numerous workers† have shown that **diabetes was directly connected with deficiency or absence of the internal secretion of the pancreas.** It was not, however, until 1922 that MacLeod and Banting of the Toronto University published actual results obtained in diabetes by the injection of an alcoholic extract of the pancreas (insulin).

Voluminous reports followed from many countries, plainly confirm these results.

Now, while the action of insulin is incontestable, it is none the less apparent that its use is only advisable in severe cases. Not only does administration necessitate continual supervision and control, but its use must be continuous and the inconvenience and discomfort attendant on injections have all led to numerous requests by general practitioners for some simpler method of administration.

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Pancrepatine is for internal use only, the dosage varying according to the age of the patient and the severity of the symptoms.

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Adults—Two or four globules thrice daily with meals.

In severe diabetes the above average dosage may be increased to four or five globules with each meal.

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and this dosage of four capsules with each of the three principal meals should be continued until there is complete disappearance of glycosuria.

When analysis proves the absence of sugar in the urine the dosage may be gradually diminished but to, not less than three globules daily for the following month. It is most important that the dosage should be only gradually decreased and increased should signs of glycosuria reappear.

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When commencing treatment the daily total of 70 to 80 gm. of carbohydrate should not be exceeded.

* Minkowski and Von Mering.

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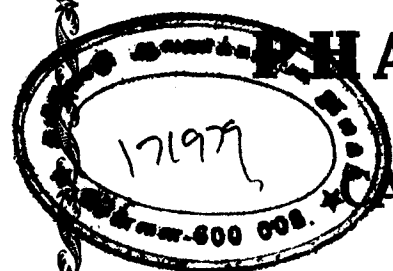
quently results in digestive and intestinal trouble.

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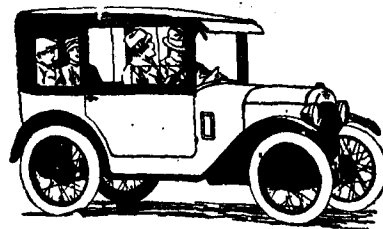
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The Medical Practitioner

A Monthly Medical Journal

EDITED BY

Dr. M. S. Krishnamurthi Ayyar, M. B. & C. M.,
Retired Sanitary Commissioner, Travancore State,
AND

Dr. V. Rama Kamath,
CONTENTS.

Editorials:—

Medical Relief and Government's Responsibility ...
Budget for 1930—31 ...

Original Articles:—

Endocrinology. By Dr. M. S. Krishnamurthi Ayyar, M.B. & C.M. ...
Civic Activities in the West in Relation to Health and Welfare. by ...
Dr. A. Lakshmanaswamy Mudaliar, B.A., M.D., ...

Abstracts:—

The Non-Operative Treatment of Hernia. By Ignate Mayer, M.D. ...
Low Blood Pressure ...

Notes on Treatment of Diseases

Notes on Diagnosis, Therapeutics and other Medical Subjects ...

News & Comments

Correspondence, Reports, Reviews, etc. ...

PAGE

139

143

145

147

152

156

158

159

161

169

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prescriptions, diagnosis etc., nor can they recommend individual practitioner by name as such action would constitute a breach of professional etiquette.

Publisher's Notice.

We are grateful to our readers whose eyes caught our notice in the last issue. A large number of them have readily responded and sent their subscription by M.O. Some, whom we had occasion to meet, suggest that the amount of yearly subscription is so trivial that none of our readers would refuse the journal if sent per V.P.P. As already mentioned, the journal stands for propaganda, to uplift the medical profession; its chief aim is to educate all concerned so that medical relief in its curative side is controlled by the Independent Medical Profession as is the case in other civilized countries. So we will continue to send our journal to all with our best compliments with no obligation on their part and we earnestly appeal to the members of the profession to make up their minds to patronise this new venture and help the cause for which The Medical Practitioner stands.

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MEDICAL RELIEF AND GOVERNMENT'S RESPONSIBILITY.

A few months after he assumed charge of his office as the Minister in charge of Public Health, the Hon'ble Mr. Muthia Mudaliar presided over the prize distribution function at the Madras Medical College and he exhorted the students that their ambition ought to be to equip themselves as efficient medical practitioners and not to hanker after government appointments. In the month of December 1927 the Governor of Bengal opening the Seventh Congress of the Far Eastern Tropical Medicine in Calcutta, made it clear that public health was one of the chief duties of the Government and that in order to make public health measures acceptable to the people, medical relief was undertaken by the Government. Major General Symons, in his presidential address at the same Congress brought pointedly to the notice of the delegates the fact that practically all medical relief, in this country was State-aided. He did so, evidently for the benefit of the delegates from foreign countries where medical relief, apart from public health, is entirely under the control of the independent medical profession. The late Major General Giffard, a few months before his death, in one of his speeches before the British Medical Association, emphasised that the question of medical relief to the ge-

neral public in India could not be efficiently solved unless there was a happy growth of the independent medical profession. Nearer in Madras, in 1928, Lieut-Col. Bradfield in a paper read before the South Indian Branch of the British Medical Association, in order to impress on his audience the true aim of medical education, quoted Sir George Newman in the following words: "Such public questions as the care of maternity, infant and child welfare, health, adolescence, industrial hygiene, national physical efficiency and capacity and the avoidance of disease and premature death, find their answer ultimately in the progress of the science of medicine, in the extension of its healing art and in the soundness and completeness of the equipments of its practitioners."

INDEPENDENT MEDICAL PROFESSION.

It is clear, therefore, that the independent medical profession should be the back-bone of the medical relief in India as in the case of all civilised countries. In the European countries there are on an average 6 practitioners in rural areas and 12 in urban to afford relief for every 10,000 of the population. Working on this average this Province should have at least 24,000 practitioners. At present there are, nearly 4,000 medical men including State-paid doctors in this Province. Is it possible for this Government to employ 24,000 doctors? Apart from the Allopathic West-

should be opened under the taluk board presidents in charge of medical officers appointed by them, who may be treated as their real subordinates.

THE SCHEME OF HONORARY APPOINTMENTS.

The object of the entertainment of honoraries, the ripeness of the time for introducing such a step, the conditions necessary for the advancement of the scheme, the importance and the legitimacy of the independent medical profession for affording medical relief to the general public and the provision of facilities for them to discharge their important and legitimate duties, are well known as will be seen from the opinion expressed by the Minister and the quotations given above from the public utterances made by the Surgeons-General and other highly placed medical men. We shall see how far the actions taken by the Government till now tend towards the attainment of the object. The hour of attendance in the hospitals in the city of Madras was changed from 7 to 10 A. M. In hot places like Madras the sun begins to become hot at 10 and the hottest part of the day is between 10 A. M. and 2 P. M., when even animals and plants take rest. The Indians take their chief meals for the day at about 10 A. M. Any operation or examination of patients, therefore, between 10 and 2 P. M. cannot be done satisfactorily and safely. If it has been discovered that the hottest part of the day is the most suitable time for the treatment of patients, is it applicable only to the Madras City? In mofussil stations the hours of attendance in hospitals are only in the mornings and evenings. The change, therefore, of the hospital hour in the city of Madras, is surely not in the interest of the patients but only to give facilities for the government doctors to attend to their private cases in mornings, the most convenient part of the day. It is well known and is an open secret that highly paid officers of the medical department

have opened nursing homes, research laboratories and dispensaries either in their own names or in those of their dependants, for the treatment of private patients in the city of Madras where according to Lieut-Col. Bradfield the proportion of practitioners to the population is more than that in England. Again the recent order of the Government in dispensing with the levy of fees for medicine supplied from the government medical institutions to the rich, is not only a misuse of the tax-payers' money but is sure to affect prejudicially the interest of the private medical profession which depends for its income on the well-to-do people. Lastly, the scheme of honorary appointments was introduced in 1923 and the work of the honoraries has been stated to be satisfactory by the superintendents concerned. We ask how many of the paid officers have been replaced by honorary men till now? Are the honoraries to be forever supernumeraries intended to give relief to paid officers in order that the latter may have more time for private practice? Are the honorary men so foolish as to forego a part of their best time in attending to honorary work in hospitals with a view to help the fat-salaried officers to resort to private practice to their (honoraries') detriment?

If the Government is honest in its intentions further recruitments should be stopped or at least restricted. In the city of Madras and other bigger towns where medical men are available, the work of hospitals should be entrusted to honoraries and the internal administration of such hospitals should be entrusted to secretaries who need not be medical men as is the case in hospitals in England and other countries. The secretary should be a paid officer of the Government or local bodies and should be assisted by local committees. We realise that this cannot be done wholesale and all at once. If the Minister has a mind he could certainly try the experiment at once without in the least affecting I.M.S. or Provinci

al service. Only three appointments are reserved for the I.M.S. in the city hospitals: the posts of First Physician, First Surgeon in the General Hospital and that of the Superintendent of the Women and Children Hospital. There is one supernumerary honorary physician in the General Hospital. His work has been appreciated by the Superintendent of that institution and the Government recently appointed him in the place of the paid physician. Why should not the Government appoint him as a permanent honorary in any one of the paid (physicians) appointments? We understand that during the Panagal Ministry, the Government was contemplating a scheme to hand over the management of the Royapettah Hospital entirely to an honorary staff. Why not start this scheme under the direct supervision of the Government?

It is earnestly hoped that the members of the independent medical profession will also rise to the occasion and do all that is in their power to bring to the notice of the Government the ways and means by which the independent medical profession could grow strong enough to take up satisfactorily, the responsibility of medical relief to the general public which is their legitimate function.

If the impediments against the growth of the independent medical profession which now exist and for which the Government is directly or indirectly responsible, are removed, and all those who are interested in the growth of the independent medical profession are sincere, the time will not be far off when charitable institutions, both in rural and urban areas, will be manned by patriotic and efficient practitioners. Eminent medical men from other parts of the world will also think it worth while to settle and practice in this country where there is a vast field for medical and surgical work both for practice and research. In the meanwhile it is expected that the Hon'ble Minister would not rest content with the pious

advice he gave to the students at the Medical College but would help them to realise their ambition chalked out by him by putting a stop to the evil practices that have insidiously crept in the sphere of private practice by State-paid doctors such as running private dispensaries etc., referred to in the interpellation mentioned above, and which hamper a good deal the growth of the independent medical profession. He will do well in the interest of all concerned to define the word "Private Practice" which is allowed to medical men in the government service so that no mean advantage is taken of it. The fact that there are sufficient number of private practitioners both in the city of Madras and in other important towns in the Presidency as stated by Lieut-Col. Bradfield should be noted and some sort of restriction ought to be placed immediately especially in big towns, so that there can be no unhealthy competition between the State-paid doctors and private practitioners.

BUDGET FOR 1930-31.

The Budget for the official year 1930-31 is published and the outstanding feature of it is that while the revenue has increased from 1921 to 1929 intermittantly by 8 per cent, the expenditure has steadily increased during the period by 9 per cent. The medical department budget for the year, excluding the chemical examiner's department, shows an increase of expenditure from 91.87 lakhs of rupees in 1929-30 to 99.11 lakhs in 1930-31 i. e., an increase of 8 per cent and the Public Health Department excluding the Pasteur Institute shows an increase from 35.22 lakhs in 1929-30 to 39.47 lakhs in 1930-31 or an increase of 12 per cent. Agitation has been going on for several years that the expenditure on the Civil Medical Department, a department unknown and unheard of in civilised countries, should be cut down by replacing paid officers by honoraries and though more than six years have elapsed since the inauguration of the system of the honorary

of all the tissue cells and particularly within the nuclei to undergo oxidation. The effects of thyroid iodine are according to Crile, electro-chemical and the organism is an electro-chemical mechanism, in which, the thyroid regulates the electric conductivity. Some interesting experiments have been made to show that the electric conductivity of the brain of animals is increased in acute iodism. The thyroid is indispensable for the normal growth and the development of organisms. The thyroid is inter-related with other endocrine glands in the regulation of the process of menstruation and prepares the uterine mucosa for nidation. The thyroid and suprarenal cortex are antagonistic while the thyroid and the medulla of the adrenal glands stimulates each other.

