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MEDICO SURGICAL
SUGGESTIONS.

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Vol. VIII.

APRIL 1939.

No. 4.

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A MONTHLY JOURNAL OF PRACTICAL MEDICINE & SURGERY
Editor : Dr. P. R. Venkappaya.

VOL. VIII APRIL 1939 No. 4

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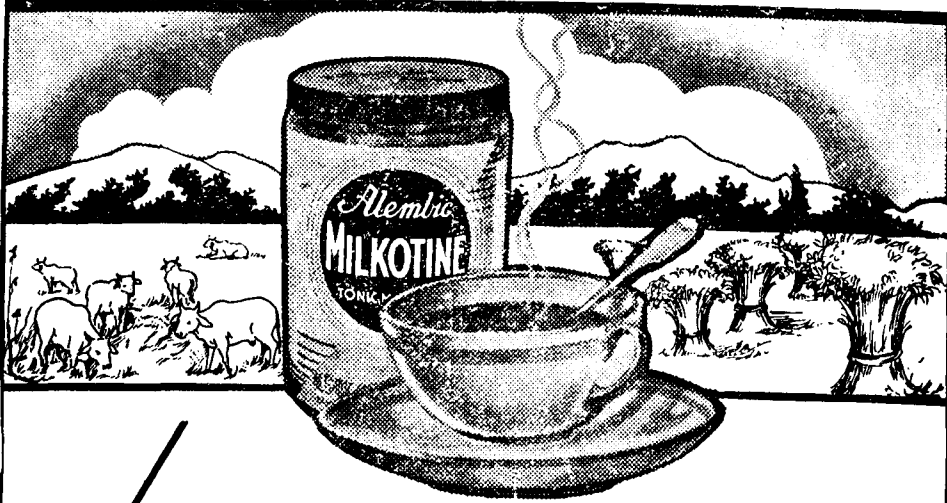
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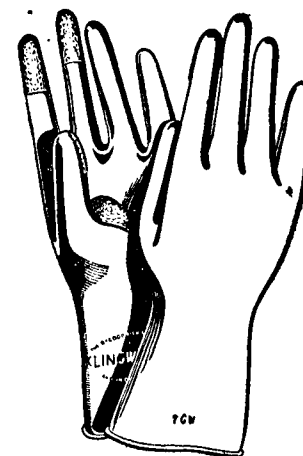
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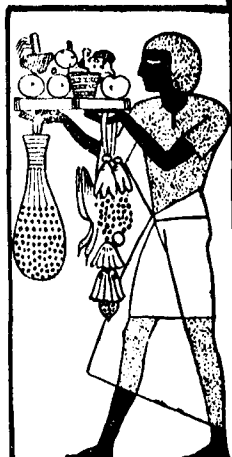
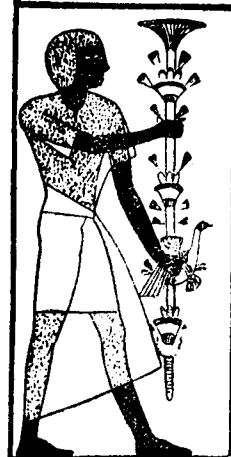
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MEDICO-SURGICAL SUGGESTIONS

VOL. VIII

APRIL 1939

NO. 4

Original Article.

"ENDOCRINE-THERAPY AND FEMALE SEX ORGANS."

BY DR. S. K. GUPTA, B.DSC., B.O., (PB.)

Laboratory Clinic (Analyst),

Railway Road, PASRUR, (Pb)

Endocrine glands play so important a part in the functioning of the female sex-organs that Endocrinology is never negligible in the Gynæcological and Obstetrical practice. The function of these organs solely depends upon that of the internal glands which have enormous influence upon the sex physiology of the fair sex, therefore administration of those substances in therapeutics helps us in many respects to cure the ailments arising from the mal-function of the sex glands and the organs of the ladies. It is the physiological way in which to treat diseases coming from the defective functions of the Endocrine glands. The following menstrual disorders are closely connected to the physiology of the internal glands and their treatment therefore requires proper Endocrine-Therapy.

I. *Amenorrhoea* :—It should be remembered that the Physiological Amenorrhoea, found before puberty, after menopause, during pregnancy and lactation require no treatment. The treatment of Pathological Amenorrhoea must be done according to the causes of the disease, so I am stating the causes of the disease at first which have pure Endocrinological origin.

(i) Infantalism.

(ii) Deficient Ovarian activity.

(iii) Altered internal secretion *i.e.*, Myxoedema, cretinism, exophthalmic goiter, Addison's disease, Acromegaly and Obesity.

There are a few types of infantalism in which idiopathic infantism may be due to hypopituitarism (especially of the anterior lobe) and the hormonal type is generally due to hypothyroidism. Therefore Amenorrhoea due to infantism of both the types should be treated with anterior pituitary and thyroid hormone. Deficient Ovarian activity must be treated with the administration of the Ovarian hormone as well as with others.

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The principal cause of myxoedema and cretinism is hypothyroidism and thyroid hormone is therefore necessary in the treatment but in exophthalmic goiter (Graves disease, Basedow's disease or Parry's disease) it must not be ordered and should be treated accordingly for which anti-thyroidine is of great value until and unless surgical treatment is done. When want of menstruation is due to Addison's disease Suprarenal gland must be ordered along with the symptomatic medicinal treatment. Symptoms arising from the perverted functions of the anterior lobe of the Pituitary gland are called Acromegaly, hence the hormone of the said gland is advisable in addition to the surgical and other sort of treatment. Amenorrhoea due to Obesity requires thyroid hormone in its treatment where the result is found to be effectual.

Thyroid, ovary, pituitary and suprarenal glands are therefore essential in the therapy of Amenorrhoea of the endocrine type. Some authorities say that in the treatment of Amenorrhoea where ovarian therapy has failed pituitary treatment may be effective.

The endocrine type of Amenorrhoea may be illustrated thus with the differential diagnostic points (according to Englebast and others).

No.	Pituitary type.	Ovarian type.	Thyroid type.
1	She had never menstruated.	Menstruated regularly and painlessly from 13—17.	Menstruated normally from 11—14.
2	At 13 she ceased to grow and lack of secondary sex characteristics (those of a girl just approaching puberty) remained.	After she was suddenly seized with diffused and abdominal pain tenderness at McBurny's point, vomiting since which she has never menstruated.	After 14 she began to have irregular attacks of Amenorrhoea alternating with normal menstruation.
3	Her head was too large.	Was not so.	Was not so.
4	She was lesser than her height.	She was tall and slender.	She was of short stature.
5	Low B. P.	High.	High.

II. *Dysmenorrhoea* :—Where there is structural abnormality, surgical operation is the treatment, but in which such defects are not present, the cause must be sought out, in the functional mechanism of the menstruation process, for which case Graves advises Ovarian hormone and Dalche advises Pluriglandular hormone to be used containing pituitary.

III. *Menorrhagia* :—Its causes (endocrinological) are :—

- (i) Hyperthyroidism.
- (ii) Deficient blood.
- (iii) Haemophilia.
- (iv) High blood pressure.

Hyperthyroidism is the cause of exophthalmic goiter, the treatment of which has been given in Amenorrhoea. The use of pancreatic gland hormone may in some cases be of value as it inhibits the action of thyroid.

Deficiency in the coagulation of blood is due to hypocalcaemia which is due to thyroidism. Therefore parathormone (hormone of the parathyroid gland) alone or combined with Casalts gives always satisfactory results in Menorrhagia due to deficient blood coagulation.

