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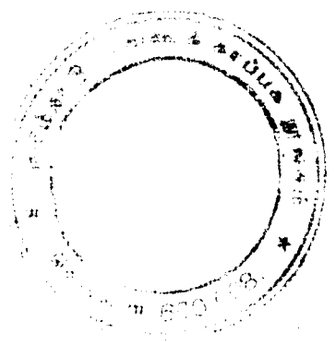

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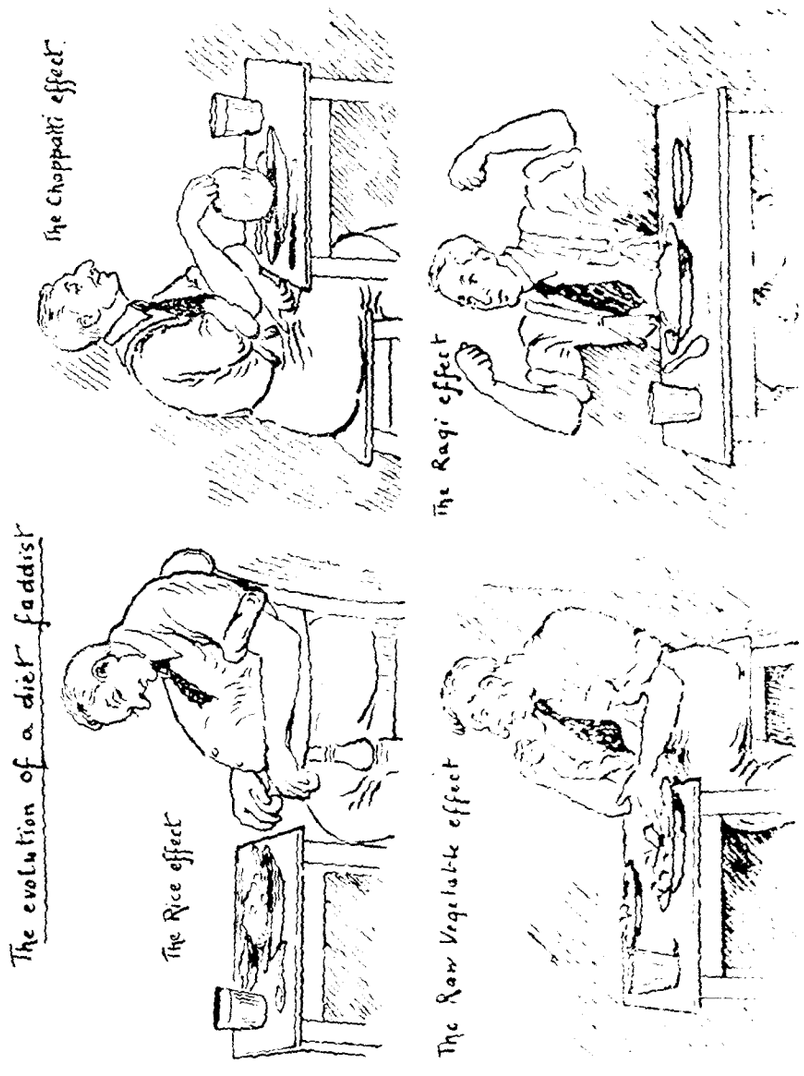

THE MADRAS

Medical College Magazine

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Significance of Biochemical Analyses

IN THE DIAGNOSIS, PROGNOSIS AND TREATMENT OF DIABETIS MELLITUS *

BY DR. S. MANNADI NAIR, M.B., B.S., PH. D.

(Professor of Biochemistry, Medical College, Madras).

Diabetis mellitus is essentially a physico-chemical problem. The morphological changes associated with it are of secondary importance. The pathological changes noted in the pancreas are not commensurate with the severity of clinical symptoms. Howard F. Root and Shields Warren[1] report that in the post-mortem of diabetic children they examined there was little pathological change in the pancreas, either in the islet or acinous tissue, while the post-mortem finding of Hyaline degeneration of the islets so often seen in the pancreas of elderly diabetics was also encountered in non-diabetic cases.

On the other hand the study of the chemistry of the diabetic organism enlightens our conception of the malady. Therefore I shall attempt to delineate the importance of biochemical analyses in the diagnosis, prognosis and treatment of Diabetis mellitus.

In diagnosis this significance is paramount in doubtful cases of glycosuria. To diagnose a harmless excretion

* From Lecture delivered under the auspices of Madras University in February 1929.

of a copper-reducing substance in the urine as diabetis mellitus is a grave error of social, economical and much more of psychological consequences; but to disregard an early diabetic as benign glycosuria is a criminal injustice to the individual as chances of his relief and leading a useful life by early treatment are jeopardised by ignorant neglect.

So whenever a reducing substance is detected in the urine examine the urine with Benedict's qualitative solution. For Fehling's reagent which is commonly used will be reduced by non-sugary substances in urine as uric acid, homogentisic acid, etc., when they are present in excess. Benedict's solution is not reduced by them. To about an inch of Benedict's solution in a test tube add 10—12 drops of urine and boil over a naked flame for three minutes or in a boiling water bath for five minutes. A trace of sugar will be manifest by the whole solution being filled with a greenish precipitate. This precipitate will be coloured yellow, orange or reddish orange according to the amount of sugar present in the urine. Sometimes isolated greenish flocculates might be found floating in the solution. This should not be confused with sugar as they are due to urates.

For all practical purposes the sugar present in the urine might be glucose, lactose or pentose. Lactose is frequently found in pregnant and lactating women. Pentose is found sometimes in the urine of Jews and also of those who eat a large amount of fruits and vegetables. To detect the nature of the sugar perform a fermentation test in Einhorn's Saccharometer with a small piece of compressed yeast. If fermentation is noted then filter some of the mixture and do an iodoform test for the alcohol produced by the fermentation; for sometimes carboxylase enzyme is present in the yeast which produces carbondioxide by splitting aminoacids in the urine. Fermentation is better done in an incubator at 37 C as the

result can be observed in a shorter time than at ordinary temperature. Glucose is fermented by yeast while lactose and pentose are not. To differentiate further prepare the osazone crystals of the sugar in the usual way. All are familiar that lactosazone differs in the shape and formation from the glucosazone but perhaps it is not known that both pentosazone and glucosazone are similar in appearance; but their melting points differ appreciably. Pentosazone melts at about 156°C while glucosazone at 205°C. Further pentose can be tested by Bial's reagent. Garrod's[2] method of testing the urine for pentose is to boil 5 cc of the reagent in a test tube and then after removing it from the flame five drops of urine are added to its surface with a pipette. If pentose is present in the urine a green ring will be found at the point of contact of the surfaces. The colour spreads through the solution on gentle shaking. The colour is extracted with amyl alcohol and the alcoholic solution gives an absorption band between D. & E. lines when examined by a spectroscope.

Thus after determining the nature of the sugar to be glucose the next step is to find out whether this glycosuria is due to diabetis mellitus or not. To determine this the best means so far we have is "the glucose tolerance test or glucose curve test." But O. H. Petty[3] and W. H. Stoner state that "respiratory quotient curve" diagnoses diabetis mellitus earlier than glucose curve. Their method is to find out the respiratory quotient before the administration of glucose and then every half an hour after glucose for two hours. This curve shows the normality or otherwise of sugar burning mechanism. This method though a very suggestive one has not come to general use.

The glucose curve test is done as follows: The patient is starved after the previous night's meal. Next morning at about 10 a.m. his fasting blood and urine samples are collected and then fifty grammes of glucose dissolved in about 200 cc. of water are administered. The blood and

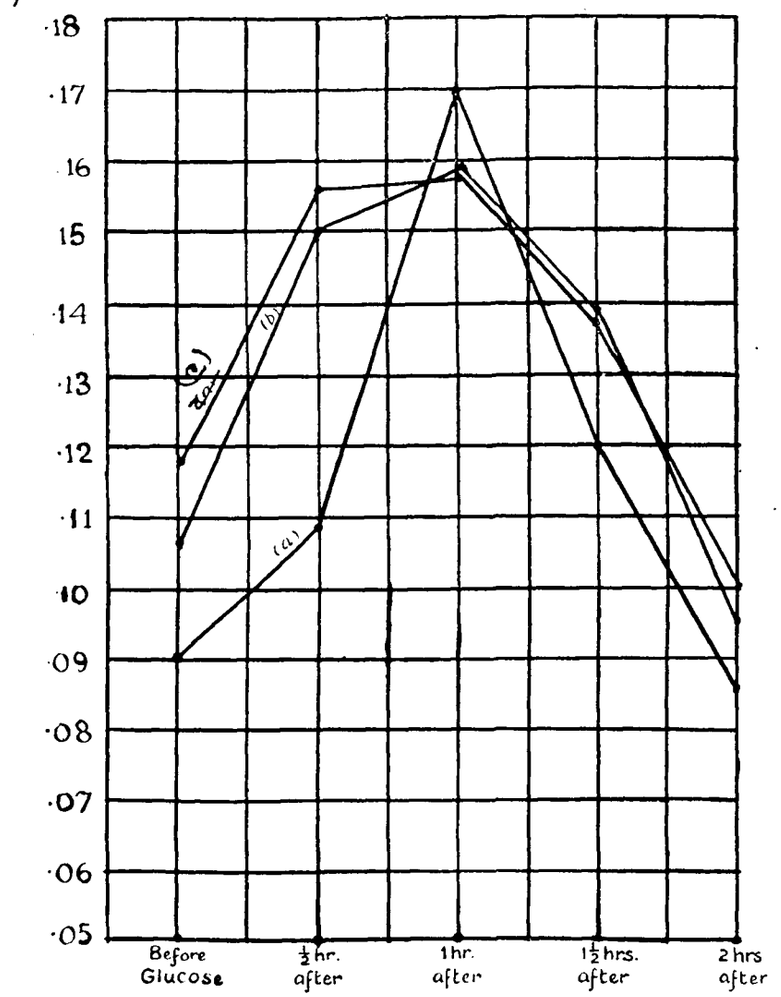
urine are collected every half an hour for two hours. The glucose content of the blood samples is determined by a suitable correct method and urine is tested qualitatively for the presence of sugar. For each determination of the blood sugar content only about ·5 cc. of blood need be collected.

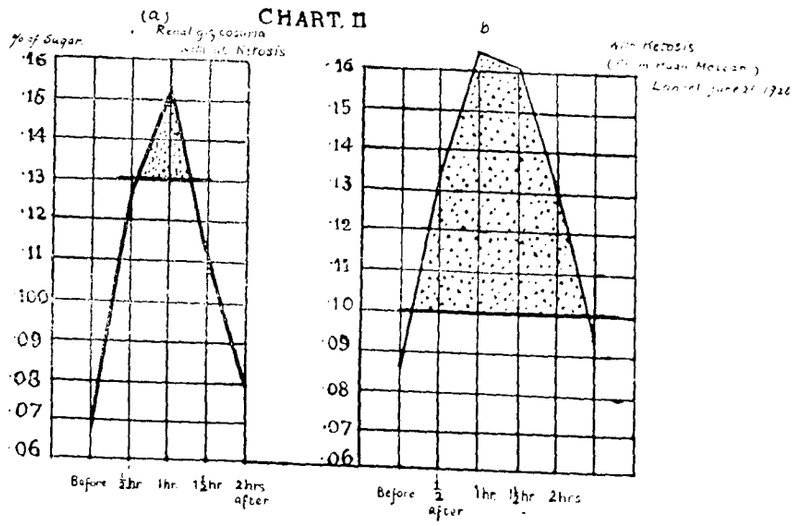
In order to understand the glucose curve in diseased conditions knowledge of the significance of the curve in normal individuals is essential.

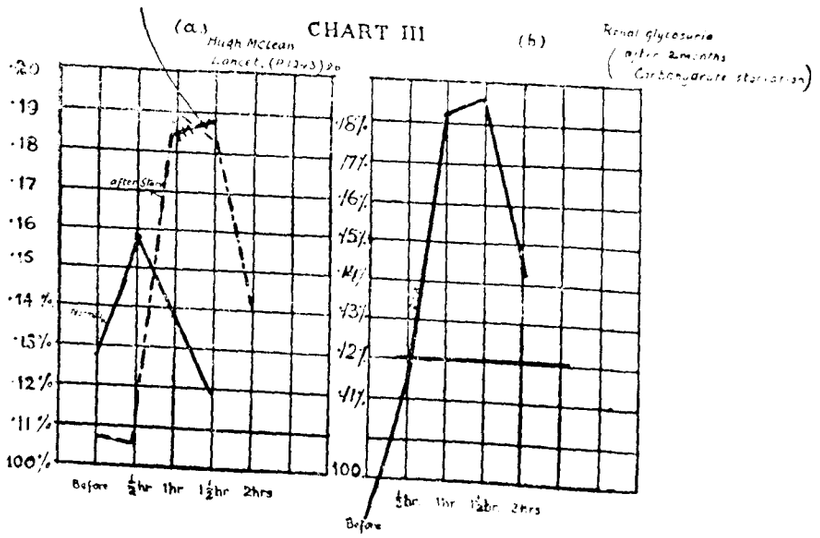
Chart I gives the curves in normal individuals. Here the fasting blood sugar is between 0·09 —0·12% , within one hour the maximum or peak value is attained. Then within two hours the blood sugar falls to the initial level or often to a slightly lower level. The significance of the normal curve is this. With the absorption of glucose into the portal circulation the blood sugar passes through the liver, without being retained at first to the peripheral circulation till it reaches a value between 0·16 and 0·18%, when the internal secretion of the pancreas is stimulated and it is poured into the circulation. This internal secretion helps the liver and muscles to retain glucose as glycogen and the tissues to burn glucose. This combined effect of storage and oxdiation brings down the level of the blood sugar. When it falls below 0·09% or so the internal secretion of the adrenal glands is poured into the circulation which causes glycogenolysis in the liver thereby restoring the blood sugar level to the normal.