Pharmacology.

It is established that the effect of thyroid is due to the iodine which is held in organic combination in the gland viz., iodo-thyro-globulin which is present in an amount equal to half of the dried gland. According to the United States Pharmacopoeia, thyroid preparations should contain 0.17 to 0.23 per cent of iodine. Thyroxin is derived from thyroid substance or iodo-thyro-globulin. It resembles tryptophan one of the amino acids of the body and is said to be a derivative of it. It contains 65.1 per cent of iodine. 1 milligram of thyroxin increases the metabolic rate about 2 per cent. The peculiarity of the action of the thyroxin is the delay before effects have become manifest. They usually do not appear until after a lapse of 24 to 36 hours and the height of the reaction may occur about the 8th day and the length of time a single dose of thyroxin functions within the body is about three weeks. Less than one milligram daily will replace the loss of the thyroxin in the body and this is a sufficient dose. For oral administration due to incomplete absorption $1\frac{1}{2}$ milligrams or $\frac{1}{48}$ th grain is required. It is not yet proved that the thyroxin is the only active

internal secretion of the gland. It contains about $\frac{1}{4}$ th of the iodine of the gland and the remaining $\frac{3}{4}$ th is iodo-thyro-globulin or other organic compounds and these also have some physiological activity. Thyroxin has been prepared synthetically.

Growth and Development:—Thyroid gland exerts a very definite and marked influence on growth and development and tissue differentiation. It accelerates the growth of bones especially long bones. It controls and stimulates the growth of all tissues and sustains a functional activity of all cells.

Metabolism:—Thyroid glands regulate the normal process of metabolism in particular of nitrogenous metabolism and ensures the combustion of certain toxic products of normal metabolism which accumulates in the body in its absence and reinforces the defensive mechanism of the organism against bacterial toxins. Carbo-hydrate metabolism is increased by thyroid as also fats. In fact all food stuffs are oxidised and the action is exerted directly or indirectly on the cells and not due to muscle contraction.

Stomach:—Thyro-iodine strengthens the secretory functions of the stomach and stimulates appetite.

Intestines:—The peristaltic action of the intestines is stimulated by the thyroid and it is useful in obstipation.

Skin and hair:—The action of the cells of the skin is stimulated, sweating is increased. Ichthyosis, eczema, psoriasis, scleroderma, chilblains and urticaria are prevented. The growth of the hair on the head is regulated by the thyroid.

Blood:—Thyroid has a destructive action on the ultra molecular protein bodies in the blood and purifies the blood current from albumins by its energetic catalytic action. It controls erythropoiesis. It forms a constituent of the platelets and increases the coagulability of the blood and has a

stimulating influence on the haemato-poiesis.

Brain and spinal cord:—The brain depends upon the thyroid for its growth and development more than the spinal cord. In the protection against protein shock the pneumogastric acts through the medium of the thyroid secretion which seems to be subjected to an excito-secretory action of the vagus.

Eye:—The ciliary body—the blood organ of the eye—is peculiarly responsive to the effect of toxin and thyroid comes in handy to regulate and destroy it. It prevents or delays the onset of cataract and glaucoma.

Kidneys:—Thyroid stimulates the excretion of urine and of urea.

Sex:—Thyroid stimulates the sexual development of both males and females and prepares the mucus membrane of the uterus for the holding of the fertilised ova and prevents placenta previa.

Ear:—The organs of hearing are stimulated by thyroid and by keeping the small bones in right condition, it prevents deafness and tinnitus-aurium.

Teeth:—Thyroid assists in the metabolism of calcium and thus prevents decay of teeth. The eruption, colour and quality of the teeth and their position in the jaw are regulated by the thyroid.

Respiration:—Respiratory exchanges including the intake of oxygen are increased by the thyroid combining with adrenoxidase.

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CIVIC ACTIVITIES IN THE WEST IN RELATION TO HEALTH AND WELFARE.

A LECTURE DELIVERED BY
RAO BAHADUR DR. LAKSHMANA-
SWAMI MUDALIAR, B.A., M.D.

Second obstetric physician and gynaecologist, Government Hospital for Women and Children, Madras.

Under the auspices of the National Health and Baby Week Celebrations of the Corporation of Madras, and specially contributed to "The Medical Practitioner."

The problem of health and welfare has come very much into prominence in all civilised countries in the world, and more and more opinion is gathering round and that it is primarily a civic problem—a problem which ought to be tackled by civic authorities, whatever additional assistance may be vouchsafed from central authorities. The central authority may be in a position to legislate, but the actual laws will have to be enforced by local authorities, and in that respect, local bodies have begun to realise what a large amount of power they have and what a large amount of responsibility devolves on them to see that that power is properly exercised.

We are at times very much inclined to compare vital statistics of Western countries with some of our own countries in the East: but any such comparison would be futile, if at the same time we did not also compare our own civic activities in Health and Welfare with the civic activities in the West. It certainly is not going to be profitable to say that the death-rate in a city like Madras is somewhere between 40 and 50 per mille, and that the infantile mortality in most of the Indian cities ranges between 250 and 300 or more per mille, if at the same time we did not also examine the question—what are the measures by which the death-rate in foreign countries is kept at the low figures at which they are kept, for instance, in the city of London? The infantile mortality rate is only 70 per

mille, while the general death-rate in most European cities and countries is somewhere between 12 and 15—only a third of what exists in this country.

It is with this view, therefore, I have ventured to speak a few words this evening about this subject. It may be stated that a great deal of attention is now being paid to questions concerned with Maternity and Child Welfare: for everybody is beginning to realise that a nation is gathered out of the nursery and the first essential for a healthy existence is to safeguard the child at its birth and in its infancy. But Maternity and Child Welfare would make little or no progress if the general sanitation and other associated factors which go so largely to control and direct infant life, are not at the same time looked into. There can be no gainsaying that the general level of sanitation in most of the cities in India is far behind what it exists in many of the Western cities. Comparison is always odious, but sometimes it is necessary for us not to bind ourselves to the belief that things are perfect in this work-a-day world when we are aware, and painfully aware, of the most obvious defects.

Intimately associated with the welfare of the child and the nation is a subject which has been very much before the public eye in most of the countries in the West—I refer to the housing problem. The number of houses built since the Armistice in England and Wales alone was 1,105,000, of which 381,000 were built without State assistance and 724,000 with State assistance. Take again a city like Vienna: since 1921, the Viennese Corporation has been able to construct 60,000 houses for the poor of the city. These houses are in a part of a city extensive in area and within about 20 minutes tram drive from the opera, the centre of the city. The apartments are rather small, usually consisting of 2 or 3 rooms in addition to a kitchen. Every apartment has a wash room with running water and a toilette, but not bath.

There are many bath places large enough to serve as small verandahs; but we must not forget the many community conveniences that go with these dwellings. There is usually an ample and commodious bath station with many private showers and tubs served by huge boilers. The newer buildings are situated with large and uniformly equipped steam laundries including many washing machines, centrifugal rings, dryers and mangles. All these are for the use of the tenants. They say that the right to use the laundry goes with the *key*, meaning that it is included in the rent.

Next, one is apt to encounter a kindergarden, a kino, a reading room, for the use of all of which the tenant pays, what seems to the foreigner, a most ridiculously small sum. You would wonder what the rents of these apartments are, and if you should ask the good-natured housekeeper, with some amount of hesitation naturally, she smiles and answers—'12 sh. per month', which in our own current coin, will be between 4 and 5 rupees. Naturally there is a great demand for such dwellings, and there is always a long waiting list. They are exclusively for the wage-earners of the city and are assigned according to a carefully worked out system. The object is to use them for families most in need of homes.

The reason why so much of emphasis is placed upon housing schemes in Western countries is because of the realisation of the fact that it has a direct bearing upon the mortality of infants and adults, and it has been proved to the hilt that the infant mortality rate in the single tenement houses is certainly two or three times *less than* what it is in three or four tenement houses, and the overcrowding in a number of dwellings is materially responsible for the large infantile mortality rate in any city. It is obvious that if this rate is to be reduced, and permanently reduced, to a level which will be comparable with what exists in Europe, the first essential in many of our corporations is to

increase housing accommodation, particularly of the poorer inhabitants, so that they may command reasonably comfortable places of residence for a reasonable rent.

Intimately connected with the housing scheme and with the general health of a population is the question of town-planning. Town-planning as a matter of serious study and practical significance, has been of recent birth in this country. In Madras, and in Southern India in general, it may be said that it was the direct result of the work of Sir Patrick Geddes, who had come over about 10 years ago in connection with town-planning.

The primary object of planning an area in course of development, or likely to be developed for building purposes, is to lay down general lines of development, roads, open spaces, allocation of land for different uses etc., for the guidance of owners and builders, if and when development does, in fact, take place. When, therefore, the tide of development shows signs of approaching localities hitherto valued for their seclusion or other charm, the mere abstention by the local authority from the preparation of plans of new roads and other features, will do nothing to prevent the advance of that development, but will inevitably leave it to flow without any order of discrimination. If, on the other hand, it is desired to preserve the particular locality, as far as possible, in its original setting and character, provision must be made not only for diverting through traffic by by-pass roads, but also, it may be, for reserving a particular range from building development altogether, or for governing any greater detail the character of such buildings as are admitted, as regards tile and appearance, as well as type.

To allow, for instance, in a predominantly residential area, shops and other business enterprises to spring up without controlling where and in what manner they will be allowed to be built, would be disastrous in the

long run, because it will undoubtedly lead to depreciation of the value of the buildings and would perhaps force the residents to seek quarters elsewhere. Such a policy followed by any corporation would undoubtedly be financially a great loss, and the corporation will be killing the goose that laid the golden egg by allowing indiscriminate house-construction in any area selected for the extension of a town. They were glad that in the Corporation of Madras, they had a scheme which had been given effect to in recent years, known as the Mambalam scheme. Beautiful roads had been laid down; a fine park had been grown; but I am bound to state that I felt it a great disappointment to walk through that area and see the houses springing up in all sorts of fashions, with no structural or architectural beauty about them, such that a large up-storied building was situated jostling a comparatively primitive type of cottage in the next area, and houses had been allowed to spring up at all angles so that the æsthetic sense was greatly offended by a visit to that locality. I must opine that if the scheme did not work more efficiently and a greater amount of restriction was not placed upon the structural requirements of houses springing in any such area, the result would be that that particular area will sooner or later, be just as crowded and will serve no useful purpose in the new scheme of town-planning.

There was another subject to which I would refer which had been of great moment in all Western countries, that is, the control over food stuffs. I need not dilate upon the relation of food to health and sanitation: in fact, it had been generally recognized that most of the complaints of what are known as the intestinal complaints, were due to contaminated food-supply—so that in the West there was a very rigorous inspection of food supply and a very rigorous control over the places where such foods were allowed to be sold. Take, for instance,

the question of milk supply of the city. In a large city like London where milk was required in large quantities, whole train-loads of milk would arrive in the morning and this milk was so pure, certified pure, that anybody could use it without the least hesitation.