Some authorities opine that excessive uterine haemorrhage due to haemophilia associated with myxoedema was successfully treated with thyroid gland extract. High blood pressure in ladies as in many cases due to the hypofunction of the ovary and therefore ovarian hormone is there indicated with value. In the treatment of Menorrhagia of the Endocrine origin thyroid, ovary and parathyroid are quite essential. They may be ordered separately according to the nature of the symptoms or may be given together, but thyroid and parathyroid are contra-indicated, where the B. P. is too high.

IV. *Metrorrhagia and Metrostaxis* :—Endocrine origin of both these varieties are generally due to the causes shown in Menorrhagia; therefore nothing is stated here about the treatment. Ovarian hormone is indicated with great value in these.

In conclusion I like to state that, thyroid, pituitary and ovarian extracts are as useful in the treatment of Amenorrhoea and Dysmenorrhoea, as ovarian gland in Menorrhagia, Metrorrhagia, and Metrostaxis.

Mixed glandular therapy may prove its value to our satisfaction in some cases by the influence of their inter-relationship. Organotherapy now a days is very useful to the menstrual disturbances and every gynaecologist should direct his attention to this therapy when he meets any difficulty in the treatment of menstrual disorders with other remedies than this. When they fail to cure such ailments with surgical and other helps should employ organotherapy alone or combined with other helps. Pluriglandular therapy is always preferable than the monoglandular one because the former acts better by the synergistic action of the hormones. "Hormotone" is the best combination of glandular products to be used in many cases which contain hormones of thyroid, pituitary and suprarenal glands.

Modern Methods of Treatment.

ANO-RECTAL FISTULAE

R. A. HALL,

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The majority of fistulae present little difficulty either in their anatomy or treatment. Complicated fistulae, especially when they open high up in the anal canal, are very commonly uncured even after several operations extending in many instances over a long period of years.

While it must be admitted that incurable fistulae do occur failures much more frequently result from lack of knowledge of the anatomy of the ano-rectal region.

It is hoped that this article will make clear the general principles governing the treatment of fistulae, show the causes of failure and render possible an accurate prognosis before surgical treatment is undertaken.

HISTORY.

Fistula in ano was a disease well known in early times, and indeed instruments for the operative treatment of the condition have been unearthed in the ruins of Pompeii. John Arderne, who lived in the fourteenth and early fifteenth centuries, wrote a treatise on the subject in which he advocated laying the track open into the bowel by strangling the intervening tissue by means of a 'seton' a method which fell into disuse and had to be rediscovered in modern times.

Sir Charles Gordon-Watson (*St. Bartholomew's Hospital Journal* March 1934), writes, 'The reign of Louis XIV must have been the golden age for the rectal surgeon. Louis was operated on for a fistula, and the surgeon received a fee of £6,000, seven other surgeons present were liberally rewarded and the apprentice who carried the buckets received £200.'

DEFINITION.

The term fistula is defined as an abnormal communication between a hollow organ and the surface skin, but by usage it is also applied to an abnormal opening in the perineum whether an internal opening be present or not. When the main track leads to the anal canal it is known as an anal fistula, and when towards the rectum as a rectal or more commonly pelvi-rectal fistula. As tracks almost invariably follow the fascial planes, a knowledge of the anatomy is necessary.

ANATOMY.

Peter Thompson, in his 'Myology of the Pelvic Floor,' first drew attention to the true anatomy of the sphincter apparatus. The researches of Milligan and Morgan. 'The Surgical Anatomy of the Anal Canal,' *Lancet* 1934, vol. ii, pp. 1150 and 1283, have confirmed his observations, and while they have not yet received universal acceptance either by surgeons or anatomists, they have such a sound bearing on the subject of fistulae that an epitome of their views will be given.

The rectum and anal canal descriptively join as the bowel passes through the levator ani muscle. The upper two-thirds of the anal canal differ from the remainder by having a structure similar to the rectum. Like the latter, it is developed from the embryonic hind-gut, and the involuntary muscles which form part of its walls end below at the muco-cutaneous junction, where the proctodaeum meets the hind-gut. As in the rectum, the mucous lining of the upper part of the anal canal is formed of columnar epithelium; and is separated from the circular muscle coat by a submucous space. The circular muscle is a continuation of the corresponding muscle in the rectum, but in the anal canal it is thicker and is called the Internal Sphincter. 'It ends below in a well marked border at the level of the muco-cutaneous junction, where it can be palpated. Ensheathing it on its outer side is the Longitudinal muscle which is continuous with the Longitudinal muscle of the rectum. This is largely fibrous in structure, and ends below by turning round the lower border of the internal sphincter to become attached by a series of digitations to the skin of the anal canal at the muco-cutaneous junction. Before ending it gives off outwards fascial layers which separate the voluntary sphincters yet to be described and these laminae then pass out into the fat of the ischio-rectal fossa where they gradually disappear. By its retraction the Longitudinal muscle produces a horizontal groove in the lining of the anal canal which coincides with the mucocutaneous junction, which Milligan and Morgan call. 'The Anal Intermuscular Sulcus.' It is important since it forms a palpable landmark.

The lower third of the anal canal is lined by squamous epithelium, hereafter called the skin of the anal canal. Subjacent to this is a loose connective layer called the perianal space, in which lies the external haemorrhoidal vascular plexus. The internal plexus, from which piles arise, lies in the submucous space above the intermuscular sulcus, and the two plexuses communicate by means of veins which pass between the digitations at the termination of the Longitudinal muscle.

The muscles so far described are not under voluntary control, and are not concerned with maintaining continence. The remainder are voluntary and striated. Developmentally they were not

originally associated with the gut, being somatic muscles, but were derived from the lower end of the primitive segments or myotomes, and subsequently much modified as regards position. They are arranged in three strata situated one above the other, and ensheath the whole length of the anal canal. It is this latter fact, that the entire length of the canal is supported by voluntary sphincter muscles that is so important to the surgeon, and is a most valuable contribution to surgical anatomy by Milligan and Morgan. The older conception of the anatomy left the upper part of the canal unsupported except by the innermost fibres of levator ani.

In the upper two-thirds of the anal canal the deeper two layers of the composite sphincter, which are frequently fused, are situated outside the Longitudinal muscle in the lower third, the remaining muscle lies subcutaneously.

The muscles to be considered are :—

1. *The Subcutaneous External Sphincter.*—This is a ring of muscle which alone surrounds the outlet of the anal canal below the intermuscular sulcus. It lies below the distal attachment of the longitudinal muscle, but one of the offshoots from the latter passes between it and the superficial external sphincter, the muscle next above. The existence of this muscle is denied by many surgeons, but if looked for it can always be dissected out. Its tone varies considerably from patient to patient, and may be quite lax in otherwise normal anal canals. It is, however, well seen in painful conditions of the anus when it goes into spasm, and it then appears like an umbrella ring beneath the perianal skin. It is a true sphincter, but there is little need of one to guard the extreme outlet. Milligan states that it prevents entrance into the canal rather than unwarranted outlet. It can be cut with impunity.

2. *The Superficial External Sphincter.*—This is the only muscle in this region pictured in the anatomical textbooks, and it is called by them. 'The External Sphincter.' It is elliptical in shape, and arises behind from the tip of the coccyx and the ano-coccygeal raphe. After passing forwards on either side of the anal canal it is attached in front to the central tendinous point of the perineum. It is never more than half-an-inch in thickness, and corresponds roughly to the middle third of the anal canal. Like the subcutaneous external sphincter it can be cut without interfering with continence.

3. *The Deep External Sphincter.*—This is another ring of muscle. It is usually fused with the foregoing muscle at their contiguous surfaces, but the direction of its fibres allows them to be separated by dissection, and indeed there may sometimes be a fascial lamina derived from the longitudinal muscle lying between.