Normally no sugar is excreted in the urine during the test as glucose is a renal threshold substance with a threshold value of about 0·18%; but in certain individuals the renal threshold is lowered to 0·13—0·14 or even 0·1, so when the blood sugar value goes above their threshold value, as will happen in normal conditions of carbohydrate ingestion, the kidney leaks and sugar is found in the urine. These cases are the so-called "renal glycosuria" patients. It may be pointed out here that carbohydrate metabolism both in renal glycosuria and pentosuria cases

CHART. 1 *Normal*







is normal. The excretion of glucose in the one and pentose in the other does not affect the health. There is in fact a general consensus of opinion that these patients, as their health is not affected by the conditions and require no treatment, should be passed fit for insurance purposes.

Among the renal glycosuria cases there are again two types of patients (*a*) glycosuria without acetonuria (*b*) glycosuria with acetonuria. In the former no acetone bodies are passed in the urine while in the latter acetone bodies are usually present. For, in the latter class of patients the renal threshold for glucose is about 0·1% while in the former it is about 0·13—0·14%. So the latter set of patients continually pass large amounts of glucose in their urine. So that the glucose stored in their bodies is defective; consequently they have not enough carbohydrate in the system to burn up the fat. Hence acetone bodies are formed and excreted. But in spite of this excretion of acetone bodies and glucose in the urine they are not very ill. They feel only a little out of sorts and feel better with a plentiful intake of glucose. In these cases there is a distinct danger to be avoided. If the large amount of glucose and some acetone bodies excreted in the urine induce a clinician to diagnose the condition as diabetis a grave error is committed; for an injection of a few drops of insulin will produce in these patients profound Hypoglycæmia while a restricted diet will undermine his health. On the other hand a plentiful supply of carbohydrates will banish the acetone bodies from his urine. Hugh McLean [4] has come across renal glycosurias of this type. Chart II-*b*.

McLean has shown also that starvation affects normal glycosuria curve. Lack of the necessary amount of carbohydrate food results in giving a curve slightly higher than normal and a little prolonged. Chart III-*a* is taken from McLean[5]. The Chart III-*b* is from an interesting case come under my notice. This doctor once found about

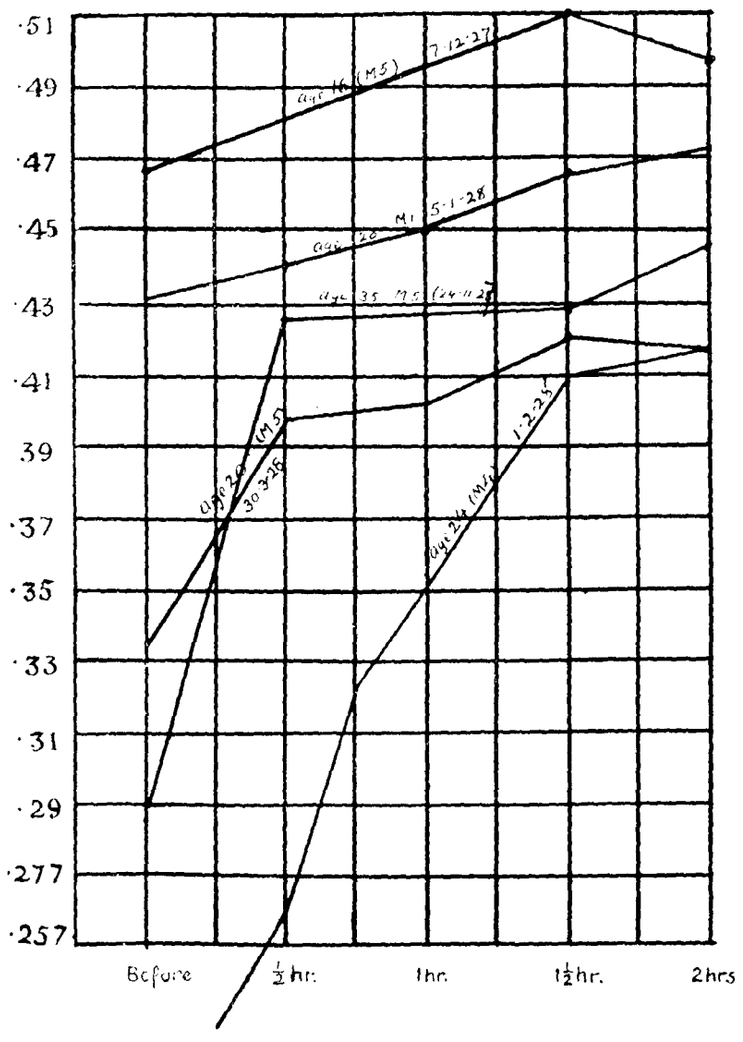
8—10 of sugar in his urine on casual examination. This naturally alarmed him and he practised strictness in his diet especially in carbohydrates. Two months' strict regime did not remove the sugar from the urine. Thereafter glucose tolerance test was done on my suggestion with the result given in the chart. His renal threshold was found to be much lowered. The defect in his tolerance curve, slight hyperglycæmia and prolongation in the fall may be attributed to the carbohydrate starvation during these two months' regime of strict diet. However, he has been taking the ordinary diet after the test and has been keeping good health till now without any treatment whatsoever. I hope to have another opportunity of examining his condition.

Regarding the glucose curves of the diabetics a difference will be noted between the two classes of patients, namely, (i) acute diabetis found in the young and (ii) mild and moderate diabetis found in the elderly. The French school of Marcel Labbe[6] classifies it as (i) Diabetis with denutrition and (ii) Diabetis without denutrition. Hugh McLean[7] calls class (*a*) Pancreatic diabetis and (*b*) Hepatic glycosuria. I do not wish to enter into any controversy about this classification. I believe in the young the condition is more acute while in the elderly, at least in the great majority, it is mild or moderate. But even in the elderly when totally neglected a severe variety is met with. Then one does not find much difference in the clinical picture.

All clinicians will agree that the onset in the young is sudden while in the elderly it is insidious and gradual. In the severe diabetis of the young acetonuira is the rule while it is an exception in the elderly. However this only shows that in the former the supply of the internal secretion of the pancreas is extremely defective while in the latter the defect is mild or moderate.

Chart IV gives the glucose curves of severe diabetics

CHART IV *Severe Diabetics of the Young*



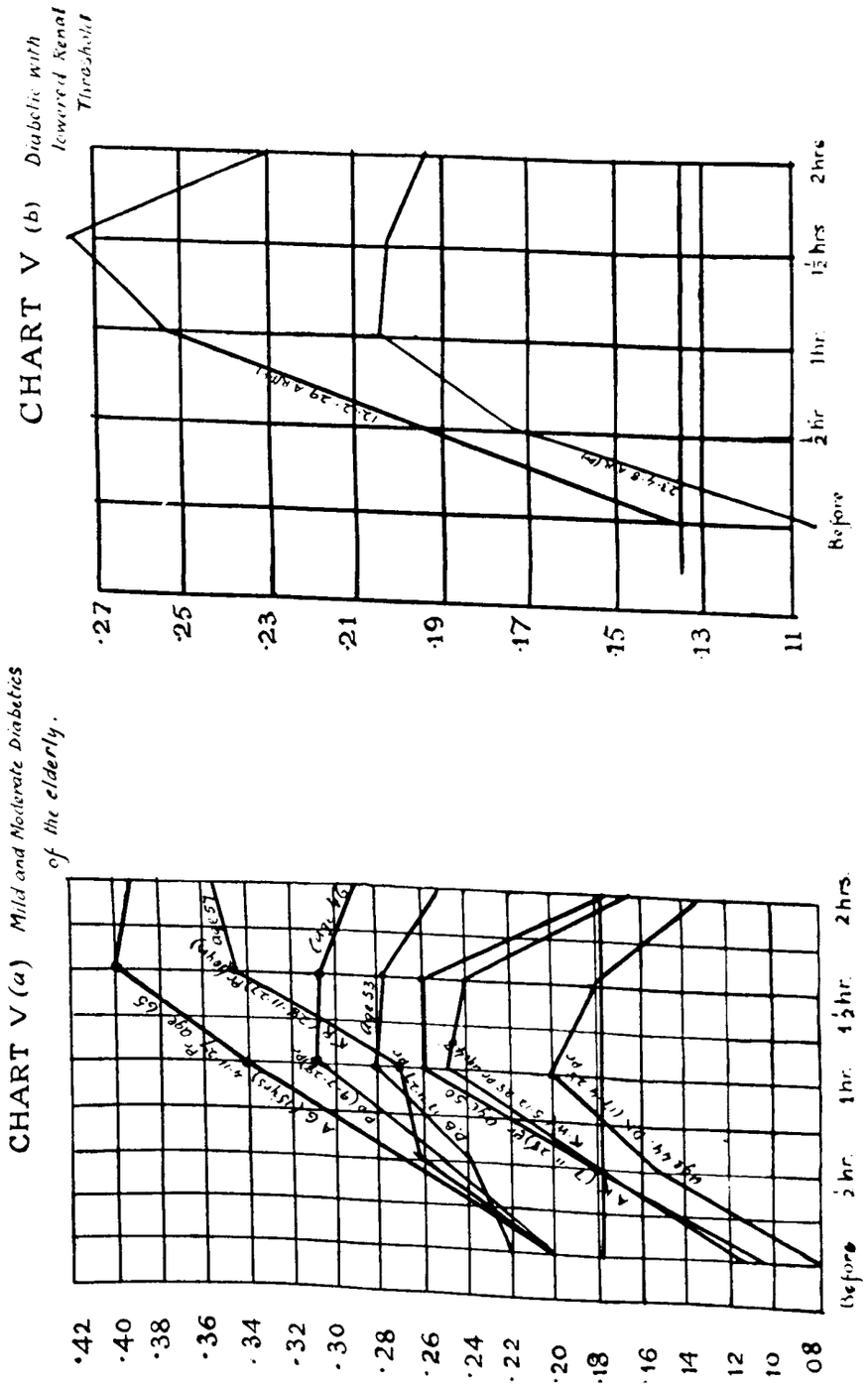


CHART V (a) Mild and Moderate Diabetic of the elderly.

found in the young. I am indebted to the physicians and medical registrar of the General Hospital for the clinical history of these cases. Chart V gives the curves of diabetics found in the elderly. You will find the difference in the nature of the curves. In the very mild cases there is only very slight hyperglycæmia and slight protraction in the descent. A prolongation of the curve in its descent will be the earliest sign to be noted in diabetis. These early cases do not have any signs and symptoms of diabetics except a transient glycosuria. Like other diseases diabetis when diagnosed early and treated promptly and properly can be easily controlled.

It is probable that the elderly cases start with a sluggishness of the liver in its storage mechanism. But before one decides whether there is or not any corresponding sluggishness in the combustion of glucose in the tissues one ought to take a respiratory quotient curve simultaneously with the glucose curve. If the R.Q. curve shows there is defect in the burning up of glucose in the tissues along with the defect in the glucose curve then the fault is in the supply of the internal secretion of the pancreas. But on the other land if R.Q. curve shows no defect while the glucose curve is not normal then the conclusion that the fault is in the storage mechanism is justifiable.

Though in the elderly cases Hugh McLean[8] asserts that the defect is in the storage mechanism and not in the oxidation of glucose while in the young both are defective, I have not come across his explanation based on facts and experimental data for his hypothesis. Rabinovitch[9] has published simultaneous glucose and R.Q. curves in mild and moderate diabetis and renal glycosuria but no decisive conclusion can be drawn from his figures.

A word may be said here about the renal threshold of diabetics. It is usually normal or raised. We have in the laboratory come across a renal threshold of 0·26 and eve-

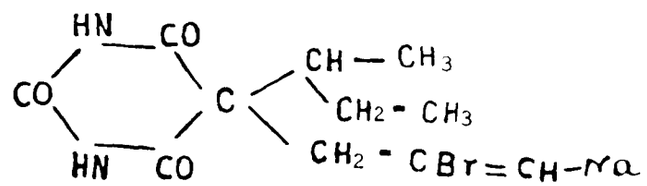
"Pernocton" Twilight Sleep

(DAMMER SCHLAFF OF GERMANS)

BY CAPTAIN A. R. PUDUVAL, M.D.