Under the provisions of the Milk and Dairies Order of 1926, local sanitary authorities have full sanitary control of cow-sheds and dairies, and are required to enforce necessary provisions for structural alterations in cow-sheds relating specially to flooring and drainage arrangements, such that there will be as little possibility for any infection of the milk, or of the cows themselves. Active steps have been taken by local authorities all over the country to familiarise milk producers with the requirements of the Order and to explain its provisions. Meetings have been held in a number of districts, in which the farmers, medical officers of health, and sanitary inspectors have all got together to discuss the question. Pamphlets and circulars have been distributed explaining what these were and much assistance in promoting the process of settling down to a good material understanding in the matter has been given by the County Council Dairy Instructors.

When we talk of bowel complaints in babies and the large amount of mortality consequent upon such complaints, little do we realise that one of the most essential factors in the causation of such complaints is the imperfect, impure, adulterated supply of milk, such as obtains in the city of Madras and in most of the municipalities.

Take again the question of coffee-houses. We have here a number of coffee-houses run by different individuals in different parts of the city. After an experience in the West of the fine tea-shops, whether in London or in the continent, which are run with so much of advantage on co-operative basis, and with so much of comfort, and so much of pure supply of

foods, it was unfortunate, it seemed to me, that there should be any provision for the running of the sort of houses called coffee-houses that were allowed to trade with the health of the population, albeit for a mess of pottage. Take Vienna again, a beautiful city in many respects, and one of the garden cities of Europe. The best place to observe the peculiar qualities of the Viennese is in his cafe. The cafes serve coffee, tea, beer, wines, sandwiches, and generally ham and eggs. The Viennese do not go there to eat and drink: that is incidental. The guest comes there to read, smoke and visit, to see and be seen. In the cafes are to be found all the magazines and newspapers of the day. One finds them in English, French, German, Czech, Hungarian and Italian. The guest orders a cup of coffee or tea and settles himself for the afternoon. The travelling salesman brings his customer to take his orders. The businessman comes there to write his letters and the students sit down with their books and lecture notes. Little parties gather, and it is a common sight to see groups of people whiling away the evening or afternoon, reading magazines and eating schlagobours. Not infrequently the women bring their sewing or fancy work and use their fingers for profit while their tongues wag. The thrifty German who gives language lessons to the foreigner, likes to use the cafe for reasons that are not difficult to guess.

It seemed to me that in this respect, as in so many others, a good deal of sympathy was wasted on the so-called poor vendors of food-stuffs. Let them realise that health is the biggest asset and whoever offends against the health laws will certainly be as much guilty of the offence of culpable homicide not amounting to murder or infanticide, as the person who actually does commit the offence under the provisions of the Penal Code. It is a trite saying, 'He who steals my purse, steals trash, but who steals my health steals that which does not benefit him and which not only ruins me, but

spreads ruin and disaster for a number beside me'. They must realise that it is no good wasting sympathy on offenders of the laws of health and that if there is a civic conscience and a civic organisation equal to the occasion, then such offences must be reduced to a minimum.

Take again the question of markets. Could it be said that they had markets of which they could be proud in most of our municipalities? In the West, markets, like topsy, appeared to have grown: they spring up spontaneously at a port, a cross road, or around the walls of a cemetery or other dilapidated building. In recent times, market rates have been usually derived from Acts of Parliament in Great Britain. At present, in England and Wales, there are about 1345 separate markets for the sale of agricultural supplies. The tendency is for full control of the markets by the municipalities. The question may be asked: Does municipal management pay? You cannot judge this by looking only into the cash account: the main object of introducing municipal markets is to ensure a supply, clean and pure, at convenient centres, and to prevent cruelty to animals. Incidentally, it happens to be the fact that some municipal markets show cash profits, which in many cases are used to reduce the rates.

Speaking of the wholesale market, it should be remarked that they are a great convenience to the retail trade, in that they enable the quality and prices of large supplies of a wide range of commodities to be compared, and a selection made to the best advantage. They help to steady prices: they also help to ensure that prices are reasonable for reflection of the relation of supply and demand, and thus they keep down profiteering. It seemed to me that, if as they are allowing in most of our municipalities, they should allow vegetable and other markets to spring up at all sorts of inconvenient places, without even a license to control them, by the side of y-lanes and streets, not only are they

allowing the sale of contaminated food to be sold under improper surroundings, but they are really tampering with the proper use of municipal markets such as may be located, because of the severe competition by the others. The least that any municipality can do is to prevent, by legislative means, if necessary, the sale of foodstuffs in such localities.

I shall next touch upon the question of playgrounds and parks and open spaces. The total amount spent during the year 1927-28 in England and Wales for the above purposes, that is, land purchase, lay-out, etc., was £.1,253,000. The recent conversion of Mornington Crescent and Endsleigh Gardens to building purposes and similar threats to other London squares, aroused a general public feeling of uneasiness as to the future of these characteristic features in the development of London. The matter became the subject of numerous questions in Parliament during the course of the year, and in response to this expression of public feeling, and the representations made by the London County Council, it was decided to appoint a Royal Commission "to enquire and report on the squares and similar open spaces existing in the area of the administrative County of London, with special reference to the conditions in which they are held and used, and the desirability of their preservation as open spaces, and to recommend whether any or all of them should be permanently safeguarded against any use detrimental to their character as open spaces, and if so, by what means and on what terms and conditions".

It seemed to me that a great deal of head-way had to be made as regards this question. Open parks, playgrounds and squares were the lungs of the city, and in all big cities, particularly where industrial activities were springing up, it was the duty of the corporation to see that such spaces were provided for the benefit especially of the growing children and even of the general public. I

hope that the corporations and municipalities would take up this question seriously and have a well-organised and thought out scheme, so that in the course of a few years at any rate, it may be said that they had municipalised the large number of waste lands, perhaps of open spaces, and given them for the public for purposes of recreation.

Another topic I would like to refer though briefly is the subject of School Hygiene. The health of the school child is now demanding increasing attention in the West. School Medical Officers of Health are interesting themselves, along with lay agencies and philanthropic societies, and at present they have a large number of schools which are utilised to secure the best interests of the children of varying character and varying temperaments. We have nursery schools, open air schools for delicate children, for exceptional children, schools for mentally defective children, schools for nervous and unstable and difficult children, schools for blind and deaf children, for epileptic children, for stammering children. In fact, the variety of organizations to meet every special cause of abnormality goes to prove the amount of attention that is expended by the authorities concerned on this essential question for the building up of a proper nation.

Lastly but not of least importance is the question of statistics which is a great help for all propaganda and public health activities. They were going to have shortly a census taken of the population of Madras and of varying details connected with that population. It seems to me that the work of keeping the census periodically should be performed by the municipalities themselves and they should not indefinitely wait for the decennial census to take place. In London, for instance, a few years ago, one night they had a census taken of the vagrant and homeless people that still people the streets of greater London. The census returns ought to be so

attractively got up that really serve some useful purpose. I hope that when the next census comes, there will be a greater amount of co-operation in the different departments pertaining to any corporation or municipality, such that the census returns may be used for the furtherance of those interests which are calculated to ameliorate the health and welfare of the population.

I must now come to a close, I had touched upon only a few of the activities in the West; but for any one who had seen the activities in the West, the amount of energy that is spent, the amount of money that is expended, it will be obvious that a great lee-way had yet to be made in Madras and in most of the cities in this country. I can only hope that the spirit that is now so obvious in many of their fields of activity will ascend itself in the fields of health problems and that they will see that every one does his duty, irrespective of vested interests, irrespective of consequences, with the single motive of promoting the health and welfare of the nation.

Abstracts.

THE NON-OPERATIVE TREATMENT OF HERNIA.

BY

IGNATE MAYER, M. D.

In general, there are three types of procedures for treating hernia; [1] the so-called radical "cure"; [2] the use of a truss for the rest of one's life; and [3] the subcutaneous injection treatment.

RADICAL CURE

Radical operation is the procedure almost invariably advocated in surgical circles, and impressive statistical results are generally reported. To one who has made a close study of hernia, however, it is apparent that these statistics are often misleading. It has been my experience to treat

many patients with recurrent hernias, who had been classified by prominent surgeons as "cured" and so reported. The true frequency of recurrence after herniorrhaphy cannot be estimated, because the prevailing method of follow-up study is based on the assumption that the hernia has been "cured" if the patient does not return for another operation. As a matter of fact, it should be obvious that one who has had an unsuccessful operation is not likely to come back and take another chance. The proper procedure in a follow-up study of surgical results, therefore, would be to classify as "apparent cures" only those patients who have lived vigorous lives for several years after the hernia operation and, on careful physical examination, show no evidence of a return of the hernial protrusion under stress. Based on a scientific study such as this, the figures for "cure" of hernia by operation would be comparatively modest.

THE USE OF A TRUSS.

There are a number of good trusses to be had. It should be understood that the functions of a truss are to support the hernia and prevent protrusion of abdominal contents into the sac. These results can be accomplished with a variety of trusses, provided one knows how to fit them to the patient. Therefore, success depends, not so much on the kind of truss, as on skill in fitting it properly to the requirements in the individual case.

It should be apparent that no truss can "cure" a hernia. All that can be expected from its use is temporary support. In spite of the truss, the internal ring relaxes more and more increasing the difficulty of retaining the hernia and requiring periodic changes to a new truss with a larger pad.

The only possibility of curing a hernia with a truss is in the case of a newborn child. Even then, "cure" is rare and, when it is attained, the infant requires constant and careful supervision. More often, the "cure" of a hernia is only apparent and the trouble recurs in latter life.

SUBCUTANEOUS INJECTION TREATMENT.

In my experience, the routine treatment for hernia by subcutaneous injection yields far better results than those attained by radical surgery. The percentage of recurrences is less, the mortality is nil, and the inconvenience to the patient is reduced to a minimum. The last factor is of importance, because patients who will not submit to operation, because of fear and lack of confidence, have no hesitation in taking the injection treatment.

It must be distinctly understood that there are cases in which surgery is definitely indicated, but they are in the minority. In cases of strangulated hernia, surgery may be life-saving and no other procedure can take its place. When the hernia is incarcerated and cannot be reduced, surgery may also be required.

With the earlier methods employed, the subcutaneous injection method frequently caused severe pain and irritation. Today, however, the technic and the injection solution used have been so improved that irritation has been reduced to the degree necessary to form adhesions in the relaxed canal, and severe pain during the treatment is exceptional.

Formerly it was necessary for the patient to remain in bed in the recumbent position for a considerable time after each injection. As a result, disability and loss of wages imposed a severe hardship.

With the method that I employ, this precaution is not necessary. Of course, the patient must wear a truss for a reasonable time after the injection treatment, because Nature really cures the hernia and the adhesions formed as a result of the injection must be given time to become firm and resistant. Also, a truss must be worn at all times. Even while taking a bath the patient must replace his ordinary truss with a special rubber truss. Another point of importance is that work involving heavy lifting or other strain upon the abdominal muscles

must be avoided, at least for some time after the treatment.

GENERAL TECHNIC.

I place the patient on an operating table in the recumbent position. He must lie perfectly quiet with his feet slightly elevated.