Anteriorly its fibres also blend with the Deep Transverse Perineal Muscle, or voluntary sphincter of the urethra. These two muscles share a common nerve supply, and this may explain the

association of retention of urine with painful conditions of the anus such as fissure in ano or operation wounds of the anus.

The upper surface of the muscle is lying in contact with and is usually fused with the Pubo-rectalis Muscle on the posterior and lateral aspects of the anal canal.

4. *The Pubo-rectalis Muscle.*—This is not part of the conglomerate sphincter, though it is closely associated with it, both functionally and anatomically. It is the innermost part of the Levator Ani, but differs from the rest of that muscle in having no posterior attachment to the coccyx or ano-coccygeal raphe.

It arises from the posterior aspect of the pubic bone, and passing on either side of the prostate or vagina, it forms with its fellow of the opposite side a sling round the lateral and posterior aspects of the ano-rectal junction. It is a thick and powerful muscle, and functions as a sling pulling the posterior and lateral parts of the ano-rectal junction forward towards the pubic bone, and accentuating the angle between the rectum and anal canal. Being deficient anteriorly it cannot function alone as a sphincter, but where it is intact a very small part of the deep external sphincter will maintain the canal closed.

IDENTIFICATION OF THE ANATOMY IN THE LIVING.

There are landmarks which can be identified by a finger in the anal canal, and from which the positions of the sphincters can be deduced. When in the anal canal a finger is closely grasped by the sphincter muscles, passed further, it arches over a prominent bar into the wide lumen of the lower rectum. This bar can be traced from the posterior aspect of the bowel along the lateral walls but anteriorly it is less well marked. It is formed by the pubo-rectalis and the deep external sphincter muscles.

Nearer the outlet, the anal intermuscular sulcus can usually be palpated, and from the previous description this is now known to lie between the subcutaneous and superficial external sphincters.

Landmarks can also be identified through a proctoscope. When this is inserted to its full extent the anterior wall of the rectum presents, as it is withdrawn slightly into the anal canal the ano-rectal junction closes over the end of the proctoscope (this demonstrates the action of the pubo-rectalis and the deep external sphincter muscles). This region will in future be referred to as the ano rectal ring.

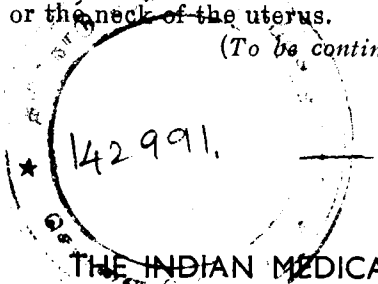
The mucous lining of the upper two-thirds of the canal has a distinct red colour in contrast to the pink of the rectum, the change occurring abruptly at the ano-rectal ring. At the level of the mucocutaneous junction the red colour again changes to plum, the colour of the skin lining the lower third of the anal canal. The White Line is a myth. In the middle third the Columns of Morgagni can

be seen as vertical folds, and in this part the internal haemorrhoids will be found.

The ischio-rectal fossa does not require detailed description, but it is noteworthy that the fat of the fossa is separated from the skin in the perianal region by the lowest fascial layer derived from the Longitudinal muscle.

The pelvi-rectal space is a potential space situated above the levator ani, in the subperitoneal or subfascial tissues and is in relation to the terminal part of the rectum, the base of the bladder and prostate or the neck of the uterus.

(To be continued.)



THE INDIAN MEDICAL PROFESSION

BY MAJOR-GENERAL CUTHBERT SPRAWSON, C.I.E., I.M.S., (RETD.)

The medical profession of India has had peculiar origins, has peculiar conditions affecting it, and would seem to require peculiar consideration for its future. It would be bold to style this address "The Future of the Indian Medical Profession," for no one knows what the future may hold, but it is mostly of the present and the future I wish to speak and to consider the forces acting thereto, and we can at least say how we should like the future of the profession to develop and how we think it may best do so. To state that last objective first we may say briefly that we should like to see in India a medical profession numerous enough and skilled enough to convey relief on scientific lines to the sick in every part of India, and we should like to see a united profession able to speak with one voice, and that an influential voice, on matters affecting the health of the Indian people. Neither of these desirable aims is at present near realization.

There have always been medical men in India, but the genesis of the modern profession may be said to date from the establishment by the various provincial Governments in the country of medical schools and colleges to train Indian students in the accepted medical science of the time. The teachers were officers of the Indian Medical Service, and the training was developed on the lines of the British medical schools. The senior medical college is little more than a hundred years old, and we may conclude that the work of training was well done, because of the present high standard attained by these colleges, by the fact that they are now able in a large measure to train their own teaching staff and by the success of their graduates in after-life.

It makes one of the peculiarities of the profession in India that there was formerly a preponderance of officers of Government among the leading practitioners of medicine, and except in the case of the largest cities it is still the case that the majority of the leading medical men are officials. Of recent years, however, the independent practitioners have so largely increased in numbers as to become a weighty influence. It is only about thirty years since Lord Morley expressed a wish to see the growth of an independent medical profession in India, and already among its members the independent profession includes men of eminence, and even research workers, who have contributed to the world's fight against disease. It may be anticipated that before long the independent element will assume a preponderating influence in the profession, which might be considered the logical position in a democratic country.

GRADUATES AND LICENTIATES.

Another peculiarity of the profession in India, wherein it differs from nearly all other countries, is what I may call the disunity of the profession. I have referred to the establishment of medical schools as contrasted with medical colleges. The colleges train students for a university degree—graduates who can bear comparison with those of any country; the schools admit students of lower basic education, and give them generally a shorter training, ending with a licentiate. It is unnecessary to ask why these two divisions were made—there were good reasons at the time—but we are faced now with two classes so separate as almost to amount to a caste distinction. It is very difficult, almost impossible, for a licentiate to become a graduate.

That by itself is not peculiar, for it is difficult for a licentiate in Britain to become a graduate unless he has previously been through all the examinations beginning with the preliminary arts test. But in India the separation is more compartmental and the distinction more emphatic. If the graduate and the licentiate enter Government service, as the best of both classes usually do, they enter different grades of that service on different rates of pay and with different functions and privileges; they receive different designations: one is called an assistant surgeon and the other a sub-assistant-surgeon. In the registers of most provincial medical councils their names are entered in different parts of the register, and the licentiate cannot register with the Medical Council of India. The licentiate cannot join some of the local medical associations, which are reserved for graduates alone: similarly there are associations for licentiates only.

I do not adversely criticize this state of affairs; it has developed naturally according to the needs of the time. But it obviously gives rise not only to separation of the profession, but to antagonism; often not to a healthy rivalry, but to opposition and sometimes

rancour. This is most undesirable; the energies of the profession should not be dissipated in internal strife, but devoted to awakening the mind of the people to matters of health and to leading them on to better things, and I believe it will be for the good of the profession, and therefore for the good of India as a whole, when the profession in India can speak with one voice.

Very recently I visited Russia, and I found that there also were two grades of medical practitioners. They have the graduates who after ten years of school training receive a medical education for five years, and then in smaller numbers they have a class called "feldshers," who have only seven years at school and then a medical course of three years. The feldshers are therefore probably less well trained than the Indian licentiates. This dual standard is a legacy from Czarist times, and the Soviet Government at first had a tendency to abolish the feldsher class; but owing to a great shortage of medical personnel they are now training them in increased numbers; but presumably as a temporary expedient only until they have enough doctors throughout all their areas. I shall have more to say about Russian analogies later.

OTHER RANKS.