The continued experiments by the German Surgeons and Pharmacologists, to discover a drug that would lessen the dangers of narcosis and reduce the quantity of Chloroform or Ether used in anæsthesia, have resulted in the production of many drugs, some of which have passed the experimental stages and others are still under trial. To the former class belong Avertin and Pernocton. I have already written about Avertin in a previous contribution. In the following article I shall attempt to describe the action and use of Pernocton.

Pernocton was produced synthetically, at the suggestion of the late Professor Bumm of Berlin, by the J. D. Reidel Manufacturing Co., and is a 10 watery solution of the Sodium Salt of the secondary Butyl-B-bromallyl barbutyric acid, chemically represented by the formula $C_{11}H_{14}O_3N_2BrNa$. It is a derivative of the older hypnotic Noctal and is structurally represented thus:-



The drug has a therapeutic range of 10, *i.e.*, the toxic dose is ten times the therapeutic intravenous dose but subcutaneously as a hypnotic it is 20, thus it possesses a wide range of safety.

Pernocton is mainly used "for leading on to the stage

of narcosis," without being used solely as an entire unaided anæsthetic by itself. It produces twilight-sleep and so considerably reduces the quantity of chloroform or ether used for producing surgical anæsthesia, by about 50—75%. Though allied to Veronal pernocton cannot be recovered from urine in any appreciable quantity as the former. It has a wide range of use in Surgery, Midwifery, Gynæcology, etc.

Pernocton in association with either chloroform or ether produces just that condition of anæsthesia necessary for surgical operations. There is some difference of opinion as to its suitability with novocain in regional and local anæsthesia, but Dr. H. Berktoz warmly recommends the combination as it entirely removes the anxiety and restlessness of the patient.

The instructions of the manufacturers are quoted below as regards its use.

"Use in Surgery. It not only saves the quantity of ether or chloroform used, but also contributes to the prevention of psychic trauma so common in general narcosis. The drug is best injected in the patient's room so that he is not excited over the preliminaries of the operation. An injection of 1—2 ccs. of pernocton subcutaneously or 1—2 tablets of Noctol by mouth the previous evening allows the patient a good night's rest and he feels fresh in the morning.

Fifteen to twenty minutes before the operation, Pernocton is injected very slowly into the anti-cubital vein, taking 2—3 minutes for the whole injection. Most of the complications and unpleasant reactions of this drug are due to too rapid an injection.

Pernocton is supplied in 1 cc. ampoules and its dose depends on the body-weight, general condition of the patient, and the gravity of the operation. On an average, 1 cc. of Pernocton per kilo-gram of body weight is recommended. Before the skin-incision is started and where-

ever pain is going to be an important factor a little inhalation narcosis of ether or chloroform by the open drop-method should be given. Prof. Bumm gives the following dosage:—

	75 lbs.	100 lbs.	125 lbs.	150 lbs.	175 lbs.
Strong men up to 50 years of age ...	...	5 cc.	6 cc.	7 cc.	8 cc.
Ditto over 50 ...	3½ cc.	4½ cc.	5½ cc.	6½ cc.	7½ cc.
Weak men up to 50 years of age ...	3½ cc.	4½ cc.	5½ cc.	6½ cc.	7½ cc.
Ditto over 50 ...	3 cc.	4 cc.	5 cc.	6 cc.	7 cc.
Strong women up to 50.	3 cc.	4 cc.	5 cc.	6 cc.	7 cc.
Ditto over 50 ...	2½ cc.	3½ cc.	4½ cc.	5½ cc.	6½ cc.
Weak women up to 50...	2½ cc.	3½ cc.	4½ cc.	5½ cc.	6½ cc.
Ditto above 50 ...	2 cc.	3 cc.	4 cc.	5 cc.	6 cc.

Those patients who with proper technique and above dosage do not get into a stage of deep sleep, must have the narcosis deepened by inhalation anaesthesia. No further injection of Pernocton should be done for fear of unpleasant results.

When patients come round from its effects, there are no post-anaesthetic symptoms as vomiting, headache, etc., and patients feel fresh. But certain amount of "irritation at the awakening period" has been noticed due either to Pernocton or ether.

In Midwifery, Pernocton is used to produce twilight-sleep in doses of 1 cc. per 12½ -15 Kgm. of body weight, the psychic condition of the patient being also taken into account. In the primigravida the injection is given, when, with regular pains the cervix is about 5 cm. dilated and the presenting part has come down into the pelvis. In the case of multiparæ, the injection is given when the cervix admits two fingers. Some obstraticians recommend the injection subcutaneously of 1 milligram of atropin half an hour before the injection of Pernocton. The best action of the

drug is secured by a very slow injection. The sleep comes on pretty rapidly but the patient still reacts to instructions to bear down during the pains. During Pernocton-sleep there is complete amnesia. Pernocton does not diminish the pains nor is the child affected in any way.

One of the most important things insisted upon by those that have used this drug is the effect of suggestion. The patient is told that he will sleep and that this would be comfortable and pleasant, and that the whole procedure would be exceptionally painless and that he or she would wake up feeling fresh. An atmosphere quiet and ecouragement is necessary in the vicinity of the patient.

Dr. Paul Rottger advises: "If one would talk to the patient while the intravenous injection is proceeding, it is easy to perceive the on-coming of sleep usually after 1-2 cc. of the fluid has been given. The patient expresses himself as feeling dull in his head and that he is unable to see objects clearly and they appear to be receding. He often speaks of peculiar taste in the mouth. Then he yawns and his speech becomes indistinct, and sleep sets in. He sleeps and breaths quietly. Pulse remains unchanged, and blood pressure remains as before. All the reflexes are present including the corneal one. Pupils are small and react. The laryngeal reflex and swallowing remain. There is no fear of aspiration into the lungs. In the case of women during delivery the fœtal heart is uninfluenced. So far as general surgery is concerned there is no operation which is not within the range of Pernocton, especially when it is further supplimented by ether or chloroform."

The total quantity of drug that has been calculated and fixed upon is not always given. As soon as patient begins to sleep the needle is withdrawn from the vein. According to Dr. Lessing of Berlin it is particularly indicated in operations that take more than half an hour, and in nervous patients who show a mistrust in, and fear of operations. It can be given in those who have lung

troubles as bronchitis, asthma, emphysema or tuberculosis and on whom an operation has to be done.

In Psychiatrics pernocton can be given subcutaneously or intravenously in doses of 2-4 ccs. towards the evening for functional insomnia, as it gives five to eight hours sleep. In irritative and anxiety states 4-6 ccs. of Pernocton, sometimes in combination with 0·0005-0·001 grm. of hyoscin may be given with good results. For continuous narcotic effects 4-6 ccs. three times a day, increased if necessary to 8 ccs. in intractable cases may be given, but perhaps it would be better to add Noctal orally instead of increasing the dose.

For want of space I have limited myself to a bare outline of Pernocton Twilight Sleep and its use in Surgery, etc., I have to acknowledge my thanks to the J. D. Reidel Fabrik of Berlin for their kindness in supplying me with 100 ampoules of Pernocton for trying it on Indian patients in my work. I hope to record my experiences with this drug in another contribution at a later date.

Inguinal Hernia

SOME OF THE MODERN METHODS OF OPERATIVE TREATMENT OF OBLIQUE INGUINAL HERNIA.

BY DR. N. MANGESH RAO, F.R.C.S.

It is now considered that in normal persons, the Conjoined Tendon with the Inguinal Ligament acts like a sphincter and so closes the inguinal canal, being further supported in front by the External Oblique. The action of this sphincter can be appreciated in a thin person by the formation of a double ridge under the external oblique during coughing.

According to Hamilton Russell, all oblique inguinal hernia are due to either a partial or complete failure in the obliteration of the Processus Vaginalis. All men may be divided into three groups.

1. Those who are free from the danger of an oblique inguinal hernia, because their processus vaginalis is completely obliterated.

2. Those who are potential cases of oblique inguinal hernia, because there has been a failure in the complete obliteration of the processus vaginalis. In these a sac exists but no herniation has as yet taken place.

3. Those who are actually suffering from oblique inguinal hernia. Hence in the operative treatment of oblique inguinal hernia it is necessary to test the sphincteric action of the abdominal muscles of the inguinal canal. This sphincteric action may be weakened by large hernia, by the existence of a hernia for a long time, by injuries of muscles here as from ill-fitting trusses, or in cases of constitutional weakness of muscles as in fatty

people. Cases where the muscles have been weakened the sphincteric action also weakens, and these are liable to get a direct hernia after an operation for an oblique inguinal hernia.

Cases of oblique inguinal hernia may be divided into three groups for purposes of operative treatment.

1. Cases of potential or small hernia with well developed conjoined tendon with a satisfactory sphincteric action usually in children, or young and robust people with hernia of short duration.

2. Cases of larger hernia and of longer duration with weakening of the sphincteric action due to stretching of the conjoined tendon.

3. Cases of very large hernia and of long duration where the muscles have been greatly weakened and thinned out. In these cases a plastic operation is necessary to prevent recurrence as a direct hernia. Hamilton Russell considered that a complete removal of the sac with minimum damage to the muscles was the operation of choice in the first group as the oblique hernia in these cases is not due to any weakness of the abdominal muscles. Elaborate suturing of the conjoined tendon to the inguinal ligament (as is done in the Bassini operation and its modifications) is liable to weaken the normal sphincteric action. In such suturing the union takes place between the areolar tissue of the muscles and the fibrous elements of the inguinal ligament. Fresh attachment of the muscle fibres as such to the inguinal ligament does not take place. The muscle fibres between the mattress stitches are replaced by fibrous tissue and this obtains attachment to the inguinal ligament. This fibrous union is liable to stretch out against increased intra-abdominal pressure, and it also destroys the normal sphincteric action of the muscles here. This is one of the common causes of recurrence (as direct hernia) after operation for an oblique inguinal hernia.

Another cause is the failure to tighten the peritoneum on the medial side of the epigastric artery. If the peritoneum is left slack here and the sphincteric action of the conjoined tendon is in any way weakened a direct hernia is liable to follow. Post-operative suppuration is also a common cause of recurrence.

Damage to the inter-columnar fascia of external oblique is avoided as this holds the two pillars of that muscle together.

The operation recommended by Hamilton Russell, Cheine and Turner is as follows:—

1. An incision is made an inch above and parallel to the inguinal ligament with its centre over the internal abdominal ring. The external oblique is exposed. An incision one inch long is made through this in the direction of its fibres stopping short of the inter-columnar fascia.

2. The internal oblique on the outer side and the cremasteric muscle on the inner side are now exposed in the wound. A small incision is now made in the cremasteric muscle, and on separating its edges the sac is exposed lying on the front of the cord. It is picked up and separated from the cord right up to the internal ring. The vas lies on the postero-medial aspect and the main group of spermatic vessels on the antero-lateral aspect of the cord. The neck of the sac is thoroughly isolated on all sides aided by retracting the muscles with a small retractor. Care should be taken on the medial side not to injure the inferior epigastric vessels.

3. The sac is now opened and contents reduced after separating any adhesions if present. Then the sac is twisted, maintaining all the while longitudinal traction on the sac. This action tightens the peritoneum all round, especially on the medial side, thereby preventing any predisposition to the formation of a direct hernia.

4. The base of the sac is transfixed with ligature and tied. The sac is cut off distal to the ligature. The stump

now retracts an inch or two under the internal oblique muscle. The opening in the transversalis fascia forming the internal abdominal ring is closed round the cord by one or two stitches. The small opening in the cremasteric is closed with catgut sutures and the external oblique also closed with a few mattress stitches.

In these cases if the sac has been thoroughly isolated and peritoneum on the inner side tightened there is little chance of a recurrence.

In the second group of cases where a slackness of the sphincteric action of the muscles is noticed, a recurrence may result in a few cases in spite of the complete removal of the sac, and this is usually as a direct inguinal hernia. This is due to the fact that there may be either a stretching and thinning of the conjoined tendon, or the tendon may be deficient as regards the portion attached to the pubic bone. E. Andrews thinks that in the early stages the endo-abdominal fascia (transversalis fascia) lying in front of the peritoneum becomes stretched and thin. Where the tendon is deficient this fascia is the only structure lying between the peritoneum and external oblique. For these cases the ordinary Bassini with the following modification is advised by him to strengthen the posterior wall. After dealing with the sac the transversalis fascia is brought down as a pleat one to two inches wide and sutured to the inguinal ligament along the whole length of the canal. The internal abdominal ring is also closed round the cord by couple of stitches.

Scudder has also modified the Bassini operation as follows. He sutures the peritoneum above the neck as well as the neck of the sac instead of the simple ligature. He draws down the internal oblique to the inguinal ligament lateral to the cord by couple of stitches. Then the cremaster is sutured to the undersurface of the conjoined tendon by mattress stitches. The tendon is then sutured to the inguinal ligament posterior to the cord.

The external oblique is overlapped and sutured in front of the cord.