After reducing the protruding intestinal sac or omentum and being convinced that the canal is entirely free, I invaginate the left middle finger through the external abdominal ring and the inguinal canal until it reaches the outline of the internal abdominal ring. As the end of the middle finger is slightly raised and felt by inserting the forefinger, it serves as a perfect guide for the insertion of the needle.

I begin to insert the needle at the lower portion of the ring, at a point where its edges are felt through the abdominal parietes. One must be careful not to wound the spermatic cord. After the fluid has been injected, the needle is slowly withdrawn. Slight pressure over the site of the injection may be made for a few minutes in order to relieve any pain that may have been caused by the injection, but this measure is not essential and is seldom required.

It is necessary to avoid passing the hypodermic needle in a perpendicular direction, in order to prevent the risk of injuring or penetrating the spermatic cord. Although the pain and inflammation caused by this accident may be controlled by application of an icebag, swelling of the cord persists for several weeks and delays continuation of treatment until the cord has resumed its normal size. To avoid this accident, care should be taken to enter the hypodermic needle obliquely, at an angle of 45°.

Personally, I do not invaginate the scrotum. But until one has acquired the necessary skill, it is essential to take some special precaution to be sure that the injection is made into the canal. A simple manoeuvre is to pass the left middle finger into the

spermatic canal until it comes to the inguinal ring. By passing the middle finger up with the invaginated scrotum upon it, the operator may assure himself that he is palpating the canal proper. In this manner, one can feel whether the canal is free and insert the needle with the other hand. Then the fluid may be injected.

In certain cases, injection through the internal ring is to be preferred. This is true in the case, of children and highly nervous subjects when too much manipulation is objectionable and the injections must be given rapidly. In such cases, I have given injections through the internal ring directly, without invagination but, inasmuch as the internal ring cannot be palpated, its position must be absolutely located by means of anatomic landmarks. For this reason one must be thoroughly familiar and experienced with the localization of the internal ring before attempting to inject the fluid into the canal at this point. This procedure is more easily accomplished in lean than in obese patients. Anatomically, the internal abdominal ring lies midway between the anterior superior spine of the ilium and the symphysis pubis and about 1/2 inch above the point a little internal to the middle of Poupart's ligament.

Following the injection the patient must wear a truss constantly, day and night. This appliance must, of course, be properly shaped and fitted to the body. For general use I prefer the so-called frame truss. A hard rubber truss should be furnished for use while taking a bath. While changing his appliance, the patient should lie down and be sure to keep the muscles of the abdominal wall relaxed, as the relief of hernia by the injection method depends on the formation of a connective tissue barrier, in response to the irritation of the injection fluid. It is apparent that a truss must be worn constantly until the newly formed connective tissue has had time to unite firmly.

The injunction treatment is indicated in all cases of reducible hernia, regardless of the patient's age or the length of time that the hernia has existed. However, it is not advisable to employ it in the case of patients suffering from tuberculosis, venereal disease, diabetes mellitus or nephritis. The reason for these contraindications is not the fear of any untoward result, but rather the likelihood that the

formation of fibroplastic lymph, brought about by the injections, will not become sufficiently organized because of the low vitality of the patient. It must be remembered that, the greater the amount of serous effusion, the more certain is the desired result to be obtained, because without this effusion satisfactory closure of the canal cannot be effected.

The solution used:—

		Gm. or cc.
Zinc Sulphate	... 1 dr.	3.9
Phenol crystals	... 6 dr.	23.3
Glycerine (C. P.)	... 4 fl. dr.	15.0
Aqua cinnamomi	... 1 fl. oz.	30.0
Fl. ex. pinus canadensis (dark)	... 5 fl. dr.	18.5
Sterilised, chemically pure, redistilled water	... 2 fl. oz.	59.2

Preparation:—Dissolve the zinc sulphate in the cinnamon water, liquefy the phenol crystals by heating; add the glycerine; shake thoroughly until mixed and cooled, then add the distilled water and finally the fluid extract of pinus canadensis; shake thoroughly; allow the fluid to stand for about a week, agitating the mixture several times a day. Subsequently it should be filtered. Before injecting, boil the solution in a glass tube or place it in the steriliser in a porcelain receptacle.

As compared with older injection solutions, this formula produces a greater flow of lymph with the smallest amount of irritation. The greater the amount of lymph flow produced, the more complete will be the obliteration of the canal.

The injection is made with a 1.5 cc. Luer syringe, equipped with slip-joint hypodermic needles of 21, 22 and 23 gage and from 3/4 to 1 1/4 inches long. Injections are given from four to seven days apart, depending on the severity of the reaction. Usually from sixteen to thirty injections are required to close the ring.

At the first treatment only two minims (0.12 cc.) of the solution should be injected. Then the dose may be increased to from 8 to 16

minims (0.5 to 1 cc.) according to the degree of inflammation produced. In children, the dose is from 2 to 4 minims (0.12 to 0.24 cc.) once a week.

For femoral or umbilical hernia, 1/2 of this dose is preferred: that is, from 4 to 8 minims for adults and one to two minims for children.

Results.

I have employed the subcutaneous injection method for inguinal, femoral and umbilical hernias in more than 2,100 cases. This work now covers a period of thirty years, during which I have devoted my time exclusively to this procedure. Hence, I cannot be accused of being hasty in my evaluation of the method.

With regard to permanent results, my check-up shows that lasting relief from hernia was obtained in 98 per cent of cases. I have on record data with regard to more than two hundred cases in which radical operation was followed by a recurrence, but in which the use of the subcutaneous injection method subsequently brought about complete relief.

Conclusions

1. Surgical statistics with regard to the "cure" of hernia by radical operation are unduly optimistic.

Many more recurrences are seen than is commonly supposed.

2. A truss, properly fitted to the individual patient, can accomplish temporary retention, but nothing more. It has its purpose but is only an expedient. It cannot anatomically cure a hernia.

3. Subcutaneous injections, into the hernial canal, of a fluid designed to promote the flow of plastic lymph, offer the nearest approach to physiologic cure by obliterating the patent canal, the cause of the hernia.

4. In a series of 2,100 cases of inguinal, femoral and umbilical hernia, the subcutaneous injection method gave complete relief, without recurrence after a period of years, in 98 per cent of cases.

5. In more than two hundred cases, hernias, recurring after operation and reported as surgical "cures," were subsequently relieved completely by the subcutaneous injection method. —*The clinical medicine and Surgery Oct 29.*

LOW BLOOD PRESSURE.

Having his interest aroused in low blood-pressure following an attack of influenza in many cases, Dr. Wingate M. Johnson made an effort to clarify his thoughts upon the subject. The result is a very readable paper that appeared in "*The New Albany Medical Herald*" (July, 1928, XXXVII, p. 151).

In a study of average blood pressures, readings of from 5 to 15 mm. below are considered as "under average." The author quotes Osborne as saying "A systolic pressure of 110 mm. or lower in an adult should be considered hypotension; anything below 105 mm. calls for treatment, and a systolic pressure of 100 or lower in an adult calls for rest from all active duties."

If a systolic pressure of 110 or less is considered as hypotension and one of 140 or more as hypertension, Johnson believes that there are at least as many individuals with hypotension as with hypertension. Tabulating his

readings in one hundred consecutive adult office patients, he has found that thirty-one showed 140 or higher, thirty-two showed 140 to 110; and thirty-seven showed 110 or lower. Incidentally, it is important that average, or "normal" blood-pressure reading were obtained in less than one-third of the one hundred patients.

Hypotension may be acute (temporary) or chronic (persistent). Acute, or temporary hypotension may be due to profuse hemorrhage, nausea, shock, fainting or other conditions. The author discusses more particularly the low blood pressure associated with and following acute infectious diseases notably influenza. Influenza appears in so many different forms that differential diagnosis is not always easy. Dr. Johnson has learned to rely upon a low blood pressure as one of the most constant findings in "flu" within the first two or three days the systolic pressure falls from 10 to 60 points, the diastolic about in proportion. This low pressure persists from a few days to some months, depending largely upon the time spent in bed, and may never regain its former level. In his experience, the patients that have had the most marked drops in pressure are those who have had such mild cases of grip that they did not stop until forced to do so by marked weakness, sometimes fainting. An interesting observation is that hypertension cases show a great drop in pressure also in one of his cases from 180 to 120, in another from 240 to 170. They seem to feel "let down" as much as normal pressure cases, until they regain their normal level.

With regard to the actual cause of acute attacks of hypotension, the author confesses his ignorance. Most of them improve too quickly and completely to have been induced by actual damage to the myocardium, though this is often responsible. In the author's opinion, during acute illness, there is an increased demand made by the system upon the adrenal glands, which special effort is quickly followed by a temporary decrease of

their secretions. This deprives the vaso-motor system of its natural tonic. The symptoms of this form of low blood-pressure are familiar; marked weakness, sweating on exertion, feeling of weariness as though one had been exercising strenuously, dizziness on sudden change of position, and a feeling of utter depression—physical, mental, and spiritual.

In the treatment of acute hypotension, rest is an absolute necessity. Subjects of influenzal colds, even without fever, should stay in bed during the acute attack. If there has been fever, bed rest is necessary for from one to three days after the temperature has become normal. Then an equal length of time should be taken for convalescence before going to work.

An important part of the treatment is a nutritious, easily digested diet. Unless sleep is disturbed, the author permits coffee and tea because of their stimulating effects. (It has been found, however, that coffee and tea, also, cocoa, nicotine, and some other drugs, depress the adrenal glands and may, therefore, increase the damage. It appears to us that adrenal feeding (total adrenal substance) will be of greater advantage than either of these stimulants or even adrenalin, which the author mentions are being indicated therotically although its action is fleeting. Ed. Survey).

Practically, one may use caffeine in the form of coffee, as suggested by the author as a mild stimulant without fear of further injuring the adrenals provided this pleasant beverage is not taken habitually, which we believe, might create a predisposition to the acquirement of hypotension.

Chronic or persistent hypotension is characteristic of certain diseases, notably tuberculosis and Addison's disease. It is usually present also in anemia, myocarditis, fatty heart and mitral stenosis; further, in coronary thrombosis in which, however, severe hypotension is caused suddenly. The blood pressure also is depressed by the habitual use of coal-tar products.

With regard to the effects of alcohol and tobacco upon the blood pressure opinions vary widely even among the most noted and most acute clinical observers. Pharmacologically, both tend to depress the blood pressure in persons not accustomed to them. Their prolonged use, we have noted, has a tendency to bring about, in the kidneys and cardiovascular system, changes that tend to raise the blood-pressure. This is more or less speculative and cannot be accepted as a positive fact. Dr. Johnson has no knowledge of any comparative blood-pressure studies of a series of smokers and non-smokers of the same age and sex. He has begun such a study which he hopes to make the basis for a future paper. As far as he has gone, the difference in the average blood pressure of adult male smokers and non-smokers is negligible.

A great number of hypotension cases are found among the narrow-chested long-waisted persons who complain of perpetual fatigue and who are designated as neurasthenics or asthenics. Johnson refers to A. E. Fossier's discussion (Am. Jour. Med. Sc., April, 1926, clxxi, p. 496), which was abstracted in this journal for July, 1926 (iii, p. 258). Fossier considers the so called essential hypotension to be a symptom of splanchnoptosis due to mechanical factors.