The position in India is further complicated by the existence of at least two other classes—in small numbers it is true; but a few words may be said about each of them. In some medical colleges there was formerly a class called "apothecaries," who were educated side by side with the under-graduates, but passed examinations of a lower standard. This diploma is no longer given, but several holders of it are still in practice. There is also the military branch of assistant surgeons, who are educated at some medical colleges and receive diploma, but no degree. There are several hundreds of this class still practising; but since the last four years all fresh entrants to this service are compelled to do the full graduate course and take the degree so that after a year or so their numbers will gradually lessen and eventually disappear.

The distinction between the two main classes holds also throughout the independent profession as it does among those in Government service. The average graduate is of course a much better-educated man than the average licentiate; but there are many more licentiates than graduates. I have found it impossible to arrive at accurate figures of the numbers of either class. The provincial medical registers do not always classify them in this way, and the registers of the provinces of Assam, Bihar and Orissa register all men in one undifferentiated list. More confusing still is that while nearly all graduates register, a very large number of licentiates do not. Further, the information could not be obtained from the licensing bodies as they have no knowledge whether the men who have obtained diplomas from them are still alive. To

make, however, a rough computation, I should say that while there are 12,000 graduates of Indian medical colleges, there are probably well over 30,000 licentiates.

Having detected what I consider to be an unhealthy spot, I feel I should propose a remedy. The remedy proposed is gradually to raise the standard of licentiate teaching until it approximates to that of the graduate, and then the differences should disappear. That will take a long time. It is not only a matter of lengthening the medical course and improving instruction; the preliminary culture must be higher, and both equipment and instructors must be better.

IMPROVED STANDARDS NEEDED.

Three years ago I took advantage of the official position I then held to collect statistics from all the twenty-eight medical schools in India and to visit many of them. The Government of India published the results in a booklet, which shows my conclusion that none of the schools entirely attains the standard I think they should attain, although some of them are quite good. There is an appreciable difference, though not very great one, between the best of the medical schools and an average medical college; but there is great gulf between the best and the worst of the medical schools. In the booklet remedies to meet the deficiencies noted are also suggested. The roads to union in the profession and to improvement in its education are therefore much in the same direction—that is, to make the medical schools more efficient. The way is long and perhaps hard, but I see no other.

The Government of Madras, perhaps the most advanced of the local Governments in medical matters, apparently sees things in much the same light, for they have transformed their two medical schools into colleges. I sympathize entirely with that object, but am surprised that even in Madras the change-over could be made so rapidly. The schools in many other parts are far below this possibility. Another thing that aids professional unity in some degree is the formation of local medical associations that admit all kinds of registered practitioners. These associations have mainly social and clinical meetings: the introduction of medico-politics to their discussions may lead to difficulty because of the diverse interests of the various classes that compose their membership.

So much for the production of a profession sufficiently skilled and for its union; we have now to consider how it can become numerous enough, or at least accessible enough to give relief to all the sick in the country.

When I say that the profession should be numerous enough, I am aware that there are some who think their numbers are already too great for the country in its present state, and that they would place some restriction on the entry of students to the medical course.

For myself, I think it wiser to rely on the natural demand and supply for medical men, and, provided we could both educate and distribute them properly, I would welcome still larger numbers. I cannot regard the present numbers as excessive when we know that in Great Britain there is one registered doctor to about every 1,048 of population, whereas in India, counting all the grades, there is only one recognized medical man to about every 9,300 of the people. I will speak later of the poor economical state of many of the profession; but in any case everyone will agree that we should make medical attendance as accessible as possible to all.

THE SICK POOR.

Here we come to the primary question whether India should consider it her duty or her aim to provide free medical attendance for all her sick poor. In Great Britain that has long been the case, and apart from all health-insurance schemes the Poor Law of England allows, and I believe now efficiently provides, free attendance for all who cannot afford a doctor. I have never heard it authoritatively stated whether India assumes a similar responsibility or not; presumably she does not though it may be admitted that the aim is a desirable one. But in any case it is impracticable in the near future, except in a very partial degree. The majority of the population probably never see a doctor at all, and that is chiefly owing to the inaccessibility of proper medical aid.

There is, however, a large number of qualified medical men of all grades in India who find it difficult to earn a living of the standard they have a right to expect after their long period of training. I have never heard of any one of them starving, but very often of financial difficulties and of unworthy circumstances.

There is an over-keen professional rivalry and more crowding than in England, and this competition helps to produce a low standard of medical ethics. The crowding is confined to the towns; in the rural areas there is a demand for more medical men. Practitioners will not readily, even when junior and even when partially subsidized, go to practise in villages and the smallest towns. They say they cannot earn a living there; but the reasons seem to be more the social disadvantages of rural life for an educated man—he feels isolated—and still more the difficulty of educating his children properly in a village school.

These are real difficulties; though I cannot but think that the recent advent to India of the ubiquitous motor omnibus has done something to relieve the former complaint, and as regards the children, that the subsidizing authority might make for the children over ten years of age of their practitioners an arrangement of special terms for their education in boarding schools. The best method of inducing practitioners to work in villages seems to be that of subsidy. A living wage and free drugs are provided for one who will see at

least twenty-five patients a day free of charge. The rest of the day he has to himself, for private practice if he can get it, and some get a good deal. The system works well enough in the Madras Presidency, where there are about 500 such subsidized practitioners, and I fail to see why it should not work in other parts. The subsidized practitioner is not regarded as a Government servant; he is an independent practitioner who receives a subsidy, and I consider the increase of this class should provide in time means of medical relief for millions of agricultural labourers and their families. At the same time it is necessary to regard this class as somewhat elastic and not to make rules too rigid: different areas may require special modification and sympathy must be given to the peculiar difficulties of individual cases.

A COMPARISON WITH RUSSIA.

Probably the country that most resembles India in its medical problem is Russia. Here again there is a vast area mainly agricultural that has hitherto been inadequately staffed by health and medical services, though now this is being rapidly remedied. In the Russia of 1913 there were 25,000 doctors, a number that was sadly reduced by subsequent disturbance and typhus epidemics. There are now 100,000 doctors for a population of 170 millions, allowing one doctor for 1,700 people, but this is considered insufficient, they aim at one doctor per 1,000 inhabitants, and so in addition to the retention of the feldsher class, to which I have already referred, very large numbers of new graduates are produced yearly. The actual numbers of medical students now in the Russian schools are about 96,000 undergraduates and nearly 45,000 feldshers. At least half the numbers are women. This is mass production, and the quality of much of the finished product may be questioned; but the position is regarded as a temporary expedient, and once the numbers are up more attention will be paid to quality.

Now the need of India for more extensive medical attendance is at least as great as that of Russia, and yet we do not seem able to accommodate even the comparatively small number of medical men we have, nor to distribute them where they are most wanted. I asked the medical educationalists in the Soviet how they got their doctors to remote rural areas or to undesirable places. They said that every young graduate or feldsher was bound to go for the first year, or sometimes for three years, where he was sent, and that thereafter he could go where he liked. He received a living wage. Rural areas were said to be popular, and in undesirable places the young graduate would be given more pay or privilege such as a motor-car or a cow. I suggest to the provincial Governments of India that they may well consider the feasibility of similar concessions to subsidize practitioners in certain areas. In my opinion the provisions of medical aid to remote parts have never been undertaken.

with sufficient resolution by local Governments in India, the only Government that has progressed at all in this direction is that of Madras.

STATE DOCTORS.