Halstead and Bloodgood modification :—In this if the spermatic veins are found enlarged, they are gently separated and tied above as high as possible and below just outside the external abdominal ring and the portion between excised thus reducing the thickness of the cord very much. Great care should be taken not to handle the few veins that accompany the vas deferens as return flow of blood depends on these. After the neck of the sac has been tied as high as possible and sac removed the two ends of the ligature are threaded on a needle and passed deep to the arching fibres of internal oblique and transversalis muscles and made to pierce through ½ inch apart and well above and to the outer side of the internal abdominal ring and tied there. The cremasteric is drawn under the conjoined tendon by mattress stitches in front of the vas and its veins. The conjoined tendon is drawn down to the inguinal ligament and sutured to it. There should be no tension on the stitches, if any is felt the rectal sheath is incised vertically which relaxes the conjoined tendon. In cases where the tendon is deficient the anterior rectal sheath is turned as a small flap attached at the linea semilunaris and sutured to the inguinal ligament. The external oblique is overlapped and sutured. As this suturing of conjoined tendon to inguinal ligament results only in a thin fibrous union, which later on is liable to stretch out under increased intra-abdominal pressure. Gallie advised the use of auto-plastic fascial strips for such suturing, as they gave a better attachment and do not yield or stretch. He used strips of fascia lata Mac Arthur advises the use of a strip from the inner leaf of the external oblique with its attachment to the pubic bone left intact. This increases the attachment of the conjoined tendon to the pubic bone. When suturing the conjoined tendon to the inguinal ligament the thigh is flexed and adducted to relieve tension

on the sutures. Where the external oblique is lax—as is usual in these cases—a fascial strip is taken from the outer leaf to suture the external oblique. Large needles with wide eyes have to be used to thread these strips. To end the suture it is necessary to use catgut for the knots. Hodgkins takes strips from the anterior layer of rectal sheath leaving their pubic attachment intact, for suturing the conjoined tendon and the inner leaf of external oblique to the inguinal ligament behind the cord. The lower leaf of the external oblique is then brought over the cord and sutured to the inner leaf.

Gallie sutures the conjoined tendon to the inguinal ligament as far as the internal abdominal ring with a strip of fascia lata and puts a lock-stitch and loops over the cord and then inserts a couple of stitches lateral to the cord. Then a second suture picks up the rectal sheath and the external oblique (starting from the inner side) and fixes them to the inguinal ligament crossing the first suture line. The lower leaf of external oblique is brought over the cord and sutured to inner leaf of the same.

The advances in these types of operations are chiefly Use of the endo-abdominal fascia for strengthening the posterior wall, the complete closure of the internal abdominal ring round the cord by a couple of stitches. Use of auto-plastic fascial strips for suturing the muscles to the inguinal ligament as giving a firmer union with better function.

Recently Ox-fascia preserved in Scott's solution has been used in place of fascia lata and has given satisfactory results. Scott's solution is: alcohol 55, acetone 10, mercurochrome 2, aq. distill. 34. For the third group of cases, after dealing with the sac as mentioned above, the transversalis fascia is split, overlapped and sutured. Then the conjoined tendon and inner leaf of external oblique are fixed to inguinal ligament by darning over between them by fascial strips. This gives a fairly strong new fascial

wall. The lower leaf of external oblique is then sutured to the upper in front of the cord.

Direct Inguinal Hernia.

There are a few cases of direct inguinal hernia met with as primary ones. Here the following method has been found very useful. After laying open the canal in the usual manner the cord is retracted, the transversalis fascia is split through the whole length of the canal. The sac is now exposed covered with subperitoneal fat. Next identify the inferior epigastric vessels and catch the peritoneum to the lateral side of these vessels and by pulling on it assisted by a little gauze dissection the sac becomes displaced outwards, *i.e.*, the sac has become one of oblique hernia. By separating this sac all round and tightening it the peritoneum on the inner side of the canal is made taut. The further steps are the same as those mentioned for the second group of cases. This method avoids any vesical complications, during transfixion and ligation of the sac in a direct hernia.

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The Scope and Limitations of Pharmacology

BY DR. ISWARIAH

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Pharmacology according to the orthodox definition is the science which treats the action of drugs on body both in health and diseases—body in the strict sense meaning human body. Pharmacology as practised, for obvious reasons is confined to the action of drugs on animals—the choice of animals depending on local conditions, be it guinea pig in New Guinea, rabbit in Russia, cat in Calcutta or mouse in Mongolia. In the choice of animals is any thought devoted to see how far the physiology of these animals approximate human beings and consequently how far the knowledge acquired by the study of the action of drugs on animals is likely to be of use in dealing with human subjects? It is said that the birds are unaffected by opium, herbivora by atropine, hedgehog by cantharides; caffine injected into rana esculanta affects the nervous system mainly whereas caffine injected into rana temporaria exerts its main action on the skeletal muscle. Again pharmacology is the science which treats of the action of drugs in health. In the choice of the animals is attention paid to the condition of the health of the organs before the experiment is started? Are not precision and accuracy one of the elementary maxims of a research worker and are not descrepancies in this direction likely to vitally viciate the findings? Close on the heels of the administration of pilocarpine or atropine to an animal a new drug is injected to find its action on the vagal nerve terminal. True the pharmacologist patiently waits in front of the revolving drum to see that normal conditions are restored

—more probably to gain cutting space in his graph—but, could it be said that such findings are of any avail?

And again pharmacology is the science which treats of the action of drugs in disease. As the subject is taught to-day is it not brought to a dead stop after finding some of the cardinal action of a drug on animals in their unknown or indifferent state of health? Is there facility for the pharmacologist to try the action of a drug in diseases? Of what practical use is knowledge of a minimum lethal dose of a drug for a frog or a rabbit? Are not the physiological action of drugs and their doses profoundly modified by diseases? A patient with peritonitis bears enormous doses of opium far above the B. P. lethal dose. Antipyretics which do not affect a normal temperature profoundly depress a febrile temperature. The pharmacologist stops short after finding out complacently and concurrently certain cardinal phenomenon in animals associated with a drug. The therapeutist starts from a different position his art of alleviating and curing diseases in human beings. But who bridged the gulf that separates the two?

These are some of the very pertinent questions raised by some who have an inquiring mind. The questions at the outset tend to baffle and paralyse even a consumate pharmacologist. Some of the doubts obviously arise from one's idea of the definition of the subject. To define pharmacology is not an easy task—indeed many of the eminent pharmacologists such as Sollman in English, Poullson in Scandinavia, Meyer and Gottlib in German dexterously evaded a definition in their text books. The two most prominent books on the subject in English by Cushney and Dixon respectively attempt at defining the subject in a satisfactory manner. Cushney states 'Pharmacology is the study of the changes induced in the living organisms by the administration in a state of minute division of such unorganised substance as

do not act merely as food'. Prof. Dixon of Cambridge speaks of pharmacology as the science which deals with the alteration of functions in living matter brought about by changes in its environment. Dr. 'David' I. Macht defines pharmacology as that great department of knowledge on the border line between biology and chemistry which deals with the relation of the two. By the term biology we mean the structures and function of all living organisms and it includes in its scope Morphology which deals with the anotomy and histology and finer structures of living organisms, physiology and pathology. Pharmacology does not comprehend any of the above. It is another wide branch of biology dealing with the alterations in living organisms and tissues—not necessrily pathological—produced by all matter in the chemical sense of the term. In less ambiguous terms it is the science which deals with the effects of physico-chemical forces on the physiologic function of living matter.

But an attempt at a satisfactory definition of the subject has not solved the difficulties that confront a beginner. If the science of pharmocology deals with the effect of certain forces on the functions of healthy living matter of what utility is it in the art of healing the sick? There are many reasons for this difficulty to arise in the mind of the student a tendency to fail to understand this connection between the science of pharmacology and the art of therapeutics. One of the chief reasons is that the student is taught pharmacology and therapeutics at two different stages of his career. Some of the universities have attempted a mechanical division of the old subject of materia medica. Getting the clue from the conservative materia medica text books that deal with each drug under the heading of pharmacology and therapeutics the subject has been split and placed under separate chairs. The two subjects though concerned with the same drug are taught from different standpoints which results in many

contradictions either apparent or real. This gap prevents the students applying the knowledge learnt in pharmacology to the problems of therapeutics. If pharmacology which is included in the medical curriculum in order to provide a scientific basis for the study of therapeutics fails to do this, it fails in its chief purpose. A recent book by Prof. A. J. Clarke formerly Professor of Pharmacology in the University of London has as its principle aim—in the Author's words—"To bridge this gap between pharmacology and therapeutics".

The beginner is led away from a correct conception of the subject by his associating pharmacology only with the effect of drugs on physiological functions of animals. This is pharmaco-dynamics and pharmacology is not pharmaco-dynamics. It is not long ago that pharmacology was included in physiology and the action of a few drugs on animals was demonstrated by instructors in physiology. With the recent advances in pharmacology it is realised that the combination makes too great a mouthful for even the man of gigantic proportions to swallow. It is not then too early that the need has been felt for assigning pharmacology a separate identity.

The scope of the subject of pharmacology which is still in its embryo is fairly wide. To start with a knowledge of inorganic and organic chemistry is essential, for the desirability of isolating a definite chamical body from a crude bark, leaf or root is obvious for testing the accurate action of a drug. Having obtained an alkaloid or a glucoside or any other active principle the pharmacologist proceeds to study its action on living tissue—the changes caused in the nature and function of the living tissue. And here a clear idea has to be formed of the normal function of the living tissue, *viz.*, a knowledge of physiology is essential. In attempting to interpret the action of drugs on tissues there is a very real pitfall for the student of pharmacology, *viz.*, the tendency to

generalize on the basis of certain findings. The same pharmacological agent may have different actions on identical or closely allied tissues as constriction of splanchic vessels and dilatation of the vessels of the skin technically termed the Lorain Sydrome. Adrenalin for example in the rat produces an inhibitor action on the uterus of both the virgin and pregnant animal, on the uterus of the rabbit it produces excitation in both the conditions whilst in a cat it stimulates the pregnant uterus and inhibits the virgin uteri, and experiments on isolated human uterus shows that adrenalin produces contraction. Still more strange apparently is the action of certain drugs on different regions of the same organ in different ways as stimulating the fundus and relaxing the trigone of the bladder. To find the action of a drug on the heart the pharmocologist has to test the action on each of the functions of the heart, on the hearts of different animals, on the heart in situ and isolated, on strips of heart removed from different parts of the organ, and if possible on a healthy and diseased heart. For it is self evident that an ordinary heart muscle cannot contract much more than it is intended by nature to contract, when however there is heart weakening or insufficiency the flabby heart may be drawn closer together and its contractions stengthened.

The student has next to study the action of a drug in varying concentrations and this opens a fresh field, *viz.*, the study of toxicology. Toxicology really one phase of pharmacology and is it strange that the old English and Greek used the same term to mean 'to drug' and to poison. The pharmacologist in determining the therapeutic and toxic dose should take into account a good many accessory factors which profoundly affect his findings as (1). The mode of administration of a drug; magnesium by mouth acts as a purgative, by any other route it acts as a nervous depressent. (2) The physical properties of a drug as temperature, concentration, etc. Isotonic saline introduced into the stomach has no action but hypertonic causes shock and even death. (3) The healthy or diseased condition of the tissue. (4) Effect of light not only on the keeping action of drugs but in modifying or intensifying certain actions of drugs as Ultra violet rays on the activity of Quinine and Quinidine. (5) Individual susceptibility or idiosyncracy. A valuable branch of this aspect of the subject is the study of the action of drugs in varying concentrations on the micro-organism which is the basis for measuring the strength and standardizing of the various agents used as germicides, antiseptics and disinfectants.

There is another line along which the pharmacologist directs his inquiries, *viz.*, the subject of relation between chemical structures of various substances and their physiologic affects. This goes by a rather high sounding appellation of chemo-pharmaco-dynamics. The best example could be had in the fascinating work that has been carried on in the two important drugs of arsenic and antimony—the chemo-pharmaco-dynamical spirit manifesting itself in the appearance of ever so many compounds of arsenic for syphilis and antimony for Kala-azar.

There is yet another branch of the subject of pharmacology. Indeed it is but a counterpart of what has been emphasised as 'incompatibles' in the study of the subject of materia medica. This has for its scope the enhancing or buttressing the action of a drug by another which is chemical by and pharmacologically unassociated with the original drug. The study called 'Synergism' was accidentally brought to light when patients were treated for different conditions by different drugs. It is still in the experimental stage and the pharmacologist has a fascinating field to work before rationalising the same.