The symptoms of chronic hypotension, like those of the acute form, are physical and mental fatigue, vaso-motor instability, and even loss of memory. The prognosis for life in this condition is much better than that in hypertension. A moderately low pressure adds materially to one's expectations of life after the age of twenty-five. However, it must be admitted that subjects of chronic hypotension as a class do not feel so alert and vigorous as those with high pressure. The author compares the condition to an automobile with a low-powered motor, which has neither the speed nor the power of a car with a larger motor and hence wears more slowly. It may be, as Dr. Johnson

suggests, that the comparative longevity of hypotensives possibly is due to the fact that the low blood pressure tends to inactivity. However, it is worth remembering that individuals with decidedly low blood pressure are not good surgical risks.

The treatment of chronic hypotension is that of the underlying condition. In persons of the enteroptosis type, a prolonged rest may be necessary also exercise to strengthen the abdominal support, and certainly a full diet.—(*The Endocrine Survey, March 1929, Vol. VI, No. 3*),

Notes on Treatment of Diseases.

N.B.—These notes are intended to supplement the treatment given in ordinary text books and neither to be expected nor possible to be exhaustive.

Angina Pectoris.—When due to high arterial tension nitrite of amyl inhalation or nitro-glycerin in the form of the official preparation Spts. glycerylis nitratis 1 to 2 ms. To ward off a threatened attack Spts. ammon aromat and Spt. chloroform each one ounce; a dessert spoonful to be taken in two ounces of water. If the nitrites are contraindicated morphia may be given hypodermically but not by the mouth. If the heart is feeble and blood tension is high Tr. digitalis one dram, Tr. belladonna ½ dram, Spts. glycerylis-nitratis 24 ms. Tr. card co. 3 ounces; a dessert spoonful 3 or 4 times a day. Benzyl-benzoate in doses of ms. 30 in milk 4 times a day—(*Medical Annual 1925*).

2. Hoffmann's Anodyne is the best remedy during the attacks in 1 to 2 drams doses to be given either in capsules or in cold water (to obviate volatilization). To prevent paroxysms sodium benzoate alternating with chloral hydras or Tr. veratrum viride 15 ms. nitro glycerin 1/100th grain, sodium nitrite 2 to 5 grs. or erythrol tetra-nitrate 1 gr. 4 times a day. Between the attacks potas or sodium

iodide 5 gr. or thyroid is good. strychnine or digitalis should not be given—(*Sajous*).

3. Theobromine gr. 5 or diuretin 10 gr. 3 or 4 times a day diminishes the intensity of the pain. On the first indication of a substernal pain is a tablet of trinitrin to be slowly chewed. During the attack morphia with atropine is useful. In the earlier stages mentholis gr. 8, Spts. ammon. co., Spts. chloroform, Tr. zingiberis each one ounce, two tea-spoonfuls to be taken and when going to bed a draught of nepenthe washed down with an ounce of whisky in water is good—(*M. T. T. 26*).

4. In Angina combined with bradycardia—Thyroid is good.

5. Livingston's Ergot 15 to 30 ms. to be given hypodermically or Ergot one dram, chloroform ms. 3 and chloretone gr. 3 in one ounce of water is useful particularly in cases with low blood pressure. In the interval dry diet. Sodium or potas iodide in syphilitic cases. Benzyl-benzoate, quinine or urea may be given—(*Year Book 1928*).

6. Nitrate of mannitol is useful (*Rudolf*).

7. In acute cases morphia one fourth grain may be given subcutaneously, if the pain is severe but the patient should not be allowed to lie down but must be made to sit up (*I. M. G.*)

8. In both the forms (1) due to aortic disease which comes on with the preliminary sign of retro-sternal pain radiating down the neck and arms and (2) the true angina pectoris which comes on suddenly at nights theomionol which is a combination of luminol and theobromine is good (*C. E.*)

Ankylostomiasis.—Oil of chenopodium 2 cc for an adult to be given early in the morning on an empty stomach followed one hour after by a purgative—epsom salt. One cup of coffee to be given one hour after the purgative, in the evening, meals may be taken. This treatment is to be continued for a week.

2. Carbon-tetrachloride ms 60 in milk to be followed by 15 mm of Ol. chenopodium in capsules. This combination is useful is ascaris also. This must be followed by an ounce of saturated solution of magnesium sulph. (*I. M. G.*)

3. Thymol and Ol. chenopodium are the best and safest (*M. T. T.*)

4. Keep the patient on a fluid diet and on bed for a day and in evening give grms. 30 of mag. sulph. solution and in the next morning 11 to 18 cc of glycerine and again in the evening 30 grams of mag. sulph.

N. B.—To test the purity of carbon-tetrachloride add a drop of metallic mercury to 10 cc of the given sample. If it is pure there should be no change of colour; if impure the mercury becomes black owing to the formation of sulphide of mercury. (*Dr. Ourchs M.D.*)

Notes on Diagnosis, Therapeutics and other Medical Subjects

Bacteriophage-Therapy seems to have a good future in combating infectious diseases especially cholera.

We refer our readers to the article under the name of "The Problems of Cholera" which we extracted from the "Journal of American Medical Association" and published in the November issue of "The Medical Practitioner"

In Behar, Dr. I. N. Asheshoy in collaboration with Dr. Saranjam Khan and Dr. M. N. Lahir have tried cholera bacteriophage in protecting people against cholera in Puri on the occasion of the Car festival. An area comprising of dwelling houses accommodating 10,000 pilgrims was chosen for the experiment and bacteriophage culture was poured into the wells in that area. The experiment discloses that the incidence of cholera in this area was ten times less than that outside this area. The bacteriophage was also tried in Patna where out of 290 cases of cholera in the Patna Medical College Hospital, 140 were treated with it with only four deaths, thus giving a mortality of 2.8 per cent while by ordinary treatment, the mortality was 25 per cent. Experience has shown that bacteriophage can be taken either by mouth or by injection in large quantities without causing any harm. These experiments show that bacteriophage has great possibilities as a means of prevention

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of infectious diseases and promoting the health of the people.

Carbohydrate Metabolism.—In these days when Insulin has reopened a vista in our treatment of Diabetes Mellitus a summary of the present views on carbohydrate metabolism would not be out of place. This does not pretend to be any original work but is only a summary of our knowledge at present and is meant to be of practical use to the busy practitioner.

All carbohydrates taken as food are absorbed as dextrose. The ptyalin of the saliva converts the cooked starch in food into dextrose. This conversion continues for some time in the stomach till the action is inhibited as a result of the neutralisation of the alkaline salivary juice by the acid gastric juice. In the stomach the cooked or uncooked starch remains unacted upon and passes on as such into the duodenum. It is here that the conversion of uncooked starches into the absorbable dextrose takes place. The amylase of the pancreatic juice acts both on the cooked as well as the uncooked starch and converts them into dextrose. This in solution, is absorbed through the intestinal villi and then is carried into the liver where the dextrose is converted into glycogen and stored as such. In health the amount of glycogen in the liver is equal to the combined amount present in the muscles of the body. As the tissues of the body work, the dextrose is being burnt up and the replenishment of the dextrose is being done continuously by the conversion of the glycogen into dextrose. This function of glycogenolysis in the liver is apparently controlled by Insulin, the secretion of the islands of Langerhans in the pancreas. The utilisation of the sugar by the tissues is also dependant on the presence of Insulin, so that Insulin performs a double role. It is said that the Insulin converts the glucose into the variety in which state alone it could be used by the tissues. This evidence is obtainable from polarimetric experiments on sugar solutions perfused through the pancreas.

In the liver it acts in two ways. It prevents lipæmia. It restrains the conversion of glycogen into sugar. This later function is antagonised by the secretions of the adrenal, pituitary and thyroid glands.

Apart from glycogen the surplus sugar is converted into fat and stored up in the various fat depots of the body viz the omentum, mesentery, subperitoneal area, subcutaneous tissues and other places. This is evidenced by the fact that animals fed on a rich carbohydrate diet tend to become very fatty. It has been mentioned before that Insulin inhibits glycogenolysis. In its deficiency more sugar is poured out into the blood stream. Normally the blood contains 0.12 of glucose. In cases where the glycogenolysis is not controlled the blood sugar goes up. In health after a diet very rich in carbohydrate blood sugar goes up temporarily. The leak in the kidney i.e. the appearance of sugar in the urine depends on the threshold value of the kidney. In cases of diabetes the blood sugar remains high even after 3 or 4 hours after the ingestion of carbohydrate food.

The metabolism of fats can be completed only in the presence of a sufficient supply of and the proper metabolism of sugar. In deficient carbohydrate metabolism the fats are not completely oxidised to CO_2 and water, but they stop at an intermediate stage producing acetone, aceto-acetic acid, and B-Oxy-butyric acid. The presence of these substances cause Acidosis as shown by the low CO_2 tension in the lungs. The best test to detect the presence of the acetone in the urine is Rothera's nitro-prusside test. The urine is saturated with ammonium sulphate and to this a crystal of sodium nitro-prusside is added and shaken. The addition of ammonia to this gives a violet colouration if the test is positive.—*Dr. T. Krishna Menon M.B.C.M. M.R.C.S. & L.R.C.P. Hony. Physician, General Hospital, Madras.*

News and Comments.

In the meeting of the Madras Corporation held on the 11th ultimo the Council disapproved of the recommendation made by the Lady Superintendent in charge of the Child Welfare Scheme for the propaganda of Birth Control and declared that in their opinion Birth Control did not form any part of the work of the Corporation. Considering the object and principle of Birth Control propounded by the mover, we are not surprised at the resolution of the Council. As long as men think that their wives, daughters and sisters are mere chattels to be played with and kicked out at pleasure, no better treatment of the subject is possible. There may be some excuse for the Councillors to be ignorant of economics, but there can be any excuse whatever for them to be ignorant of arithmetic. Bertrand Russell says "He who is opposed to Birth Control on principle is either incapable of arithmetic or wishes that famine pestilence and war should be permanent features of human society." As long as the birth rate is high, the death rates both general and infant must be high. This is purely arithmetic and unless birth is controlled by Birth control and brought down, the death rate will never fall. We congratulate, however, the Lady Superintendent who as a woman and as a Doctor has found by experience that Birth-control is necessary and should form a part of the child welfare scheme, had the courage of her conviction to make the recommendation. We assure her that she has our support and that of the thinking public and also the support of the eminent official authority, Sir George Newman, the medical Officer of Health to the Ministry of Health in Great Britain who says in one of his reports "That although there is some truth in the view that the babies cared for by the infant welfare work are of the weakest group in the population, they must be saved or else callously allowed to die. But is there not a third course which we could and should begin to adopt viz., that of

advising the people of the poorest classes to have very small families? In spite of the resolution of the Corporation, Birth Control has come to stay in India and statesmanship demands to face the facts squarely and take correct measures to give proper advice on Birth Control by qualified persons so as to make it safe and satisfactory and not to follow the ostrich policy of closing the eyes and refuse to see things as they exist. As regards the prohibition said to be contained in the Hindu Sastras against Birth Control Sir V. Ramesam in his lecture delivered at the Renade Hall on the 22nd idem has quoted tenets of the Sastra sanctioning birth control.