There are others, however, who think that in India medical aid should be extended to village areas as far as possible by an increase in the number of those who are whole-time Government servants, and not by the employment of honorary aid or the use of subsidy. They cite the greater reliance it is possible to place on a disciplined servant of Government and point to the fact that the tendency in Great Britain now is more to a scheme of State aid. That is indeed so; but two important points may be indicated: firstly, although the British Medical Association is now recommending for adoption in Britain an extension of State-arranged attendance that would bring about two-thirds of the population of Britain into the scheme, yet this scheme does not propose the employment of a large number of whole-time Government medical officers, but the allotment of cases to independent practitioners who will be paid by subsidy. It is in fact a more elaborate system of subsidized practitioners and consultants. Secondly, strict comparison between India and Britain in this respect is impossible, and whatever scheme for relief of the sick poor of India may ultimately be adopted there must in my opinion be first a stage of independent or subsidized attendance. A sort of health insurance may well be introduced in India by large industrial undertakings for their employees, but I cannot see how a similar scheme would be possible in the near future for the whole country.

THE NEW MEDICAL COUNCILS.

The establishment of Medical Councils, comparable to the General Medical Council of Great Britain, has had an influence on the development of the Indian profession. Provincial medical councils, which have been working for about 25 years more or less according to the province, have registered many, but not all, practitioners of scientific medicine in their areas; but these provincial councils have not got through the amount of work that might have been expected of them. The Medical Council of India has been in existence for less than five years, but has done a great deal in that time. This Council keeps no register of graduates, but has been instrumental in securing re-recognition of the degrees of Indian universities by the General Medical Council. All the Medical colleges of British India except one are now so recognized.

The Medical Council of India has further been responsible for directing the attention of local Governments and Universities to defects which have been remedied, and can claim that their representations have induced the spending on colleges and hospitals of very large sums of money which would not otherwise have been

available. The Council is now engaged in negotiations for mutual recognition with dominions and foreign countries. This Council is of great use to graduates who wish to study in Britain or elsewhere abroad; it is of no use to licentiates. But this should not be regarded as such a hardship to the licentiate as has been represented. The licentiate rarely requires to study abroad; it is very difficult for him to do so in any case, because the General Medical Council would not recognize his grade of qualification. The licentiateship is intended more for practice in India itself, and registration with a provincial medical council is sufficient. If the licentiate wishes to practise in another province of India than that in which he registered, there are reciprocal arrangements between the various provincial councils by which he can do so.

MEDICAL ETHICS.

I have referred already to the over-crowding of medical men in towns and the keen competition tending to produce a low standard of ethics: this important matter of the relation of doctors to their patients and to one another requires further notice. Medical ethics is now rightly made a subject of instruction to undergraduates during the concluding years of their course, and as a rule the young graduates go out into the world with a pride in their profession and a determination to maintain the good standards that they have seen by example and have been taught. I have several times had my old students come back to see me after a few years of practice telling me that things are very different from what they expected and that some of their professional brethren are given to various mean practices by which they hope to entice their colleagues' patients away from them.

As a general rule it is the older members of the profession who are the worst in this respect, and there is this bright spot about it; that though the standard of medical ethics in India does not yet attain to the standard of Britain, yet it is, I believe, getting better and better, and as the present product of the medical colleges, who are as fine a set of young fellows as one could desire, make their presence felt, so will the standard improve further. It is certainly by my own observation better now than it was 30 years ago. After all the high standard that obtains now in Britain is of comparatively recent growth. If works of fiction give a true picture of their times we have only to refer to the pages of "Pickwick" to see the standard of D. Bob Sawyer a hundred years ago. If we got back a little further to nearly two hundred years ago we can study the quackeries of Ferdinand Count Fathom in Smollet's classical novel and realise that the Indian bazaar would have nothing to teach him. Doubtless these two characters are exaggerations of their times; but I have full confidence that the young Indian graduates of to-day will raise the ethical standard to the best of their ability, and with

a higher education for the licentiates that their ethical standard will also be improved.

So far I have said nothing about that part of the profession engaged solely in preventive medicine; yet it is more important that the methods of science for the prevention of epidemics and infectious diseases generally should be understood and accepted by the people than that the advantages of modern medicine and surgery be appreciated. The adoption of methods of cure, however, is usually a necessary preliminary to gain the confidence of a people before the introduction of preventive measures. The acceptance of preventive methods therefore will depend upon the understanding and trust that are placed by the people on the curative methods, so that it becomes doubly important that they should accept the latter, as indeed they mostly do. Briefly, the public health side of the profession is increasing in numbers and in influence, and is well-trained to afford local Governments and other bodies the advice and executive ability to carry out improvements in the cleanliness of towns and healthiness of the country side.

GENERAL CONCLUSIONS.

From what I have said it may be understood that the medical profession in India, including all branches of it and both official and private sides, is on the whole a competent body containing many able physicians and surgeons, some of them possessing the highest qualifications obtainable; but it would be still more competent as a body were it not for the peculiar divisions into which parts of it are too widely separated and for the too urban distribution of its members. I have already suggested remedies to deal with these defects. Of the measures I have proposed I consider the most important is to devote more attention to the medical schools than they have had in the past. The medical colleges have of recent years had a good deal of attention paid to them, partly as a result of the formation of the Medical Council of India, and before that time due to a general desire to bring the Indian degrees on a par with those in Britain.

The colleges have had considerable sums of money spent on their improvement, and it is now due to the schools, which after all educate the great majority of the medical profession in India, that they also should be properly equipped and staffed--two things that very few of them at present can claim to be. Of almost equal importance to this I regard the enlargement of the number of subsidized practitioners in rural areas and further inquiry as to the possibility of introducing this or a similar system in parts where it has not hitherto been known.

I have great confidence in the future of the Indian medical profession. I believe that in time it will not only fulfil all the functions

that are demanded of it, but will initiate many improvements in the health of the Indian people: perhaps some thought and action on the points I have mentioned may help its progress to that goal.

THE MADRAS PUBLIC HEALTH ACT A BROADCAST TALK FROM ALL-INDIA RADIO STATION, MADRAS.

BY LT.-COL. C. M. GANAPATHI, M.C., I.M.S.,

Director of Public Health, Madras.

The word "Health" is understood by many to mean "Freedom from disease or sickness." This is a very narrow meaning of the word. Does health then consist in merely being able to keep out of a hospital or dispensary? Certainly not. Health in its broader and real sense indicates a positive condition and not a negative one. It connotes a state in which all natural functions are performed freely, thereby keeping the body and mind at an efficient level. To be healthy therefore the individual should aim not at a disease free existence but at a total well-being and functioning of the body as well as the mind, so that he is able to enjoy life and at the same time lead a life useful to himself and to others. Health thus permits a man "to live most and serve best."

The health of an individual is of as much concern to the community in which he lives, as it is to himself; the strength of a chain lies in the strength of the weakest link in it. Unfortunately, we are often inclined to adopt a fatalistic attitude on matters relating to the health of individuals. Health and sickness are treated as accidents and we do not bother to consider why one individual should remain healthy and another sick. No Government can afford to allow ill-health and disease to remain a rampant in the country and at the same time spend large amounts of money in building and maintaining hospitals for the treatment of the sick. Man's health, individually and collectively, is of concern to any organization intended to look after the public health of a country. The Public Health Department have therefore to include in their programme not only the problems relating to the causation and prevention of diseases, but all those referring to general sanitation, water supply, drainage, removal and disposal of rubbish and filth, abatement of nuisances, maternity, and child welfare, food and nutrition, sanitary arrangements at fairs and festivals, registration of vital statistics, industrial hygiene and similar other subjects which are likely to affect the health of individuals and communities.

To achieve satisfactory results in all these aspects of public health problems, the public health organization in any country has to depend primarily on the State, the local bodies (municipalities and panchayats and district boards) and the individuals and communities. It will be admitted that the State, the local bodies and the public have each their specific duties and rights. No individual or collection of individuals can claim any rights or privileges without corresponding duties and responsibilities. Thus in matters relating to public health, the State and local bodies have their duties to perform; the Public Health Department, every one of the officers employed by the State or local body has each his own duties and responsibilities; similarly the public, the individuals residing in rural or urban areas have their duties to discharge.