The beginner is most likely to be disheartened by the adumbrating of a catalogue of the above preliminary facts and essentials for the study of pharmacology, for these are subjects that are not calculated to arouse the interest of a

medical man whose tastes for clinical observation and rational therapeutics are well developed. After all the result of pharmacological research is ultimately for therapeutic application and a pure and neat pharmacologist devoid of clinical instinct is not likely to be of any great value. The right type of pharmacologist therefore is one with a medical training attempting to solve problems of practical therapeutical importance in the laboratory. The usefulness of the pharmacologist could be enhanced by his association with clinicians. This is a strong argument for a pharmacologist in any place, be it in a teaching or a research institute, to be attached to a hospital and in charge of beds. Dr. David I Macht says in this connection that his knowledge of pharmacology is due mainly to his colloboration with practically every department of the John Hopkins Hospital, in attempting to solve the problems with pharmacogial and therapeutic aspect arising in the same. I have called the pharmacologist who works with an eye to theraputics the right type of pharmacologist. But the scientific pharmacologists or the one whose instinct is purely in the line of research, *viz.*, to discover things for their own interest be it of practical utility or no finds fields enough and to spare in this science. The recent developments in psycho-pharmacology (action of drugs on psychological phenomenon) and phyto-pharmacology (effect of drugs on plant-protoplasm) and photo-pharmacology (effects of various radiations on drugs and their actions) bear evidence to this fact.

Last but by no means the least pharmacology has or should have a special significance for the medical profession in India. For it is the gateway to that vast and yet unexplored field if not a rich mine, of the indigenous drugs of India, described rather incompletely in some books like Nadkarani and Kartikar and Basu, Ghoshal, etc. Mention has to be made here only of some of the most valuable work doneby the Department of Pharmacology at the School of

Tropical Medicine, Calcutta, bringing to light drugs like Indian Santonica the alkaloid of Artemesia maritima which is a genuine boon to India by providing a cheap but in no way less effective. Santonine on the market,' Kut ' the alkaloid of ' Saussurea lappa ' which promises to be useful for asthma, ' Holarina anti-dysenterica ' with its alkaloid ' conessine ' a valuable drug for amoebiasis in all its stages, ' Berberine ' the alkaloid of ' Hydrastis ' the only effective cure for cutaneous leishmaniasis and granuloma of the peudendol origin, ' Punarnava ' an invaluable cardiac diuretic

There is no rose without thorn. The pharmacologist has to face a very real temptation in yet another field of his subject. This is not a field of purely scientific interest *viz.*, the work of standardising and assay of drugs. What, I am referring to can be gathered by the reader from two of the by-laws governing the constitution of the American Society for pharmacology and experimental therapeutics. Art 3, sec. 2 " No one shall be admitted to membership to this society who is in the permanent employ of any drug firm." Sec. 4 (b) " Entrance into the permanent employ of the firm shall constitute forfeiture of membership." Ever and Anon the question has been raised in the press and by public in India of the legality of permitting the so called ' quacks ' and pharlatans' of the indigenous system of medicine to put on the market preparations of drugs of doubtful value if not drugs positively harmful and leading astray the ignorant public. No doubt quackery to this drug in some parts flourishes like the green Bay tree in Lebonon. The Indian Legislative has very often taken up this question though no regulation has been laid down as yet. To determine the quality and action of these drugs that surreptitiously if not controlled find a place on the market, to assign the dosage and to standardise the same is the work of a Pharmacologist in India. The subject in India therefore is not only of scientific interest but has great economic bearing.

A Pharmacological Questionnaire

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It is a well known fact that the majority of the inhabitants of India pin their faith to the indigenous systems of medicine. In fact, it is the only medical relief available to most of the rural population of this country. The question of the indigenous systems of medicine and the methods by which these could be encouraged form the subject-matter of sporadic discussions, interpellations and resolutions in the Provincial Legislative Councils as well as the periodical meetings of the local bodies. Committees were appointed by various governments and diverse measures have been devised by them in order to encourage Ayurvedic and Unani systems of Medicine. All this has helped to focus public opinion on the important problem of the materia medica and therapeutics of India.

This problem may be tackled in several ways. Firstly, the different indigenous systems of Medicine may be subsidised by the Government. The Madras Government has taken up this question seriously and has also instituted a School of Indian Medicine. Opinion about the wisdom of encouraging the Ayurvedic and Unani systems, as they exist at present, will certainly vary.

Secondly, a clinical study of the preparations, simple and compound, of the indigenous materia medica may be made by physicians who have the opportunity to do so,

and such as are found therapeutically useful may be incorporated into an addendum of the official pharmacopœia.

Thirdly, a detailed scientific study may be instituted of such drugs as are reputed to be of use, and their active principles and pharmacological actions may be worked out.

The first two methods may help towards the appreciation of what may be of intrinsic value in these indigenous systems of medicine, but will not be of scientific value. Rational therapeutics requires that before a drug may be accepted as a cure for a particular disease, its physical and chemical properties and its physiological and toxic actions should first be studied and understood.

The third method entails much work and a considerable outlay of money, as a well-equipped pharmacology laboratory as well as a trained chemist with a properly fitted up analytical laboratory are necessary. The crude drug has to be analysed, the active principles obtained in pure form and their physiological properties studied by experiments on animals etc., when the physiological and toxic actions have been worked out, clinical trials may be undertaken. Very little effort has been made in India to conduct research on these lines. It was only recently, that is about 8 years ago, that the first pharmacology laboratory was opened at the Calcutta School of Tropical Medicine, and a number of indigenous drugs have been studied there. India owes a debt of gratitude to Lieut. Col. R. N. Chopra, M.A., M.D., I.M.S., for initiating such work. Later another such research laboratory was opened at the Haffkin Institute, Bombay. Now a days almost every medical college has its own pharmacology laboratory, but such research cannot be undertaken easily owing to its cost. On the 1st of April 1929, the Madras Government sanctioned the creation of a Pharmacology Research Unit, as an adjunct to the pharmacology department of the Madras Medical College and well equipped pharmacological and analytical laboratories are being fitted up.

Every reader of this article can collaborate with us in our work and help the research by giving us any information regarding indigenous drugs that may be of use. We have prepared the following questionnaires with a view to collect useful information, from medical officers and practitioners and we shall be grateful if answers are sent to the professor of pharmacology, Madras Medical College. Any other information relevant to the subject of research on Indian drugs that the medical officers may be able to furnish will be thankfully received.

Q. 1.—Are the medical officers and practitioners aware of the existence of any potent remedies or specific drugs for diseases used by the practitioners of the Indigenous systems of Medicine and if so, whether they have tried them clinically in their own cases and with what results?

Q. 2.—If administration of these drugs has proved beneficial will they furnish all possible information about their source, botanical names, vernacular names, therapeutic uses, dosage and mode of administration?

Q. 3.—Can the Medical officers recommend or suggest names of *bona fide* practitioners of the indigenous schools of medicine who will be prepared to help with their co-operation a rational investigation of indigenous drugs from the view point of modern medicine?

It will facilitate one's work if answers are supplied in tabular form under the following headings:—

1. Name of the disease and of the specific drugs in the different South Indian Vernaculars used in its treatment. If possible please give botanical names.
2. Results of clinical trials.
3. Sources from where a liberal supply of the drug may be obtained.
4. Different preparations of the drug and dosage.
5. Any remarks concerning the physiological action, toxicity and composition of the drugs, if known.

6. The names and addresses of well-known practitioners of the indigenous systems of Medicine willing to help in the investigation.
7. Whether and where it will be possible to arrange for interviews with them.

On the response made to this appeal will to a large extent depend the success of this new venture of research into the indigenous drugs of South India.

Bacteriological Methods in Clinical Diagnosis and Treatment*

BY DR. SASHADRI NADAN, M.B., B.S.

The impression is still extant among many practitioners in our country, for various reasons that laboratory methods are not very essential for the correct diagnosis and treatment of clinical conditions, since it is believed that malaria could be diagnosed by trial with quinine treatment, the course of typhoid fever could not be altered by a knowledge of the "Widal Reaction" of the blood, any prolonged fever might provisionally be diagnosed as enteric, provided the lungs do not show any abnormalities nor any enlargement of the spleen or the lever is noticed. The clinician's observations warrant him to a considerable extent to be certain of his diagnosis by clinical manifestations alone. Perhaps in most cases he is right. But the self-satisfaction that he obtains when his diagnosis is confirmed by laboratory findings should at least make him resort to laboratory aids more frequently. It is also well known that there are conditions which are not few in number in which certainty in diagnosis is not possible except by the aid of the laboratory. For instance, a mere enlargement of the spleen with or without fever may be due to many causes, *viz.*, Kala-azar, bilharziasis, splenic anæmia, leukæmia, many acute fevers, not to speak of the obscure enlargements vaguely classified as idiopathic splenomegaly. And a systematic examination by laboratory methods will minimize the number that will have to be consigned to the "idiopathic" classification.

In early cases of malarial infection the spleen may not have been enlarged and the fever may be continuous, the

*Being the substance of a paper, read before the South Indian Medical Union.

suggestion of malaria may not be brought to the mind. It is not unusual for these cases to be diagnosed as clinically enteric and the patient put to considerable anxiety and trouble. This may be avoided if a perliminary blood examination has been made and the parasites found followed by immediate quinine treatment. The patient would then be able to return to his usual avocation on the second or third day after the onset of the fever.

Cases of continued low fever have been found to be due to micro-filarial infection of the blood in endemic areas. It is likely to be overlooked and the case diagnosed tuberculous if the night blood had not been examined microscopically, for filarial embryos. Kala-azar cases may be missed in localities of doubtful endemicity when no splenic or lever enlargement is seen; and the clinician may be misled to take a wrong line of treatment. With the recent test devised by Major Chopra and Captain David (the urea stibamine test) it is possible to diagnose cases of kala-azar quite easily even though no parasites can be seen in the pheripheral blood and a splenic or lever puncture is dreaded. Till very recently it was not realized how very extensive bacillus coli infection is a cause of fever. A systematic bacteriological examination of the urine of many male and female patients with fever which could not be ascribed to any definite clinically apparent causes, has revealed that a considerable number of women who had undergone the troubles of childbirth and a good number of men who have suffered in secret after enjoying the pleasures of impure intercourse show bacterial infection of the urinary passages of some kind or other.

A good deal of prejudice was once exhibited by clinicians towards laboratory methods in general. The reason may be put down to the fact that certain time honoured clinical diagnosis based upon painstaking observations were shattered by the unmistakable finding of the laboratory. The laboratory expert on the other hand, cut off from the

bed side was as sure of his experimental results as the clinician.

For some time this want of co-operation set back the progress of science. Certain incongruous and contradictory results were obtained, not tallying with the clinical diagnosis. This led to some amount of suspicion as to whether laboratory results were not biassed by the clinical notes sent along with the samples for examination. Though it was not openly expressed, there appeared to have existed some doubt regarding the honesty of the results emerging from the laboratory. This was however dispelled by further study of the incongruity and contradiction in the results. For instance, the agglutination reaction for typhoid fever will not be apparent till the end of the first week of the fever. A negative result may subsequently turn out to be positive in such a case. Enteric like fevers may be due to other organism than the typhoid bacillus. *viz.*, paratyphoid and bacillus fækalis alkaligenes, and the serum may show no agglutinins for B. typhosus.

A positive finding is, it is accepted, more reliable than a negative finding; but in suspected enteric cases repeated negative results both culturally and by the serum agglutination test are as valuable as a positive finding. It eliminates enteric fevers and directs the attention of the clinician to other possible causes.

Similar fallacies are likely to be met with in the results of the wasserman test for syphilis. Several factors have to be considered in the interpretation of the results. If we were to draw up a chart to show the results of the blood examination in early and advanced cases of syphilis it will be found that positive curve will go up as the weeks pass by after the primary infection in untreated cases. The curve falls again in neurosyphilis to 59% to rise again to 100% in paresis. With the wasserman test of the cerebro-spinal fluid and the colloidal gold test the positive curve reaches 90% and more. The personal factor is

likely to influence the reading of the weak positive and doubtfully positive results. In these cases a history of the case will be of some use. A requisition for the history of the case is looked upon by the clinician with some suspicion, and very often we get no history at all. If the clinician will realise that the wasserman test is useful as a guide in the treatment of the case as well as for diagnosis he will not be suspicious and will send a full history of the case. For instance, a doubtful positive can be reported as 'positive weak in the primary stage of the disease, or in a case of latent syphilis, to enable the clinician to send the blood again for examination after a provacative injection of salvarsan, when a surer result can be obtained. In a case under treatment a doubtful positive may be read as 'positive weak' if the case has already shown a 'positive strong' and a 'positive moderate' before and during treatment.

Certain precautions are necessary to be observed in the collection and despatch of samples of blood, urine, fæcis, etc., for bacteriological examination. The syringes used in drawing the blood from the vein, are preferably sterilised in vaseline. The skin over the elbow having been carefully sterilised with soap and warm water and then with sterile cotton wool soaked in absolute alcohol, the needle is pushed into the median basilic vein and the blood drawn through it. About 10 cc. is required for culture for Typhoid bacilli. This is transferred with aseptic precautions to a bottle of culture medium containing oxbile. The oxbile has the power of inhibiting the growth of other organisms than those of Typhocolon group.