There seems to be a tuffle between the Mangalore Taluk Board and the public of Moolky, a small town in South Kanara District, as to the appointment to the Local Dispensary of a medical officer who had all along been non-university medical man. The taluk board evidently has pitched upon a University Doctor and wishes to appoint him. The public have protested that the medical man in charge of the Moolky Dispensary had given no room for complaint and they do not wish to have a more costly doctor. In addition to the dispensary doctor there are 2 or 3 qualified practitioners in this small place. It is rather strange why the Mangalore Taluk Board persist in creating a want which does not exist, and thereby incur an unnecessary expenditure. We wish to draw the attention of the taluk board to the speech of the Hon'ble the Minister in charge of Public Health delivered on the occasion of the Royapuram Medical School-day celebration on 8-2-30 when amongst other things the Minister said that the merit and experience of a Doctor would weigh more with the public than his academic qualification and that there were instances where L. M. Ps proved themselves superior to the medical graduates. We hold no brief for the L. M. Ps. The Moolky public are the best judges to choose a Doctor whom they want. If

it is the considered judgment of the taluk board to have an University man none can interfere but they should realise that the question of medical relief should not be confused with yet another issue i. e. the unemployment.—The best way of cutting this knot is to make the place of the Medical Officer at Moolky an Honorary one and appoint a panel consisting of the local Doctors and as a comprise include in this panel the University Doctor whom the taluk board have in view. Will they do it and earn the gratitude of the Moolky public and also of the medical profession?

It is inconceivable that Col. Hingstone, an otherwise very sympathetic and generous-minded gentleman while acting as Surgeon-General should have thought it fit to advise some Taluk boards that a subsidy at the rate of Rs 75 a month was excessive and that the rural practitioner should be paid only Rs. 41—10—8 though the taluk boards had power to give subsidies at enhanced rates. Why should this officer have grudged to pay a brother practitioner though humble in rank a petty sum of Rs. 75 to earn which the rural practitioner has to sweat all day? Can office change nature; it seems to be so in the Medical Department.

We hear that the District Medical Officer, Anantapur has advised Taluk Boards of that district that the recent G. O. that money should be collected from rich patients attending Government medical institutions may be brought in force in rural dispensaries also. It is as absurd as it is illegal to bring the rural dispensaries under the category of Government Institutions. We suggest the rural medical practitioners to protest against this decision of the Taluk Boards immediately if they have not as yet done and appeal to the Government through the Surgeon-General that this illegal resolution of the Taluk Boards, Anantapur is against the rural medical relief

scheme and we hope the Government will set aside this order. As commented in our editorial columns rural medical scheme should not be made to appear merely an eyewash.

In the last issue the readers were informed that the Medical Register for 1928 had not been compiled and published as is required by Section 11 of the Madras Medical Registration Act and that Dr. V. Rama Kamath would bring this omission to the notice of the Government. Dr. Kamath did not find the necessity of doing so as this matter was the subject of an interpellation on 20—1—30 by Mr. A. B. Shetty, M.L.C. whose questions ran as follows:—

"Will the Hon'ble the Home Member be pleased to state.

(a) Whether it is a fact that the Register of Medical practitioners prescribed by Section 11 of the Medical Registration Act has not been corrected and brought up-to-date during the last two years or so; and.

(b) If so, why this register is not revised every year as required by the rules.

The answer was (a) and (b) The Government understand that the delay in the publication of the last two annual Medical Registers was due to the elections for vacancies in the Medical council during the compilation of the Medical Register. Whenever there is an election, medical practitioners give their change of addresses and it is found difficult to prepare an up-to-date register in the prescribed time.

It is such replies which are far from facts that bring the Government to discredit. The Home Member is in charge of the Medical Registration and he is aware that there is no other electoral roll with the names and addresses of the voters for election except the Medical Register and the elections instead of being an hind-

rance for the purpose of compiling the Register ought to have been an incentive to keep it up-to-date. The present Registrar took charge of his office early in 1925. That year there was an election for two vacancies in the 2nd group and this election took place somewhere in the months of March and April; but the Register according to the rules should be made up-to-date on 31st December, and so the Register for 1925 ought to be ready early in January or February 1926. In 1926 there was no election at all nor in 1927. In 1928 there was an election but this was in the month of October, yet the Register for 1928 is not ready in 1930. It is clear from actual facts that election cannot be an excuse for not compiling the Medical Register, on the other hand for want of an up-to-date Medical Register, elections are likely to be vitiated. There will be three vacancies in the medical council in the near future. We shall watch and see the fun of elections without a voters' list. Nothing seems to be impossible for the local medical council.

In addition to the resolutions already given notice of and which reached local newspapers but not the Registrar's office during the October session of the medical council meeting about (1) the overhauling of the registrar's office and Council staff (2) condemnation of the procedure of the counter signing of the medical certificates (3) permitting Hyderabad Assistant Surgeons to affix L.M.S. (Hyderabad) as their qualifications, Dr. V. Rama Kamath has given notice of two more resolutions to be moved at the March session of the medical council:—(1) As the information on the medical ethics published by this Council for the guidance of the Registered Medical Practitioners is in many cases not suitable to the existing conditions in this country, it is resolved to appoint a committee of not less than five members of this council to redraft the code of ethics, (2) The Council

regrets that the Medical Register is not being compiled and published in time and in the way contemplated in Section 11 of the Madras Medical Registration Act and the rules framed thereunder and calls upon the Registrar to explain the delay so far committed in compiling and publishing the Medical Register for last several years. Dr. T. Krishna Menon has tabled a resolution of All India importance which we hope will be passed unanimously, as there can't be a controversy on the subject of raising the standard of Medical Education and bring the same to one uniform level. The resolution runs as follows:—

"The Council approves the idea of Government of India about an all India Medical Council and respectfully suggests to the Governor-General in Council that the proposed Council should have the same relationship, with the now existing provincial Medical Councils as the General Medical Council of Great Britain, has with its branches, with suitable modifications consistent with the Indian conditions and is of opinion that it is desirable to constitute as early as possible an All India Medical Board to supervise and control the medical education both in Universities and in other Institutions and find means and methods to bring about a uniform standard of medical education consistent with the needs of the country and the dignity of the profession."

We learn that the Medical Council at its October sessions appointed a Committee of three members of Drs. M. Kesava Pai, T. Krishna Menon and V. Rama Kamath to enquire and report about 10 Penal cases that were brought to the notice of the Medical Council.

There are two vacancies at present in the Medical Council. Dr. Nimbkar representing 1st Group of practitioners who are registered in the British

Medical Register and Dr. Gurusami Mudaliar representing the medical graduates of the Madras University having ceased to be members due to efflux of time. The term of office of two more members Dr. M. Kesava Pai and Dr. U. Rama Rau, one representing the 2nd group and the other the 3rd group of practitioners expires early in April.

It will interest the members of the medical profession to know that there are to-day as many as or a little over 200 Indian doctors practising in England and the cause of their success and popularity seems to be that they are more all round efficient and cheaper than ordinary English Medical Practitioner. The Medical Practitioner trained in India is considered to handle several branches of treatment himself without sending them to specialists.

It might be remembered by our readers that Dr. V. Rama Kamath in his article on Medical Registration Act which appeared in this journal expressed his doubts whether the present Registrar was a whole-timed officer and that the President of the Council to whom this question was referred to by Dr. Kamath was silent. We are now in a position to know as a matter of fact that the Registrar was appointed by the Council as a whole-timed officer on a pay ranging from Rs. 150-10-200 the hours of duty being from 11 to 5 P.M. Yet he is the consulting medical officer to two chemists, shops one in Vepery and the other in Mylapore in addition to his own rooms in San Thome. The Government have been also pleased to appoint him as Honorary Asst. Surgeon Royapettah Hospital. We congratulate the Registrar on his many-sided activities. There are always exceptions to the rules. The relaxation of the stringency of the Civil Service Regulations in the case of the Registrar is perhaps one of them.

Dr. M. G. Subramania Aiyer, Registered Medical Practitioner, Deva-

kottah addressed a letter to the President, Madras Medical Council dated 15-2-30 which has been published in the correspondence columns of the current issue. The receipt of this letter has not been as yet acknowledged by those concerned.

In the meanwhile Dr. Subramania Aiyer wrote to Dr. V. Rama Kamath requesting him to find out what had happened about this letter. Dr. Kamath wrote to the Registrar suggesting that the letter may be kept before the council at its meeting on the 10th inst. The Registrar replied that the letter under reference had not been received by him. Those who know the chaos at the Registrar's Office will not be surprised at this reply. This is not the 1st instance when the letters did not reach the Registrar. In the present state of affairs when the President of the Council who is the Surgeon-General holds his office in Teynampet, allowing the Registrar to have his office at Royapettah and the Council Chambers in (Medical College) Park Town, it will be rather a hard task for an outsider to locate the blame in matters like this. If the council accepts the resolution of Dr. Kamath and overhauls the Registrar's office and have one place instead of three as pointed above to run the affairs of the council and relieve the Registrar of his other duties private and public which are not legitimate by virtue of his being a full time officer, there will be less room for complaints and better opportunities for the council to get work from the Registrar and his staff commensurate with the money spent on them.

Plans and estimates at the Government Royapettah Hospital seem to have been got ready by the Government to provide Honorary work for yet another Eye Specialist in the city and we are glad to note that Dr. E. V. Srinivasan has been appointed.

The Civil Surgeon in charge of the Ear, Nose and Throat in the General

Hospital seems to have expounded a theory backed up by those associated with him and above him that it is not convenient to have supernumerary honorary assistant surgeon to help him in his special work. In public interest he is said to have made up a strong case for the posting of a civil assistant surgeon immediately lest his multifarious duties should suffer. The two honoraries posted to his department seem to be graduates of the Madras University having the same qualifications required of an assistant surgeon in provincial service. Is this a hitch or a hit at the honorary system of medical relief? We shall wait and see.

Location of Medical Research Institute has been a subject for comments in these columns. Mr. M. R. Jayakar, M. L. A. moved a resolution at the last session of the Legislative Assembly recommending to the Government (a). 1. to appoint a committee, with a non-official majority and adequate representation of the independent medical profession, to enquire into and report on the most suitable university centre for the establishment of a Central Medical Research Institute; (2) the constitution of the governing body of the Indian Research Fund Association and (3) recruitment for the medical research department; and (b) to hold over the proposed transfer of the medical institute at Kasauli to the Chandhbagh building at Dehra Dun till the committee's report was considered by the Assembly. Sir Frank Noyce on behalf of the Government met Mr. Jayakar half way and agreed to call in a conference which would include representatives of the medical faculties of various universities, the Public Health Commissioner, the Director of Medical Research, two members of the Assembly, one member of the Council of State, one non-official non-medical scientist and one representative of the All-India Medical Association, presided over by himself. This conference con-

taining a majority of non-official opinion will go through all the details mentioned by Mr. Jayakar in his resolution. Mr. Jayakar withdrew his resolution on this assurance. This is a victory though partial and we hope the non-officials in this conference would do the duty expected of them. The non-university element in the medical profession both in service and outside had their share both in the healing art as well as in research. They also form the bulk of the medical profession. We hope the representative of the Indian Medical Association will not forget the interests of this class of practitioners in the deliberations of the conference. Representatives of the Government belonging to the medical profession will also, we trust, do their duty towards this class.