In more advanced countries legislative public health enactments have been in force for a number of years. In England for instance the first Public Health Act was passed in 1875. In our Province the proposal to introduce a Public Health Act has been under the consideration of the Government for a number of years. A draft Bill was prepared in 1929, and was subsequently revised and altered and subjected to prolonged and careful scrutiny. The Bill thus revised has now been passed with certain amendments, by both the Houses of the Madras Legislature and has become law. Madras has been the first Province in our country to place on the Statute Book a legislation relating to public health. In fact we were the first to organize a public health department to deal with all questions relating to preventive medicine.

The Madras Public Health Act is an enactment embodying all such provisions as are considered necessary and essential for the advancement of public health in our Province. It must be conceded that statutory direction should be laid down specifying the duties and responsibilities of the individuals, the local bodies, and the staff of the public health departmental organization, so that each one of these agencies may clearly recognize its functions and work in close co-operation with the others towards the common goal, viz., the improvement of public health.

The individual citizen, whether he lives in a rural village or in an urban town, has a duty towards his neighbour in all matters relating to public health. Can your neighbour for instance be allowed to accumulate filth and rubbish in and around his house, thus providing excellent breeding grounds for flies which are likely to infect your food with disease-producing germs? Can he be allowed to let sewage, or any poisonous or noxious substance in your drinking water supply thus rendering you and your family liable to dangerous diseases like cholera and typhoid fever? Should he not be bound by law to report to the Public Health Department any case of infectious diseases like cholera, small-pox or plague, in his house, so that

prompt measures may be taken for preventing the spread of such diseases? Will he not otherwise endanger you and your family by exposing you to the risk of infection? Everyone will agree without a moment's hesitation that sufficient statutory safeguards should be taken to protect the citizen from such dangers—a few of which have now been instanced to you. It is true that many of these dangerous situations arise from ignorant practices and superstitious beliefs. In certain instances such dangers arise from acts done through neglect or inadvertence. "More evil is wrought by want of thought, than by want of heart." It is therefore all the more necessary that the duties and responsibilities of the citizens should be clearly laid down in a statutory enactment of this nature—a public health Act.

Similarly the duties of local bodies in regard to public health matters have also been specifically laid down. The most important function of local bodies like municipalities, panchayats, and district boards is primarily the general welfare of the people committed to their charge. It is their duty to provide adequate and wholesome water-supply to the villagers, to render available and maintain a sufficient and satisfactory system of public drains, to provide in proper and convenient situations a sufficient number of sanitary conveniences (latrines and urinals); to maintain the necessary equipment and staff for the disinfection of conveyance, bedding and clothing, if found necessary for controlling the spread of infectious diseases; to exercise control over insanitary buildings; to regulate the sale to the public of articles of food; and to make satisfactory sanitary arrangements on occasions of fairs and festivals. All these and similar duties of the local bodies have been provided for in the Act. It has also been made obligatory on the part of municipal councils, panchayats and district boards, to ear-mark a definite proportion of their income for public health expenditure, the Government reserving the power to relax this requirement in special individual cases.

The Government has also laid down in this Public Health Act, the duties of the officers of the Public Health Department who are primarily the agencies for the successful working of the Act. It is the duty of the Health Officer of a municipality or district board to inspect places where cases of infectious diseases are reported to exist; he has to arrange for the care of the sick and for isolation and observation of the contacts. In the case of plague and similar infectious diseases, he has to arrange for the evacuation of the infected house, and has to carry out the destruction of rats and fleas thereby preventing the spread of infection and rendering the house safe for re-occupation.

Similarly he has definite duties to perform in other matters relating to public health; general sanitation, food control, nuisances, fairs and festivals. In the matter of food control, for instance, do

and introduced treatment with the polyvalent vaccine of streptococci which is still followed in the School of Tropical Medicine. Some of these treatments ameliorated to some extent of a few complications of the disease, such as fever, pain, swelling and such others but none of them has been found to be satisfactory. Non-specific treatment was tried and T. A. B. vaccine failed to give relief to patients suffering from filariasis.

It was at the period when researches were initiated in the School of Tropical Medicine under Dr. S. Rao and in Puri under late P. Das, Civil Surgeon, the writer began to make investigation with the various indigenous drugs on patients of the Poor Hospital at Puri. It was at this time that he was struck with the remarkable efficacy of the extract of one of the Himalayan herbs known as Rosebay. It was practically an empirical discovery in connection with the long and pains-taking researches of various drugs for cure of filariasis. The writer found it remarkably efficacious in all manifestations of filariasis such as chyluria, lymph scrotum, elephantoid scrotum, elephantiasis, chylocele, varicose groin glands, orchitis, endemic lymphangitis, filarial fevers, relapses after surgical operations and such others.

The treatment consists of injections of graduated doses of extract of this drug (Rosbay) in three courses. Each course consists of 6 graduated doses, given by subcutaneous injections at intervals of 3 to 30 days. This treatment has also been found efficacious by oral method also, but not so promptly as by injection.

Various doctors have been supplied with this drug for their opinion on the value of Rosbay treatment. A few cases are cited below:—

Case 1.

Kalpakam Laksman—suffering from chyluria treated in a Hospital at Madras from 22-7-38 to 27-7-38. The House Surgeon gave Rosbay injection. Chyluria was gradually stopped. Since then she had no relapse of chyluria.

Case 2.

Bidyut Kumar De—began to notice swelling of both the legs, more on the right side, about 7 years ago. He also got two attacks of fever with swelling of the right testicle and leg. He was then treated in the School of Tropical Medicine, where he received about 20 injections twice a week. This checked the fever but there was no improvement of the condition of the swelling. He consulted Drs.....Lastly he was put to Rosbay treatment by the writer. The swelling has diminished remarkably, although has not totally disappeared.

Case 3.

Dr..... Sen, M.B. treated "X" H.M. age 38 for chronic chyluria. He had also lymph exudation from the sides of the scrotum.

The periodic fever which he used to get was stopped by previous treatment. He tried Rosbay treatment on this patient. The first set of the Rosbay stopped the chyluria gradually. He then took a few more doses of Rosbay and since then he is all right.

Case 4.

Dr.....Dutt reports a case of elephantiasis penis and lymph scrotum which was completely cured by two courses of Rosbay treatment.

Case 5.

Dr.....Chatterji treated a case of filarial orchitis in which micro-filaria was detected in the blood. He was given Rosbay treatment three years ago. He had very mild recurrences on two occasions which disappeared without treatment. He is now quite all right and his testicle is of normal size.

In conclusion, the writer acknowledges with grateful thanks the reports of the Medical College graduates who were kind enough to supply him with the results of their treatments with Rosbay. Only a few such reports have been published.

Extracts.

THE ROENTGENOLOGIC ASPECTS OF CHRONIC GASTRITIS.

B. R. Kirklin, M. D., Section on Roentgenology: In general two kinds of roentgenologic signs are recognized, the direct and indirect. Mucosal changes and infiltrations of the wall are designated as direct signs. In contrast to these are the indirect, or functional, signs. Since the principal changes caused by chronic gastritis primarily concern the mucosa, it would seem logical that their gross deviation from the normal furnishes the best basis for the diagnosis of gastritis.