Further cultural methods to see if growth has taken place in the medium takes about 48 hours in all, so that a result cannot be reported earlier than 48 hours, after taking the specimen. A convenient contrivance is now on the market to collect blood for cultural examination, and for various laboratory tests. Vacuumnised tubes are sup-

plied with sterile needles attached and enclosed aseptically. The tubes are also obtainable partially filled with different culture media. These are very useful in private practice and for sending samples from mofussil stations by post, where proper sterilization of syringes is not always practicable and chemical and bacterial contamination of samples is likely to take place.

In every case of bacillary dysentery, the earlier the antidysenteric serum is given, the better the prognosis for immediate saving of life and for preventing chronicity. The tendency in private practice is usually to try emetine injections first, in cases of dysentery without any bacteriological examination, as a microscopical or a cultural examination is not always easy to do. If a cultural examination is not practicable at least a microscopical examination should be done. It may reveal the nature of the exudate, the presence or absence of bacteria, amœbæ or flagellates, the presence or absence of macrophage cells, enabling one to diagnose the cause of the dysentery quickly in time to give prompt and correct treatment.

In sending a sample of fæces to the laboratory for examination it is not always realised that a small particle of mucus is alone usually utilised for cultural purposes, and a gram of fæces will be quite enough for any examination. It is not necessary to send a big bottle full of the abnoxious material, as is often done to the annoyance of the people who have to handle the same in the laboratory.

In the examination of urine for bacterial infection some precautions are necessary in the collection of the sample. It is probably believed that the specimen should invariably be a catheterised one. In men it is not a necessity, in women it is. In men the prepuce may be withdrawn and the glans cleansed with antiseptic lotion, and patient made to void the first part of the urine into the urinal, and the rest into the sterile receptacle. Here also, the quantity required is only a few cubic centimeters.

Diphtheria is another disease where promptness in diagnosis and treatment saves many lives, and prevents paralytic complications. A cultural examination might require 24 hours or more, but a mere microscopical examination of the throat smear after staining by gram's stain might show the characteristic appearance of the bacillus if present. A positive microscopic result is enough to warrant the giving antidiphtheretic serum.

Samples of cerebrospinal fluid have to be carefully collected with all aseptic precautions. If for culture for meningococcus, the specimen should be collected in a sterile tube with proper aseptic precautions and despatched quickly to the lab. Under no circumstances should it be preserved in ice. If the specimen is for cellcount, there should be no blood staining of the fluid as it is likely to cause error in the count. A cytological examination of the fluid is useful in many conditions ; *viz.*, tubercular infection showing an increase of polymorphs in the early stages and lymphocytes in the later stages ; cerebrospinal meningitis due to meningococcus or pneumococcus showing an increase of polymorphs ; lethargic encephalitis showing a cellcount of not over 100 per c. mm, all the cells being mononuclears ; in syphilis the lymphocytes are increased. In addition, the specific organisms concerned in cerebrospinal meningitis may be seen on a microscopic examination.

The administration of antimeningococcic serum is not so formidable in private practice as it was thought to be. It has been found that it may be given (50 to 100 cc.) intravenously to produce good results.

In empyema a bacteriological and microscopical examination of the aspirated pus will be useful in giving a prognosis. When of streptococcal origin, the prognosis is grave. When due to pneumococcus sometimes the fluid may be sterile owing to autolysis of the organisms. Guinea pig inoculation of the material should be made to eliminate tubercular infection.

Pathological materials for evidence of tuberculosis such as, sputum, pus from cold abscesses, fluids from joints, etc., may be inoculated into guinea pigs if found to be negative on microscopical examination by staining for acid fast bacilli, and clinically suspected to be tuberculous. The animals are said to die at the end of six weeks if not earlier, developing acute tuberculosis. In practice it is found that they only develop adenitis, and the enlarged glands show only giant cells, or, giant cells with a few tubercle bacilli in them. This is perhaps due to the fact that the human bacillus is not virulent to the guinea pig.

Blood cultures for endocarditis and even acute rheumatism have been disappointing in results. The cases have been few and far between; perhaps, if more extensive examinations were made when the fever is highest we might obtain positive results.

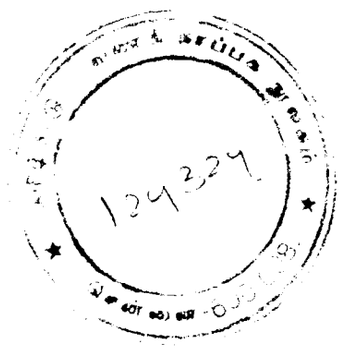
For diagnosing relapsing fever a mere bloodsmear examination during the pyrexial period will be enough. In the case of rat-bite fever, the parasite (spirillum morsus muris) being very scanty in the peripheral blood, inoculation of the patient's blood taken during the height of the fever into a guinea pig or a white rat is necessary. The animal's blood is examined for the parasite, by the dark ground method at the end of a week.

The application of bacteriological methods for therapeutic purposes is mainly centered in vaccine therapy, and serum therapy. Vaccines were boomed so much in the early days of vaccine therapy that they were abused and so fell into disrepute to some extent. Some vaccines produce remarkable results and these have practically replaced chemotherapy. -Impetigo contagiosa erroneously known as pemphigus, is a condition occurring in children and due to a streptococcus yields readily to one or two injections of a vaccine containing 5 to 10 millions of the specific streptococcus in 1 cc. Pyæmic abscesses and other staphylococcal infections are easily

controlled by vaccine therapy. The next best results are obtained in urinary infections. Here improvement up to a certain stage can be expected, beyond which a chronic state results when the opposing factors of infection and resistance find a balance when, neither chemicals nor vaccines are able to effect any improvement. One or two injections of vaccines, whenever the resistance is lowered and the infection gets the upper hand, are of benefit in keeping down the virulence of the organism. In lung conditions vaccines are extensively used with very few encouraging results. It is well known that asthmatics give us little credit to our curing skill. The condition is so distressing, however, that they resort to vaccine therapy also, as they would any other remedy. If the asthma had started from a primary catarrhal inflammation benefit by vaccine therapy can be expected, not otherwise.

Peurperal infections, when subacute or chronic yield good results with vaccine therapy. Streptococci have been isolated from most of these cases, and a polyvalent vaccine of the various strains isolated has been used with benefit. As for other conditions like, chronic bronchitis, ch. pharyngitis, chronic colitis vaccine treatment has shown indifferent results. The cost and the labour involved in the preparation of such vaccines is not always commensurate with the success achieved.

As the subject is vast only a superficial survey has been attempted which must necessarily be incomplete.



Abstracts of the Proceedings

OF THE EDINBURGH OBSTETRICAL SOCIETY.

A paper was read by Dr. James Young on a scheme of maternity service co-ordinating ante-natal, domiciliary and hospital treatment.

He summed up that (1) the high mortality and morbidity rates are dependent permanently on the inadequacy of the machinery of the present day maternity service: (2) there is need for a national scheme of maternity service co-ordinating the present activities of the midwife, the doctor, the National Health Insurance and the Local authorities, and working in conjunction with voluntary agencies such as hospitals; (3) the national maternity service will include (*a*) a midwife for every labouring woman (*b*) ante-natal supervision of every case (*c*) a doctor service for emergencies and (*d*) the hospital: (4) the basis of this scheme to be the hospital, round which will be centred the ante-natal, post-natal domiciliary and emergency services; (5) it is contended that his unit system, by ensuring continuity of treatment and responsibility, will lead reciprocally, on the one hand, to an elevation in the standard of domiciliary practice and, on the other, to a prevention of the tragedies of the present day "mixed" hospitals; (6) pending the creation of some such national service there is urgent reason for a recasting of the method of segregating the infected cases in present-day "mixed" institutions.

Dr. Hamilton in the discussion spoke up the view of the general practitioners. He held that it should be recognized that the proper place for a woman to be confined in was her own home if housing conditions were reasonable at all. He pointed out that from the Aberdeen

report one fact could be made and that was that the influence of housing seemed negligible.

Dr. Lakshmanasawmy Mudaliar from Madras spoke that from his experience in Madras Operative proceedings should be discountenanced in unsuitable surroundings. Though he was not familiar with conditions arising in the rural areas in England and Scotland he felt that the average general practitioner who had not a fairly constant practice of Obstetric case would find it difficult to face a case of difficult labour without previous training and adequate experience.

Professor Hendry emphasized the value of ante-natal treatment. He agreed with Dr. Hamilton on the excellent maternity work carried out by several practitioners and held that greater experience was necessary for officers entrusted with ante-natal centres. He held that cases which have been extensively handled on tride should not be admitted into general wards. Suspect cases should be put in "observation" wards and later transferred to an "isolation" ward if necessary.

Professor Johnston held that ante-natal case must be of the greatest value and that ante-natal officers should have special and simple training. In regard to the organization of a nursery service he agreed with Dr. Mudaliar that increasing number of trained nurses should take up maternity training and said that this was happening in Madras. The country was not prepared yet for compulsory notification of pregnancy. Yet without such notification any elaborate maternity organization could never be expected to be complete. A septic technique was reliable in hospital case but a thorough antiseptic technique was the secret of success in attending patients at their own houses where asepsis was impossible.

Dr. Bowie said that the several practitioners had to look forward to the advent of most non-specialists and the next to arrive was evidently the maternity specialist.

The President agreed with Dr. Mudaliar in the importance of the obstetric nurse having a full nursing training. He agreed with Professor Johnston in differentiating between asepsis in a hospital and antiseptic in the out-patient department.

One of the greatest causes of out door undaunted practice was lysol. Used in the perfunctory way it was, he had no hesitation in saying that it had done more harm than good.

What is Your Age?

I was very much amused to read, in your last issue, Dr. Sarma's article on "What is your name?"—an article that shows the amount of experience, power of observation and humour of the author. It is really a fact that most of the patients of the poorer classes that come to hospital do not have a name—a sad state of affairs but an equally deplorable fact is this—about 75% of them do not know their age in addition.

Let alone the mofussil—take the City hospitals for instance—I have had the good fortune of working in two of the biggest government institutions in Madras for over two years—The Government General Hospital and The Government Hospital for Women and Children. The number of patients who present themselves for admission and are ignorant of their age should make the hairs of every City Father stand on end. With all the various night schools, model schools, etc., ignorance of one's own age is such a common thing. If asking a patient her name should produce such humour as to split one's sides, asking the age is more malignant to one's ribs, waistcoats and double breasted coats which have come into fashion nowadays. In fact there is such an amount of hidden humour in it that one cannot but laugh and laugh. Ere long, the latest edition of Rose and Carless' Surgery may include a third cause for fracture of the ribs.

When a patient presents herself for admission (I am speaking from my experience in the Government Women and Children's Hospital) the first question, *viz.*, name having been put, the second question, *viz.*, age is asked "WHAT IS YOUR AGE?"

Fair reader, believe me, or believe me not—nearly 75% of the patients do not answer this question. The reply is

according to the type of individual you are addressing and the nature of the friends or relatives accompanying her. Roughly for purposes of convenience, I shall divide the patients into the following classes :—

The first type of patient: One of the poorer class of patients, who has absolutely none to help her at home and to whom a hospital is such a boon—a poverty-stricken patient who either comes to the hospital for treatment or who makes it her abode—until she is asked to clear out with an " N. A. D." (Nothing abnormal detected) on her case sheet—a person who has never had any of the vitamins in her food for ages—pot bellied, dry skinned, with itches all over her body. She is over anxious to reply your questions and above all, to exaggerate her bodily ills—whether they are present or not. But as she does not know her age, she replies, partly complimenting you, " You are educated persons who have studied English for years. You ought to know my age. How can a poor, underfed, over worked, uneducated woman like me *know my own* age ?

During the early part of my career, I used to be thunderstruck at this reply. How can I know the age of an utter stranger, who is at least 15 years older than myself, at whose birth I could not possibly have been present ? Neither have I had the good or bad luck of being a descendant of a Registrar of births and deaths. But after admitting about a hundred patients and 'suffering' their replies, I developed a certain amount of 'active immunity.'

The second type of patient is slightly better off, regarding her scholastic career I mean, but not in her manners and behaviour. Probably she has studied up to the second standard in some school—has had a 'matriculate' as her head mistress—but unfortunately circumstances (marriage and pregnancy included) have forced her to bid good-bye to her education. This one perhaps wears a saree costing 8 or 12 annas more than that worn by the first type of patient.

She has a lump in her right cheek, which, on inspection and external palpation is either a painless gumboil or a cancer cheek, but which, on 'visualisation' (by asking her to open her mouth) turns out to be,.....well, you have to close your nostrils and give your organs of smell a half holiday—and ask her to stand a couple of yards off. It is the betel, nut and chunam which she has been having for the last 8½ hours since her morning coffee. But alas! she does not know her age. It is her parents' fault. She has been withdrawn from school too early. But she is more definite in her answer than the previous type of patient. " You can have it as 25 or 35 doctor!" (Reminding us of the choice we used to get in our Elementary Mathematics paper in the S. S. L. C. Examination). You cannot control your laughter sometimes—but you put the average or what she appears to be !