In opening the Health and Baby Week exhibition on the 25th ultimo His Excellency the Governor observed that the health of the people was of primary importance and that without health a nation could not prosper. This is quite true, but in the Budget presented to the Legislative Council, the other day, while the expenditure of 99 lakhs of Rupees was provided for curative side of medicine (Medical Department) that provided for the preventive side-Public Health Department was only 39 lakhs a little more than 1/3 the amount given for the former. This clearly shows the step-motherly-way in which the matter of public health is treated. The President of the Corporation in requesting His Excellency to open the exhibition said that for the last 12 years the Corporation had been doing propaganda work and conducting child welfare and maternity operations, there had been a steady and appreciable progress in the direction of the infant and maternal mortality. If progress means increase, he is supported by figures given in the Health Officer's Report and if it means a fall, the figures go against his statement. It is the opinion of eminent Public Health authorities, Sanitarians, and Econo-

mists that one of the chief steps required to bring down maternal and infant mortality is birth control and the Lady Superintendent of the child and Maternity welfare scheme recommended that birth control clinics should form a part of the work of the Child and Maternity Scheme, to bring down the maternal and infant mortality rates. The Corporation passed a resolution, only a fortnight ago, rejecting the recommendation and declared that birth control was not consistent with the genius of the Hindus and Muhammadans and did not form a part of the duties of the corporation. The exhibitions were on the whole more entertaining than instructive and the large number of persons that attended the exhibition went there more on account of *tamassha* than to seek real instruction. It has to be considered whether in a poor country like India, the large amount of money annually spent in these *tamasshas* could not be utilised better in the improvement of the Sanitary conditions of cherries and other insanitary places.

The city of Madras had the unique privilege this year of having health propaganda by two bodies, the Corporation of Madras and the National Health Association of South India simultaneously for seven days commencing from 25th February 1930. The activities of the Corporation were displayed at the S.I.A.A. Grounds Peoples' Park. All the Departments of the Corporation were exhibited except the Revenue Department, not even a placard to show the Assets and Liabilities of the Corporation and the expenditure incurred by each department. It would have been worth while to give the rate-payers an idea of the expenditure for the Health and Baby Week Show also. All that was displayed by the Health Department, was not what actually exists in the institutions under the Corporation management. The attempts made by this Department to show that these ideals existed at the Child Welfare Centres or Isolation Hospitals would naturally take away

the grace from this show, for, as a matter of fact people know the true state of affairs. It would have served some purpose if ideals were shown side by side the actual state existing in the Corporation Institutions and an appeal made to the rate-payers for more money to enable the department to reach those ideals.

The display made by the Electric Engineer was out of taste in the matter of making comparisons regarding the number of electric lights with other parts of India, without showing the area covered by the number of lights. What is the use of light if they are extinguished at a time when the Burglars roam about in the streets. The lights burn all through night both in Bombay and in Calcutta and many other places pointed by the Electrical Engineer. If the Engineer stopped with the display of his ingenuous methods of control of vehicles by the police at night and such other things the appreciation of his department by those who visited the exhibition would not have been less.

The best and the most useful exhibition in the enclosure was that of Government Agricultural Department. The contamination and the prevention of contamination of food stuffs by bacteria and fungi were illustrated in a very intelligent manner. Those who cared to enter these otherwise humble stalls would be certainly benefitted and come out of these stalls with really useful impressions. Their cheap yet effective formula to kill rats and cockroaches and recipe to prepare fly papers and liniments for preventing mosquito bite are very useful as they are cheap and could be easily made at home without the help of costly chemists or other vendors. The Agricultural Department did more useful service than the Health Department. We believe that the purpose of these exhibitions was to dispel ignorance from the minds of the masses regarding health problems. The organisers have marred though unwittingly the very object for which this costly show was run by allowing

stalls of patent secret remedies which actually attracted the masses and added to their ignorance. The money earned by the organisers from such stallkeepers might have been overlooked in the interests of the movement.

The National Health Association of South India concentrated their activities in the Government hospitals and institutions. Example being an ways better than precept, all that was exhibited in these institutions those seven days with a certain amount of dislocation of the routine work in these institutions might with advantage be displayed not once a year but as a matter of daily routine. The work turned out every day in these charitable institutions should not give room for the necessity of such shows organised by the otherwise well meaning Health Association of Southern India. These activities in the State Hospitals which are organised by Doctors having the right of private practice are likely to be misunderstood in some quarters though the position of such doctors may certainly be above suspicion. Exhibitions about food stuffs and other demonstrations could have been arranged in public and private markets in the city where people go to buy them. These markets would have had some reform which they urgently need. The public would have had cleaner food at least those seven days.

Cinema exhibition, lecture on Health and Welfare were the common factors of other activities run by both the bodies and we are sure that the student and the adult population who were attracted by these shows and lectures will be grateful for what they saw and what they heard. Free cinema shows naturally attracted more audience from amongst school-children than some of the valuable lectures.

The Corporation of Madras who is now entrusted with free and compulsory elementary education in this city and the influential high officials belonging to the National Health Association of South India can

certainly do intensive and effective health propaganda for the benefit of the public and not for a group of individuals only; they could do so with the greatest possible usefulness by introducing suitable subject on health and welfare work and social hygiene in the curriculum of studies in the schools and colleges and make the propaganda a daily routine. Then only we can hope much towards the amelioration of health and welfare conditions in this country. If those who are of opinion that apart from daily propaganda in educational institutions there should be exhibitions and demonstrations of the nature displayed during the last health week, we suggest that they will be enjoyed and appreciated without fear of tiresomeness if held in collaboration with the yearly Park-Fair festivities and not so soon after.

There are at times many happy coincidences even at Public Offices. A Conference of Presidency health officers presided over by Capt. Ubhaya, Director of Public Health was held at the office of the Director of Public Health on 3rd inst. Just at this time Lt. Col. Russell our old popular Director of Public Health arrived in Madras along with the Royal Commission of Labour of which he is a member in the capacity as its medical assessor. The Department of Public Health availed themselves of this happy coincidence and gave him a farewell address and requested the Hon'ble the Health Minister to unveil two portraits one of the guest of the evening Lt. Col. Russell and the other of Col. King the 1st best Sanitary Commissioner of this Province who was mainly responsible to deserve the state ment "That the Madras Public Health Department was the best organised in India" We are one with the members of the Public Health Department in bidding farewell to Lt. Col. Russell and wish him God-speed in his present onerous duties undertaken by him during the period of leave prior to retirement.

It is very much to be regretted that none referred to the question of medical relief in this Province on the floor of the Legislative Council where speeches were made by many members of the Council on the day and after the Budget was placed before them. We feel that the Independent medical profession is purely responsible to this apathy on the part of their representatives in the Council. The current issue of "The Medical Practitioner" will be sent to the members of the legislature with our best compliments with an earnest appeal to go through the Editorial columns and the News and Comments columns wherein they may, if they choose, find material to do something at least in future to this most neglected profession noble as it is in healing and curing all the ills. Political battles are being fought to promote the welfare and prosperity of a nation and how can these battles be successful unless our leaders set right the medical department so that the nation may get maximum amount of medical relief with the minimum amount of expenditure and this can only be done with the help of the independent medical profession.

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Rao Sahib Dr. T. S. Tirumurti, B.A., M.B., C.M., D.T.M. & H. (Lond.) has been appointed to act as Principal Medical College, Vizagapatam. We offer our hearty congratulations to Dr. Tirumurti for his well deserved promotion. We are sure Dr. Tirumurti will discharge his responsible duties as the head of the Medical College and will prove to the entire satisfaction of those who were responsible to raise him to this position and show to the public that given opportunities, Indians are not wanting to occupy any responsible position so far reserved for Europeans. Vizagapatam Medical College will be a true provincialised Institution atleast for a few months and we hope time will not be far when it will be so for ever.

* * * *

Dr. V. Swaminatha Ayyar, L.M.P. Asst. Lecturer in Anatomy has after great struggle succeeded in getting leave to prosecute higher studies in England. We wish this industrious young doctor all luck and hope he will soon return transformed as a doctor with English qualifications. The High Commissioner who in his administration report warned both the Government as well as student population that it was necessary in the interests of all concerned to make it known to the public, that foreign degrees were not essential as necessary qualifications to enter Government Service. We are sure that the High Commissioner though an Indian is not aware of the fact that there is a medical qualification called L.M.P. the holder of which cannot enter any other compartments of the medical department except that of the Sub-Asst. Surgeon and no attempt has been made by any reformers, Educational or social so as to enable the L.M.P. Class of medical men to enter the higher compartments in the Medical Department though these reformers, have succeeded to remove the ban on the depressed classes and made them enter atleast a few temples reserved for higher castes. Even in the matter of medical education, the ban of inferiority otherwise called depressed could only be removed by our European brethren in Foreign countries and yet we are advised not to aspire for European qualifications by an Indian Official in the position of the High Commissioner in London. Just like a panchama who at times gets despondent and does not mind even to give up his Hindu religion to get higher status in life and be a touchable and changes his faith by becoming a Christian or a Mohamadan, so also many of the L. M. P. S. in service get despondent and risk all they have to transform themselves so that they may be allowed to enter higher compartments denied to them by virtue of their qualifications alone. We hope Dr. Swaminathan will meet the High Commissioner in London and make him aware of the real state of the depressed classes in the medical

profession so that when he writes next administration report he may advise the Indian Universities to give the L. M. P. class of medical men facilities which their alien brethren are at present giving and test the patriotism of the Indians towards this class of Medical men without whom either the Government medical department or the Independent Medical Profession can not exist.

Lt. Col. Hingston officiating Surgeon General was relieved by Major General Megaw on 24th ultim. Col. Sprawson the newly appointed Surgeon General is expected to arrive in Madras on or about 20th instant when Major General Megaw proceeds to Delhi to take charge of his permanent appointment as Director General of Medical services. We shall wait to bid farewell to Major General Megaw who is still amidst us.

Correspondence Reviews etc.

VENEREAL DISEASES.

(Continued from previous issues)

In the February issue of The Medical Practitioner mention was made of the facility of arranging the doses of arsenical treatment where Sulfarsenol is adopted as the remedy of choice.

The suggested doses as detailed in Lieut. Col. Harnett's directions given in the last issue, are all set out as being intended for the average Indian patient. As the weight of the individual patients vary very much in India, and as the effective dose of any arsenical preparation is dependent upon the weight of the patient, it is a matter of some importance that the decision as to the correct dose for any particular patient should present as little difficulty as possible. In Lieut. Col. Harnett's courses, the usual maximum dose he gives is 48 ctgr of Sulfarsenol, that is, the dose usually sold as dose No. 8. As the average

weight of the Indian patient may usually be taken to be somewhere roundabout 100 lbs. to 110 lbs, the ratio here adopted will be found to be approximately 1 ctgr. for every two lbs. of the weight of the patient. This of course is at the period of the maximum doses. Usually there are a few doses to be given of about half of that amount at the beginning of the course and the dose is gradually increased to the maximum. When the weight of the patient materially differs from the average, it is naturally necessary to modify somewhat the quantity of material given at one injection. This is particularly the case with the treatment of our Indian women and children. We may still maintain however, the same ratio of dose to the weight of the patient throughout Sulfarsenol treatment.

The very complete range of doses as given in the following table shows the facility of giving the correct amount of medicament to each case when using Sulfarsenol.

Table of Sulfarsenol doses.

A	5	Millegrammes
B	1	Centigramme
C	1½	Centigrammes
D	2	Centigrammes
E	3	Centigrammes
No. 1	6	Centigrammes
" 2	12	Centigrammes
" 3	18	Centigrammes
" 4	24	Centigrammes
" 5	30	Centigrammes
" 6	36	Centigrammes
" 7	42	Centigrammes
" 8	48	Centigrammes
" 9	54	Centigrammes
" 10	60	Centigrammes
*	*	*

SUPERIORITY OF SOLUBLE BISMUTH SALTS.