It is generally assumed that the appearance of the folds allows the safest conclusions as to pathologic conditions of the gastric wall, although this may also hold true for various other gastric diseases. This, however, is not exactly the fact. The diagnosis of gastritis requires a more critical attitude. Often the diagnosis of hypertrophic gastritis is made solely on the observation of broad, thick, hypertrophic folds; and, on the other hand, thin closely aggregated folds are often summarily interpreted as atrophic gastritis. Actually, the relations are far more complicated: To consider the roentgenologic breadth of the folds equal to the anatomic breadth is not permissible, for the submucosa is chiefly responsible for the width of

the folds, while the mucosa itself represents only a minor part of it. Henning has shown that it is impossible to measure the thickness of the mucosa by the diameter of the folds. In this connection, Lubarsch has found that in diffuse atrophy of the mucosa, comparatively little damage to the muscular layer of the mucosa occurs. Thus the occasional findings of some normal or even broadened folds in pernicious anemia may be explained. In spite of diffuse atrophy of the mucosa, the muscular layer of the mucosa is able to fulfill its task in forming the relief.

The observations of Velde indicate that it is not always justifiable to interpret certain aspects of the folds as an atrophic or hypertrophic gastritis. He has shown that drugs which influence the vegetative nervous system, such as physostigmine, pilocarpine, atrophine and so forth, are capable of secondarily influencing the tone of the muscularis propria and the muscles of the mucosa. A previously normal relief may show all kinds of changes in architecture, depending on the kind and dose of the drug used. In fact appearances are sometimes precisely like those produced by gastritis. Caution should be exercised in diagnosing atrophy of the mucosa merely because the folds appear to be thin. Such thinning may be observed in cachexia, thirst, hunger, after severe illnesses and in atony of the stomach. In most of these conditions thinning of the folds is probably merely an expression of the general loss of tone.

In spite of these reservations, however, broadened folds may, under certain conditions, constitute proof of gastritis. Sometimes, only one or two localized areas in which the mucosal folds are broadened can be demonstrated; they may have lost their normal parallel arrangement, thereby forming a kind of network, they may become confluent, or on the contrary, may be more extended. In certain cases, they may be rows of folds running at an angle to normal ridges of mucosa. The normally sharp edged borders of the folds may appear to be ragged or fringed. By turning the patient so as to obtain a tangential view of the deformed fold a more or less distinct, somewhat terrace-like design with ridge-like notching can be seen. Then the appearance of the mucosa as a whole is completely altered and the normal architecture of the folds is scarcely recognizable.

Such findings, however, can be interpreted as gastritis only if the formations just described remain inflexible, hard, and inelastic during palpation. Consequently, it is no longer possible to make the folds disappear by manual pressure. Apart from the fact that such extreme changes are only exceptionally found, there are difficulties in differential diagnosis which can only be overcome by frequent roentgenoscopic observations of the same patient over a considerable period of time. Berg has coined the term, "neoplastic rigidity" for

these relief formations; if they are localized on the greater curvature or in the fundus, they are designated as "giant rugae." As has been shown by Kantor, they lead to insurmountable difficulties in the differential diagnosis from carcinoma. They should not be mistaken for hypertrophied mucosal ridges on the greater curvature. The latter are soft, pliable and can be made to disappear by pressure. In the more acute processes, loss of elasticity of the relief is caused by inflammatory edema of the mucosa and submucosa, and inflammatory paralysis of the muscular layer of the mucosa is an additional factor. In chronic processes, as I have mentioned before, a more reparative hypertrophy of the connective tissue is found, and it may be difficult to demonstrate these changes. These changes can usually be demonstrated by gastroscopic examinations.

One of the pathognomonic roentgenologic signs of chronic gastritis is the wart-like granulation of the relief. This granulation appears as pinhead-sized or diffusely scattered wart-like lesions. The granulations are most frequently found in the antrum, especially in stagnant pylorostenosis; but they may also be seen in the folds of the corpus or fundus where they appear as discrete small circular lesions, displacing the barium suspension. The folds need not necessarily show any essential changes from normal. Kuhlmann has pointed out that these lesions are more easily demonstrated on the posterior wall near the cardia. By turning the patient appropriately it is sometimes possible to make visible these small wart-like structures, which frequently are located on the slope of the fold. We are able to confirm this, but we wish to call attention to the differential diagnosis from a high-situated ulcer, which is often difficult.

These findings are definitely indicative of gastritis, although they are infrequently observed and in many cases the wart-like prominences are so minute that they cannot be seen at roentgenologic examination. Similar pictures may be produced by "barium flocculation" caused by particles of mucus enveloped in the barium suspension. Moreover, small remnants of food or air bubbles in the barium suspension may sometimes simulate granular hyperplasia of the mucous membrane. However, these latter defects, if closely observed, may be seen to change their position during manipulation of the stomach.

When the process of hyperplastic granulation advances, the granules become coarser and the rare picture of gastritis pseudopolyposa is produced; this is easily recognizable roentgenologically. The normal appearance of the mucosal folds vanishes and sometimes they cannot be seen at all. Circular, smooth or ragged areas, varying in size from that of a lentil to that of a cherry stone, may be seen. On palpation they seem to be rigid and cannot be made to disappear by pressure. It is exceedingly difficult to differentiate this condition

from true polyps. The rigidity and irregularity of the former are the differential diagnostic features.

An equally certain sign of the existence of gastritis is the demonstration of mucosal erosions. These small mucosal defects are located on the mucosal folds and appear as oval or punctiform, shallow craters. The surrounding mucosa becomes edematous.

The demonstration of these erosions is extremely difficult "en face." They can be more easily demonstrated by turning the patient so that they are brought into tangential view. Then the mesial border of the stomach, now seen in profile, has a finely and irregularly serrate appearance, each of the small projections representing an area of an ulcerous erosion. This serration can easily be differentiated from the "washboard" appearance sometimes produced by delicate peristaltic waves. It should be emphasized that these marginal indentations representing gastritis ulcerosa may not always be visible in subsequent examinations for the minute ulcers may be filled with mucus or exudate and prevent entrance of the barium suspension.

Among indirect signs, antral stenosis and hypertrophy of the pyloric muscle are important. Stenosis of the antral lumen may result from any of several causes: inflammatory infiltrations, callous formations, or spastic contraction associated with muscular hypertrophy due to inflammatory mucosal changes of the antrum. From his histopathologic and clinical studies de Abreu attached only minor importance to the spasm and felt that such changes were usually of inflammatory origin.

In true muscular hypertrophy of the pylorus in adults a condition in which the roentgenologic findings are pathognomonic, a cause for the hypertrophy has not been definitely established. It has been attributed to persistent congenital hypertrophy or to a long-continued pylorospasm.

Gutzeit has emphasized the importance of antral dilatation without pyloric stenosis as an indirect sign of gastritis. According to our experience, the syndrome mentioned by Korbsch, namely, increase of tone and peristalsis, indentation of the greater curvature, and travelling antral waves, is of limited importance since it may be seen also in normal stomachs.

In the interpretation of the mucous phenomenon which is often found in anacid or subacid gastritis, wart like granulations, remnants of food, air bubbles and swallowed mucus should be ruled out.

Finally, I mention duodenitis and enteritis. According to Konjetzny, Gutzeit, and Kuhlmann, enteritic changes rarely occur without the simultaneous presence of gastritis. Therefore we may assume the existence of gastritis in those cases in which duodenitis or enteritis can be demonstrated.

Overdistention of the stomach with either the barium suspension or by air in gastroscopy will in most cases cause those patients with gastritis to complain of pain.