The third type of patient : She gets down from a four seater Dodge or the latest model Standard car with four wheel brakes—she is accompanied by some gents but she insists on doing all the talking herself. A plain white silk saree, a silver brooch with a single diamond set in the middle, latest model sandals, hair bobbed (of course !) She comes to you with a letter from one of the Medical Officers of the hospital. Is she a patient, or a visitor ? you wonder.

Ask her age ! Look at the cheek ! Impertinence ! What do you want my age for ? she seems to say : " Doctor, I have consulted Dr.....He has given me this letter to be shown to you. He wants me admitted now. By the bye, what about a food pass doctor, and a special pass, for my great grandmother to stay, and one for my ayah to attend to my toilet, and the usual one for two visitors to come and see me, and...and...doctor, may I wear my own clothes. May I take Vibrona, I used to take it when I had been to Ooty last May. When will the Superintendent come to see me?"

The gramophone record is set going—either you have to block your ears by pledgets of wool, or you have to ask a

nurse to put a thermometer into her mouth and keep it there until you have finished your work. This is the third type, the educated, aristocratic, democratic, socially reformed, modern type of girl, Talk a little more, and well...you must have insured your life.

The fourth type of patient: She gets down from her car a nice little puppy follows her into the admission room, in spite of the notice " For Patients only " (But it cannot be helped as the puppy does not know English) An ayah follows her. (Some of these patients expect the doctor to go all the way to the car to ask them for particulars, for, are we not servants of the public?) She comes to the admission room, looks contemptuously at the slim figure of the House Surgeon doubts whether he is the admitting doctor at all, and then goes into the next room without any formal excuses for her intrusion—talks to the Sister in charge of the ward for a couple of minutes. Then the Sister and *not* the patient comes to you with particulars as to the name, address, complaint, etc. (the patient in the meanwhile sitting on a chair, whistling the latest fox-trot to her pet dog) all except the *age*, the delicate point.

Particulars being incomplete, you get up and go all the way to the patient in the next room and doubtfully ask her age—Reader, it is an insult to ask a woman her age or her husband his salary. But the Government do not pay any heed to these ceremonials,—you have to obey the rules.

The patient with a jerk of the head asks " WHAT? " You repeat the question. Then she shrieks out " What do you want my age and my husband's salary for, doctor? You need not write all that stuff on the case sheet. Here is a note from my Doctor which will answer all your questions. (But unfortunately it does'nt). My husband and I have known him for years doctor." At this you shudder.

On being pressed for a reply, she humourously replies (It must be admitted that some of these patients are polite

although they lose their temper at half a second's notice unnecessarily) so that the reader need not carry the impression that I am accusing any of these patients) " how old do I look, doctor? 30 or 40 or 50? You can write according to your own judgment." Alas! With the Zenobia Shampoo, Mercolised wax and lipsticks and rouge, the true age cannot be guessed. You therefore give her the benefit of the doubt and put down her age as 50. Her Religion? Of course, our readers might laugh. What a silly fool! Don't you know she is a Christian? is what I hear my readers saying. But what I want to find out is whether she belongs to the Church of England or Scotland or whether she is a Roman Catholic. The fair patient considers this as an insult added to injury but as she knows that she has to answer, replies with an outburst " MOHAMMEDAN, if you please " (as in one instance). I had half an intention to write it accordingly. But one is accustomed to this silly superiority complex.

Now I shall go into the second part of the question. If patients do not give their age, how do the medical officers enter it down in the admission registers? There are various methods and theories, the most important of them being the SIDE CHAIN THEORY. (If you permit me to call it) I shall briefly discuss them here as I can already imagine one or two of my readers yawning with impatience.

The first method is by asking how many years have passed since her marriage. The bashful woman sinks inside her veil and saree and I can just make out a titter of laughter and she makes bold to ask in a soft xylophone solo " What does it matter to *you*, doctor, when *I* was married?" But finally good sense prevails and she answers " About ten years ago doctor." Assuming that she was married at the age of 16, you put down her age as 26. Some of them cannot even make out when they were married. So some of them reply " I was married in the year when

King Edward came to India as the Prince of Wales," and you frantically rush for a copy of the Encyclopædia Britannica. Another, a swarajist and a non-co-operator, says "I was married in the year when Mahatma Gandhi was released from jail." Still another says, "I was married in the year when there was a terrible cyclone in Madras." (The marriage has been a cyclone to her.)

The second method is by asking (if the previous method fails) as to how many children she has and the age of her last child. Some of them know how many children they have had but others don't. One of them replied "I have had five children doctor, but alas! only two of them are alive. Three of them are in heaven, etc., etc." (you have to wipe your eyes in sympathy or else you will be considered hard hearted.) The age of the last child? She came close to me and said "He is as old and handsome, intelligent and nice as you are. You remind me of him, doctor." (Is she aiming at a special pass or a permit for diet from home?—I thought). He is employed in the Perambur Workshop." I hastily put down her age as 48 and sent her hurriedly to the wards.

Still another replied "Shall I show you my last baby, doctor?" "It is such a darling, and what is more, it remembers the hospital and the nurses too, I thought)" I thanked her for the offer, which, I was sorry to say, was unnecessary and was not the point in question. She had had five children in her married life and this was her sixth pregnancy. I had to scratch my head, for this was a puzzle, but then thinking that discretion was the better part of valour, I put down her age as twenty-eight rightly or wrongly.

This colossal problem then still remains to be solved, namely THE PROBLEM OF AGE.

HOW OLD ARE YOU?

M. N. P.

Editorial

We feel very much handicapped in our task of carrying on the Magazine in the absence of our General Editor Dr. Gurusawmy Mudaliar who is leaving us on deputation to Europe, but we hope he will be back again very soon to help us with his guiding hand. We wish him 'bon voyage' and a speedy return.

* * * *

With the onset of the new year great changes are apparent every where and the Medical College is certainly not behind the times. It has lost its old coat of red and is now assuming a chaste grey and white appearance so that new generations of students will look back on a pile of grey and white blocks instead of the old red quadrangles with its numerous chimneys with which we have been so long familiar. It is to be hoped that the red streak will not show up with the passage of time.

* * * *

Notable changes have occurred also among the teaching staff of the College. We are very glad to extend a hearty welcome to Col. Hingston our Principal and hope that he will continue to be in our midst for a long time to come.

* * * *

To Col. Grey our acting Principal we extend our cordial good wishes and hope that though he is leaving on long leave, the lure of the East will prove too strong in the end.

* * * *

The students and staff of the College will no doubt miss the well known figure of Major Basu who has left us and gone back to the Military Department. His social activities, his enthusiasms, his remarkable gift for words, his erudition, and his sporting tendencies—all these, have

made him a unique figure in our College life. We wish the gallant Major every success in his new sphere of activity.

* * * *

The student's hostel is after all taking definite shape, for, we hear that a site has been acquired and construction work we hope, will soon be started. With the new Pathology block the question of the student's common room will be solved since the library will be changed from its present site.

* * *

We believe that it is high time that the students of this College should join together and have one common lunch room with vegetarian and non-vegetarian sections. This would be more in keeping with other colleges in Bombay and Calcutta and I dare say the rest of the civilised world. It would also solve the question of a restaurant since a portion could be utilized as a buffet. The present division on a sectarian basis is certainly out of date.

* * * *

The Pharmacological research unit has now been started here and Dr. Venkatachalam who has had training in Calcutta is in charge with Mr. Ratnagiriswaran as research chemist. We naturally look forward for the elucidation of the properties of many indigenous drugs and their therapeutic applications. Dr. David, the Professor of Pharmacology, is going to Europe on study leave. We are sure that he will come back to infuse into our young students the spirit of research and investigation that is so necessary for the make up of the young medico of the future.

* * * *

We invite the attention of the authorities to the difficulties of lady students of the College in regard to their hostel. It appears that the three blocks of buildings

can afford but insufficient accommodation for the 42 girls who are at present inmates. The necessity for a compound wall is felt since the grounds are rather low and quite exposed and there is very little in the way of a garden. A common sitting and regading room is also very much in demand.

* * * *

While going to press we hear the sudden demise of Dr. S. Swaminathan, Professor of Anatomy of the Vizagapatam Medical College. He has been for long in the teaching Staff of the medical institutions of Vizagapatam and Madras and his sudden death has been a great blow to many of his friends and colleagues in the profession. We offer our heartfelt condolences to his only daughter in her sad bereavement.

Letters to the Editor

SIR,

The dictum of a Whilom professor, now swaying over the destinies of a University has been that there are only two seasons in India. *viz.*, the hot and the hotter. Ours be the lot. to sweat in the latter season in Madras for our exams. The gods on high Olympus little know the miseries of mankind. Our gods know much less of ours. I shudder, when I think of the time just gone past—the sweating body, the jagged nerves, the dazzling glare, the aching eyes, the blurring print and the impending exam.—oh! the misery of it! Yet again the days of waiting, the agony of suspense and what for—a disastrous result. And then scarcely breathing time, the College opens, the routine has begun. The incubus of the yet uncleared, but old subject has to be tackled; the new ones have to kept apace. Will this never end! Will not the gods pity us and revert to the old days and ways of exam. We are perforce content with the hot season, but aye, we draw the line at the hotter.

One in agony.

SIR,

Time was, not long gone either, when the percentage of passes in Pathology and the elusive subject Hygiene, equalled the failures to day. Medical Jurisprudence, or to be dignified Forensic medicine, to fail in which was a miracle is now our *bete noire*. Quite a puzzling problem indeed, which sets one thinking, this sudden turn in the tide of our affairs. Are we really going down hill intellectually as well-physically, they say we are. Have we failed to cope with the subjects and so miserably too—things that our seniors, by years only two or so could manage so well. Or, does the solution lie elsewhere?

One confused.

Case Reports

FROM S_1 WARDS.

BY K. NARAYANAMURTHI, M.B. & B.S.

(House-Surgeon to S_1, General Hospital, Madras.)

Case 1. **Fibramatosis of the Stomach.**

Name and age :—Mrs. H; 28 years. *Race and caste* :—A. I.; R/c.
Residence :—Arkonam. *Occupation* :—Nil.
Admitted :—On 28-2-29. *Discharged*:—On 27-4-29 (Cured).

Admitted for :—Swelling of the abdomen; Pain and discomfort after taking food.

Family history :—Nil.

Previous history of illness or injuries :—Nil.

History of present illness :—The patient's digestion was poor, and she used to get occasional attacks of vomiting for the past 10 months. Since two months she gets attacks of pain in the epigastrium with no definite relation to food. It is of a dull aching character and used to radiate to the flanks and back. She used to spontaneously vomit, which relieved the pain. Her appetite has been good all these 10 months. Bowels not constipated. No history of "coffee-ground" vomiting or melena. She noticed that she has lost much weight, and strength since the commencement of the trouble. She first noticed a fulness in the epigastrium 8 months ago, and she says that it has been steadily increasing in size.

Local condition :—On palpation a hard transversely elongated swelling, about the size of a big mango is felt in the epigastrium. The tumour is freely movable laterally and slightly downwards. On percussion areas of resonance are found between the tumour and the liver and spleen.

Special report :—9-3-29. Wasserman—negative. Again another specimen of blood was sent and the report on 25-3-29 was negative. Lewis Mydriatic test—negative.

5-3-29. Motions—no ova, fat globules and starch granules are present. No muscle fibres. Occult blood—positive. Urine—no sugar, no albumen, no casts. Diastase—28·6 units. X-ray Examination after a bismuth meal revealed a large filling defect in the stomach, roughly corresponding to the size of the tumour palpated through the abdominal wall.

Operation or treatment adopted 11-3-29. Partial gastrectomy. On opening the abdomen the stomach was found to be the seat of diffuse thickening, particularly affecting the submucous and sub-peritoneal coats of the pyloric vestibule, and the whole of the pylorus. The duodenum and the gall-bladder were normal in appearance and there were no adhesions. There were a few enlarged sub pyloric glands. The tumour was mobile and Mayo Moyinhem modification of Polya's operation (Gastrectomy) was done. The affected part of the stomach was removed, and before finally closing up the peritoneum, about 10 ozs. of saline was left inside the peritoneum and the omentum folded back over the suture line. Blood pressure at the commencement of the operation was 100; and at the end of the operation was 65. Pulse 78.

11-3 29. At 1 o'clock the pulse was feeble and rapid and it improved slightly with 1½ pints of normal saline given intravenously. 7-30 P.M. 1/100 gr. of atropine and 1/100 gr. of digataline was given. 9 P.M. patient vomited blood. Stomach wash was given and adrenaline 30m. by mouth and Hæmoplastin 2 cc. given subcutaneously.

12-3-29. The temperature was 102°; pulse 140; resp. 30. General condition is very bad. Slight distension of abdomen. Atropine 1/100 gr. + Digataline 1/100 gr. again given.

13-3-29. Temperature was 102°, had one motion after soap and water enema. General condition not good. Pulse 120.

15-3-29. The temperature came down to 100. The abdomen was considerably less distended after small doses of Sodi. Sulph. Pulse 92. Resp. 28. General condition was slightly better.

21-3-29. The patient was put on Benger's food and Horlicks 2 oz. at each feed every 2 hours. She was complaining of pain and in the night she vomited a small quantity of brownish fluid. Wound is healthy.