Since 1921, when bismuth therapy was first introduced for the treatment of Syphilis, Dr. Drcuin has been using a soluble Bismuth salt (Benzobismuth) in preference to the oily and other insoluble products. During all those

years he has been very strongly advocating this method of treatment, and it must be a considerable satisfaction to him to find in this last year or so a more general adoption of his theories, and a complete confirmation of all the drawbacks in the insoluble salts. The disease under consideration is so liable to long periods of quiescence followed by outbreaks of trouble often not clearly diagnosed as of luetic origin, that it usually requires many years of experience before the best remedies can be thoroughly confirmed. Year by year something new comes out, and becomes the fashion but the new preparations cannot possibly be relegated to their true position for many years, perhaps after the "fashion" has changed completely. All those physicians in India who have been regularly using and preferring Benzo Bismuth to the other forms, may now feel justly proud, in company with Dr. Henri Drouin, of the vindication and success of this preparation. To those who have not yet adopted Benjo-Bismuth therapy, we may say that its use is quite easy, free from all difficulties in fact, the injections are painless and free from any inconvenience to the patient. As in other systems of dealing with antiparasitic remedies, some consideration for the weight of the patient is one of the essentials of scientific treatment. In Europe, where the average weight of the patient may be round about 140 or 150 lbs, three ampoules of Benzo-bismuth are given per week. In

Course A.	Day.	Sulfarsenol grams.	Benzo Bismuth.
	1	0.24	1 amp.
	4		1 amp.
	8	0.36	1 amp.
	11		1 amp.
	15	0.42	1 amp.
	18		1 amp.
	22		1 amp.
	25		1 amp.
	29	0.48	1 amp.
	36	0.48	1 amp.
	50	0.48	1 amp.
	57	0.48	
	60		1 amp.

India, if a patient of this weight or more requires treatment, the same number of doses per week can safely be given. More commonly however, we are required to care for a man weighing from 100 to 120 lbs, in which case two ampoules per week would be sufficient and a person weighing about seventy or eighty pounds could be efficiently treated by one injection every four or five days. For a person weighing only fifty pounds it is better to give half an ampoule twice a week, rather than a full dose once a week. Although, as Dr. Henri Drouin says, there is a wide margin between the therapeutic dose of this product and the toxic dose.

But although Benzo Bismuth is an excellent remedy even alone, for cases which are not suited for arsenical medication, we must not forget that this is not the role of any bismuth treatment in routine cases. The proper place for bismuth is as a supplementary medicament, enabling the arsenic to procure a more complete and permanent, cure in a shorter space of time.

In antisyphilitic treatment we must aim at maximum and optimum results and the way we suggest obtaining them is this—Combine Benzobismuth with Sulfarsenol treatments as follows, modifying Lt. Col. Harnett's courses by the addition of Benzobismuth. Where the Benzo Bismuth is given on the same day as the Sulfarsenol, they may both be given at the same sitting.

Course A.	Day.	Sulfarsenol grams.	Benzo Bismuth.
	64		1 amp.
	68		1 amp.
	71		1 amp.
	74		1 amp.
	78	0.48	1 amp.
	82		1 amp.
	85	0.48	1 amp.
	89		1 amp.
	92	0.48	1 amp.
Course C:	Day.	Sulfarsenol grams.	Benzo Bismuth.
	1	0.42	1 amp.
	4		1 amp.
	8	0.48	1 amp.
	11		1 amp.
	15	0.48	1 amp.
	18		1 amp.
	22		1 amp.
	25		1 amp.
	29	0.48	1 amp.
	32		1 amp.
	36	0.48	1 amp.
Course D:	Day.	Sulfarsenol grams. (deep subcut- taneously).	Benzo Bismuth.
	1	0.24	1 amp.
	4	0.24	1 amp.
	8	0.24	1 amp.
	11	0.24	1 amp.
	15	0.36	1 amp.
	18	0.36	1 amp.
	22	0.36	1 amp.
	25		1 amp.
	29	0.48	1 amp.
	32		1 amp.
	36	0.48	1 amp.
	39		1 amp.
	43	0.41	1 amp.

By adopting such courses we can materially reduce the incidence and virulence of Syphilis in this country. These courses may be tried and effect reported in this journal.

172

THE MEDICAL PRACTITIONER

[MARCH

Devakottai, 15th February 1930

From

M. G. SUBRAMANIA AIYAR,

L.M.P.,

Registered Medical Practitioner,

Devakottai.

To

THE PRESIDENT,

Madras Medical Council,

Madras.

Sir,

I beg to place the following case before you for your sympathetic consideration and request you to address the Government on the merits of the same:—

I was summoned as a witness in C.C. No. 160 of 1929 to appear before the Sivakasi Joint Magistrate in his camp at Srivilliputhur on 28-11-1929, which I obeyed. I was paid Rs. 18-4 for travelling expenses, at the rate of 2 annas per mile for the road journey and a single 11nd class fare for the railway journey besides the daily allowance for my halt there. I represented to the Court that I should be paid my actual expenses which came upto Rs. 46, or at least the amount, which a Sub Assistant Surgeon in service is entitled to for Court attendance. The latter generally gets Travelling Allowance at 6 annas per mile for road journey, 1½ second class fare for railway journey and usual halting allowance. Furthermore, though he is absent from his station to attend Court, still he is considered to have been on duty and gets his pay for such period of absence. By obeying the Court summons, I had to lose my income from practice during the period of such absence not to speak of other inconveniences resulting therefrom. So I appealed to the Court that I, as a private medical practitioner deserve to be treated with greater consideration than a Sub-Assistant Surgeon in service: but the Magistrate regretted that I cannot come under the class of Sub Asst. Surgeons, but should be content with

the allowance paid by him. I accepted the amount and wrote to the District Magistrate, Ramnad on 1-12-1929 about my affair; but he in his reply Dis. 7111-A-29 dated 24-1-1930 says he cannot interfere in the matter. So I have been forced to take up the matter before you.

It will not be out of place to explain the circumstances in which I was summoned to Court in this case. Briefly they are as follows:—About 3 years ago there was a motor collision just about 2 miles from this place and as a consequence many passengers in the bus sustained injuries. Three of them, belonging to the same family got treated by me. I did not issue any medical certificate in respect of any of the injured. For the fault of having given treatment to some persons in their distress, I had to figure as a witness in Court at very great personal inconvenience and pecuniary loss. It is hardly necessary to represent the difficulties under which the private medical practitioners are labouring.

I therefore beg to request you will take up my case not only as an individual one, but as one affecting the independent medical profession in general, and recommend to the Government to allow the actual Travelling expenses of private medical Practitioners summoned to Court, or at least treat them like Sub-Asst. Surgeons in service.

I beg to remain,

Sir,

Your most obedient servant,

M. G. SUBRAMANIA AIYER,

Registered Medical Practitioner.

Copy to Dr. Rama Kamath, Member Medical Council.

MEDICAL RELIEF AT THE SRI RAMAKRISHNA MUTT MADRAS

Among the varied activities, religious and philanthropic, of the Sri Ramakrishna Mutt, Medical relief to the poor is an important one. The Mutt has opened free hospitals and dispensaries for the treatment of both in and out patients throughout India and Burma. In the Madras City, however the free Dispensary at Mylapore is the only one and it was opened in the premises of the Mutt in September 1925 by Rao Sahib B. Raghavendra Rao, retired Civil Surgeon at his own cost and managed by him singly. He has since been contributing Rs. 300 per year for the Dispensary. In 1926 Dr. G. S. Katre M. B. B. S. relieved Dr. Raghavendra Rao and in November 1927 Dr. M. S. Krishnamurthy Ayyar, M. B. C. M. Retired Sanitary Commissioner Travancore placed his services at the disposal of the Mutt to be utilised for the Dispensary and since then he has been carrying on the work. The necessity for and the popularity of the Institution will be evident from the fact that while the number of patients that were treated in 1926 was 5,109, it rose to 30,592 in 1929. Many well-wishers have paid contributions to

the Dispensary, some for the medicines and others for the Building Fund. Out of a total of Rs 676 received as medicines from Chemists and Pharmaceutical firms in India and outside, the price of vaccine and injection medicines came to Rs 400, besides the Mutt purchased medicines appliances etc. for Rs. 571. The staff consisted besides the Doctor, two members of the monastic order of the Mutt. The cost of treatment for each patient per day worked out at less than 9 pies. Patients from distant parts of the city and outside though there were hospitals and dispensaries in those places and on the way to this Dispensary attended this Institution. We wish that the Dispensary will be housed in a pucca and permanent building and continue to be useful to the suffering public.

In this connection it will be interesting to point out that the cost of treatment per patient per day in Government Institutions comes to a little over II annas, and if only the staff, except the subordinates of the hospital, is made honorary as is the case in all civilised countries the cost per patient could be cut down to one half of the present rate and the savings utilised for better purposes.

NOTICE.

The All India Medical Licentiate conference meets at Cuttuck this year early next month. Readers of The Medical Practitioner who wish to place before this conference any matter affecting the interests of the **Licentiate**s in Service or in Private Practice will kindly bring the same to the notice of the undersigned before 5th April 1930

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PANCREAS IN DIABETES.

(CONTINUED FROM LAST MONTH)

In the last issue we gave a Regime suitable for an allowance of 70 to 80 grms. of Carbohydrate per day

As most people in India understand weights in ounces better than gram

weights in use on the continent of Europe, we now give the following table of diet commonly in use for the average cases of Diabetes, under treatment with Pancrepatine.

MEAT DIET.

Breakfast.	1 egg or one cup of milk.	One dose Pancrepatine A. F. D.
Mid-day	Grilled or roast meat.	4 oz.
	Green vegetables cooked	8 oz.
	Potatoes	3 oz.
	Butter	1 oz.
	One dose Pancrepatine.	A. F. D.
Evening meal,	same as mid-day and one dose Pancrepatine.	

VEGETARIAN DIET No. 1.

7 a.m.	8 oz. milk.	One dose Pancrepatine A. F. D.
10-30 a.m.	Two wheat chapatties.	
	Green vegetables 8 oz. cooked with 1 oz. butter.	
	Curdled milk 4 oz.	
	One dose of Pancrepatine A. F. D.	
4 p.m.	8 oz. milk, one dose of Pancrepatine A. F. D.	
8 p.m.	Same as at 10-30 a.m., and one dose of Pancrepatine	

VEGETARIAN DIET No. 2.

7 a.m.	12 oz. milk.	One dose Pancrepatine A. F. D.
10-30 a.m.	Two wheat chapatties, one oz. dal, 8 oz. green vegetables cooked with one oz. butter, curdled milk 4 oz.	One dose Pancrepatine A. F. D.
4 p.m.	12 oz. milk.	One dose Pancrepatine A. F. D.
8 p.m.	Same as at 10-30 a.m., and one dose Pancrepatine A. F. D.	

Each chapatti should be made from 1 oz. wheat flour. Salt and a little spice may be used according to taste.

Each dose of Pancrepatine will vary according to the decision of the physician treating the case, but will ordinarily be from 2-4 pills for each dose.

In most cases after a preliminary treatment for one or two days on a reduced dose, the curative treatment will require 4 pills to be taken with each meal until the sugar is reduced to nil.

Where the vegetarian diets (either No. 1 or No. 2) as given above are adopted, then the usual dose of Pancrepatine would be 3 pills at each meal, that is four times a day instead of 4 pills three times a day.

Each bottle of Pancrepatine sold contains a sheet giving the above systems of diet in several vernacular languages.

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