SUMMARY AND CONCLUSIONS

I have attempted to analyze critically the roentgenologic diagnosis of chronic gastritis. My experience at the Clinic has led me to the following conclusions:

1. Negative roentgenologic findings do not rule out the presence of gastritis. Even stomachs which show severe changes gastroscopically and clinically may escape roentgenologic diagnosis.
2. Only a small percentage of cases of gastritis can be diagnosed by roentgen examination. Slight changes cannot be seen.
3. Mucosal atrophy cannot be demonstrated by roentgen examination.
4. The most important and most frequent roentgenologic sign of gastritis is the presence of localized, ragged, irregular hypertrophic mucosal folds.
5. Wart-like granulations, mucosal erosions that can be demonstrated "en face," and pseudopolypous formations are so infrequently demonstrable that they have relatively little practical importance in the diagnosis of gastritis. Tangential projections on or near the lesser curvature, such as have been described, can be observed more frequently. When found, they constitute absolute proof of the presence of ulcerous gastritis.
6. Indirect signs have to be interpreted with great caution and are significant only when associated with more definite findings.

THE SERUM BASES DURING INTESTINAL OBSTRUCTION.

M. A. Falconer, F. R. C. S. (Eng). University of Otago Fellow.
A. E. Osterberg, Ph. D., Division of Biochemistry, and J. A. Borgen, M. D., Division of Medicine: For several years it has been known that, during obstruction of the intestines of both human beings and of animals, the concentration of sodium in the blood serum tends to fall. Until recently, little attention has been paid to the behaviour of the other bases of the blood, apart from the observation that the total content of base in the plasma also tends to fall.

Ruggieri, in 1935, reported that after experimental intestinal obstruction in animals the concentration of calcium in the blood tended to rise, but he was unable to give any explanation of the mechanism concerned. Scudder, Zwemer and Truszkowski, in 1937

reported that, in cats, following experimentally produced obstruction of the alimentary canal, the concentration of potassium in the blood rose to such heights the hyper-potassemia was suggested as the cause of death. Cutler and Pijoan, latter in the same year, found that similar changes occurred in the blood of dogs suffering from intestinal obstruction. Since then, we have confirmed Cutler and Pijoan's observations.

Early in 1938, Scudder, Zwemer and Whipple, published their observations on the behaviour of potassium in the blood of a number of patients suffering from intestinal obstruction. Although in many of their cases the concentration of serum potassium was within normal limits during obstruction, in a few cases it was elevated and in a few decreased. These workers concluded that the disturbances in the concentration of potassium in the blood, particularly that of hyper-potassemia, explained some of the symptoms in their cases. Keith and Binger, however, observed that healthy volunteers who took potassium salts by mouth without manifestation of any harmful effects had, higher values for serum potassium than any recorded by Scudder and his associates.

As the result of observations on the chemical constituents of the blood of a number of patients suffering from intestinal obstruction, we have been unable to verify that either hyperpotassemia or hypercalcemia are factors of importance in the intoxication of intestinal obstruction. Instead, we have found that there is a tendency for the concentrations of potassium, sodium and calcium in the serum to decrease and that the reduction in the level of potassium tends to be relatively the greatest.

We believe that the principal factor responsible for this tendency to reduction of serum potassium in the presence of intestinal obstruction is the great loss of potassium which occurs in the vomitus and aspirated gastric contents. Indeed, the concentration of potassium in the gastric contents may be twice or even five times as great as the concentration of potassium in the patient's blood serum.

This explanation is not completely satisfactory because a similarly large loss of potassium was observed by Scudder, Zwemer and Truszkowski in the vomitus of cats suffering from intestinal obstruction and by us in the vomitus of dogs. We are unable to explain on these grounds, therefore, why the concentration of the serum potassium of animals tends to rise during experimentally induced obstruction whereas that of human beings tends to fall during intestinal obstruction. We wish to point out, however, that the distribution of potassium in the blood of animals and of man is not analogous.

In cats and in dogs the concentration of potassium in the plasma and in the cells of the blood is the same whereas in man the concentration of potassium in the cells is twenty times as great as that in the plasma. This makes it difficult to presume that changes in

the serum potassium always have the same significance in man as they have in animals.

Although in many of our cases values for serum potassium were low before any treatment was begun, in some cases of paralytic ileus in which glucose and saline solutions were given intravenously, we observed a progressive decrease in the concentration of serum potassium during the period of obstruction. Investigations, which we undertook to determine whether the administration of solutions of sodium chloride or of large amounts of glucose were responsible for the decrease in serum potassium, gave negative results.

Because we had observed low values for sodium, potassium and calcium in the serum during clinical obstruction of the intestine of human beings, we believed that solutions, containing these bases, such as Ringer's solution, should be employed in the treatment of intestinal obstruction rather than solutions containing sodium chloride only. This belief was substantiated by our observations in three cases of paralytic ileus in which low values for serum potassium and serum calcium were present. The addition of potassium and calcium salts to solutions of sodium chloride and glucose which were being administered to these patients was followed by improvement in the general condition of the patients and this improvement was accompanied simultaneously by elevation toward normal values for the serum potassium and serum calcium.

Medical News and Notes.

THE TINNEVELLY DISTRICT MEDICAL ASSOCIATION, PALAMCOTTAH.

(Tinnevelly Branch of the Indian Medical Association.)

A special meeting of the Tinnevelly District Medical Association was held at the Sri Subrahmanya Karayalar Public Library, Palamcottah on Saturday the 25th of March 1939, at 4-30 P.M., to meet Lieut.-Col., T. S. Shastri, I.M.S., the President of the Association on the eve of his transfer to Kistna District.

Members and guests were entertained to refreshments by Sri. T. S. Srinivasa Rao, B.A., B.L., Zamindar of Pudur. After sweet music the function proper began.

Dr. T. N. Govinda Iyer, M.B. & C.M., Vice-President of the Association, expressed his deep appreciation of the good and sympathetic work of the Association under Colonel Shastri's guidance in promoting comradeship and esprit de corps among the various grades of medical men in promoting their knowledge and in organising the meetings.

Thereafter Sri. Sadhu Ganapati Pantulu, B.A., B.L., Advocate, expressed on behalf of the non-medical public his appreciation of the good work of the medical profession and thanked Colonel Shastri and the members of the Association for the courtesy in inviting to join the celebrations.

Dr. R. V. Padmanabhan, M.B.B.S., on behalf of Honorary Medical Officers, Dr. N. Isaac, on behalf of the Independent Medical Practitioners and Dr. P. Suryanarayana Iyer, on behalf of the Rural Medical Practitioners made speeches appreciating Colonel Shastri's work as the President of the Association and also as the District Medical Officer.

Colonel Shastri, replied to the above suitably.

An excellent Dinner brought the happy gathering to a close.

Review.

Messrs. Chenevix & Co, practical manufacturers and repairers of Surgical and Veterinary instruments, importers and exporters of Hospital appliances, Sialkot City. (India). They are the manufacturers of Amputation, Post-Mortem, Dissecting, Dressing, Diagnostic, Fistula, Hernia, Eye, Ear, Nasal, Dermal, Oral, Tonsil, Dental, Throat, Tracheal, Laryngeal, Stomach, Intestinal, Midwifery and for every class of surgical work, also selected Hospital requisites and Furniture. They are the sole agents for U.S.A's manufactured surgical instruments.

We have seen some of the manufactured instruments by the above firm and we can assure the Surgeons that the instruments are of a very high standard and can stand a comparison to any of the high class manufacturers of England and on the Continent. The general get up and finish of the instruments is very neat. The cutting instruments manufactured is very sharp and can stand any standard test for the same. The prices are far cheaper, compared to the quality, than any of the foreign manufacturers. The management gives full guarantee for their manufactured goods on the understanding that if any of their articles disapproved for any reason what-so-ever, either the goods will be replaced or its full price will be refunded.

We are very glad to note that India can prepare surgical goods and hospital requisites to a standard equal to foreign manufacturers. We congratulate the management of the firm for their enterprise and wish them every success and prosperity.

We further appeal to the medical practitioners and surgeons to encourage the Indian concern by enquiring the above firm for their requirements for the Nursing Homes.

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