24-3-29. No vomiting. Bowels moved. General condition fair. Not complaining of any pain in the abdomen.

25-3-29. Stitches removed. Wound quite healthy, healed on first intention.

27-3-29. The patient was having small feeds. No complaint of pain. General condition was good. Weight before the operation was 79½ lbs. By the time of discharge she weighed 81 lbs.

Pulse 78. Resp. 22 and temperature normal. She was walking about in the wards without assistance by the time of discharge.

Diagnosis:—The tumours that are to be diagnosed in the epigastrium are:—

Tumours that are connected with the liver, cancer of the stomach which is a hard irregular swelling attended by vomiting 'Coffee ground' in character. All these characters are absent in this case. The commenest form of tumour of the stomach is scirrhus of the pylorus, in which condition, copious vomiting at long intervals and other gastric symptoms appear long before we can feel the tumour. Tumours of the Duodenum have to be distinguished from those of the stomach by the absence of mobility of the tumour during respiration in the former. Rare tumours are, Pancreatic cysts which are very difficult to be detected. History of pain and other symptoms of the Pancreatic Disease have to be elicited. Cysts arising from the omentum present similar swellings. Pulsation in the epigastrium ought not to be mistaken for an aneurysm. This question did not arise at all in this case, for there was no pulsation in that region. X-ray after a bismuth meal will help a great deal. In this case owing to a certain amount of obstruction at the Pylorus showed retention of bismuth in the stomach for a longer time than usual. Our diagnosis of the tumour of the pylorus most probably benign is confirmed after Laparotomy.

After opening the abdomen the tumour is found to spread right round the pylorus and extended over a larger area of the stomach. Only a small portion of the stomach is left and the whole of the pylorus is removed.

8260. Pathalogical report. *Linitis Plastica*. The mucosa shows atrophy in some places, and at other places ulceration and endothelial proliferation and infiltration with plasma cells. Picture suggestive of syphilis. Malignancy ???

The interesting points in this case are:—

(1) Fibramatosis of the stomach is a rare occurrence.

(2) After a partial Gastrectomy in an emaciated individual, the patient stood the operation well and recovered.

(3) Blood for W. R. was sent twice and was found at both times negative. Therefore there is no suggestion of Syphiloma.

Case 2. **Lumbar Hernia.**

Name and age—M. ; 15 years. *Occupation*—Nil.
Race and Caste—Naidu. *Admitted*—28-2-29.
Disease—Lumbar Hernia. *Discharged*—19-4-29.
Duration—From birth.
Family history—Nil.
Admitted for—Pain and swelling in the lumbar region.
Previous illness or injuries—Nil.

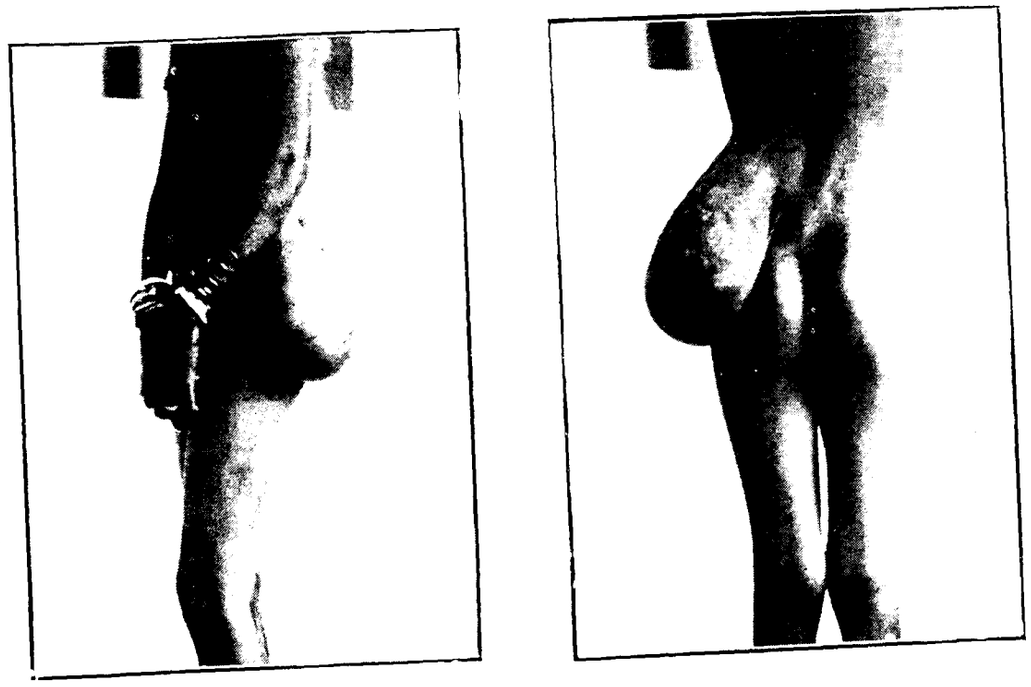
History of present illness.—The present tumour started as a small lump of the size of a mango at the time of birth and growing up to the present size (of photographs the tumour taken before and after operation appear in the opposite page). The skin over the tumour shows signs of cauterisation.

Local condition.—The tumour is that of the size of a large cocoanut. Definite impulse on coughing. It is not so easily reducible. On complete opening the triangle of Petit admits four fingers. The tumour is resonant on percussion, and all the muscles attached to the crest of the Ilium are stretched. A definite fibrous ring is present.

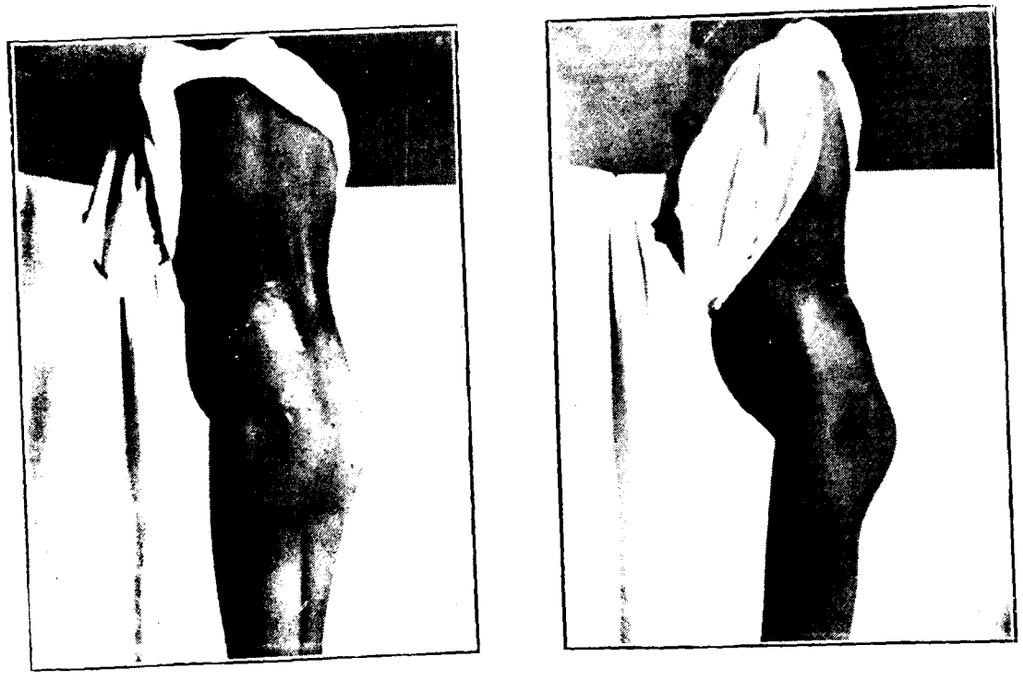
As preliminary to operation for more than three weeks daily attempts to reduce the hernia were made. The patient was kept in bed lying on her face and the foot of the bed raised. At every time there was difficulty to reduce the contents into the abdomen. Several feet of the gut could be felt in the hernial sac, and any attempt to replace the contents into the abdomen by an operation may be fatal on account of too much abdominal pressure. We had to get the abdomen accustom to receive the extra gut every day. The contents could be completely reduced by gradual and continuous pressure applied by means of a poeelian cup with towels applied all round it. After this preliminary preparation the patient was operated on 20-3-29.

Operation notes.—The margins of the hernial orifice were exposed by a vertical incision on the back; the sac freed from the skin all round and traced down to the defect in the parietal peritoneum. The sac was opened at the upper end and the contents were reduced. A small portion of the small bowel was adherent to the neck of the sac, which was gently separated by means of guaze. The neck of the sac was closed, for a large part by a cat-gut suture.

A silver filigree 6″ × 4″ folded double was buried over the sac and the margin of the external oblique sutured with that of latismusdorsi. A few matress sutured are put at the upper margin and the lower



Before Operation.



After Operation.

margin was brought over and stitched with a continuous stitch to the periosteum of the crest of the Ilium. Remnants of the external oblique Aponeurosis and Facia sutured underneath the latismusdorsi."

For four or five days there was slight distension of abdomen and slight temperature ranging from 100 to 101°. She was put on small doses of Sodi Sulph. and given Enemation Soap. She made an uneventful recovery the wound healing by first intention and discharged from the Hospital on 19-4-29.

I have to thank Lt.-Col. R. G. G. Croly, First Surgeon of the Hospital for permitting me to report these cases.

A Case of Simple Paroxysmal Tachycardia

By T. Bhaskara Menon, M.R.C.P.

A lady aged 19, following a dinner on tinned food on 20-6-29 had severe pain in the abdomen, rigor, rise of temperature and severe diarrhœa. Her husband who had the same food developed the same symptoms but to a less degree. Her temperature rose next morning to 101° F. the pulse was about 90 and diarrhœa persisted the patient passing offensive brownish motions which later became more and more watery and greenish in colour with slimy mucus. There was some distension of the abdomen and severe pain and tenderness over the whole abdomen. Castor oil emulsion that was prescribed was vomited and she suddenly developed a tachycardia the pulse at the wrist being small, extremely rapid and regular. Auscultation revealed the cardiac rate to be about 210 and it was very difficult to count the pulse. Occasionally the pulse changed into the regular alternans type where every second beat was of smaller volume. The heart sounds were sharp and short and of a fœtal type. Two hours after the commencement of the attack the pulse became very irregular at the wrist and then the rate suddenly came back to normal but this did not last and tachycardia developed again. This attack persisted for about 24 hours. There was well marked jugular pulsation, corresponding to the heart beat, slight cyanosis, but no other feature of cardiac failure. The patient was restless and had no sleep and occasionally had pain in the præcordium and the diarrhœa persisted. Paraldehyde was administered as a sedative but was promptly vomited with the result that the pulse came back to the almost normal rate of about 96. The patient had an uninterrupted convelescence. Injections of $^1/_{250}$ gr. of Strophanthin

bed side was as sure of his experimental results as the clinician.

For some time this want of co-operation set back the progress of science. Certain incongruous and contradictory results were obtained, not tallying with the clinical diagnosis. This led to some amount of suspicion as to whether laboratory results were not biassed by the clinical notes sent along with the samples for examination. Though it was not openly expressed, there appeared to have existed some doubt regarding the honesty of the results emerging from the laboratory. This was however dispelled by further study of the incongruity and contradiction in the results. For instance, the agglutination reaction for typhoid fever will not be apparent till the end of the first week of the fever. A negative result may subsequently turn out to be positive in such a case. Enteric like fevers may be due to other organism than the typhoid bacillus, *viz.*, paratyphoid and bacillus fækalis alkaligenes, and the serum may show no agglutinins for B. typhosus.

A positive finding is, it is accepted, more reliable than a negative finding; but in suspected enteric cases repeated negative results both culturally and by the serum agglutination test are as valuable as a positive finding. It eliminates enteric fevers and directs the attention of the clinician to other possible causes.

Similar fallacies are likely to be met with in the results of the wasserman test for syphilis. Several factors have to be considered in the interpretation of the results. If we were to draw up a chart to show the results of the blood examination in early and advanced cases of syphilis it will be found that positive curve will go up as the weeks pass by after the primary infection in untreated cases. The curve falls again in neurosyphilis to 59% to rise again to 100% in paresis. With the wasserman test of the cerebro-spinal fluid and the colloidal gold test the positive curve reaches 90% and more. The personal factor is

In Lighter Vein

A telegram of congratulation was sent by a clergyman to a bride on her wedding day. It ended "See I John, C. 4, V. 18."

The verse in question is "there is no fear in love."

Unfortunately the telegram was received with the figure "I" changed to "S," thus making it read "See S John C. 4, V. 18."

The bride was horrified when she turned up the reference; it reads, "Thou hast had five husbands: and he whom Thou now hast is not thy husband"!

"Practical Mathematics".

Pupil.—What, in your opinion, professor, is the most difficult mathematical problem?

Professor (*grimly*).—Trying to make both ends meet, my dear Sir.

—Boston Manuscript.

"Heart-Bleeding".

Woman. Alas! My poor husband is dead!

Landlord.—I am sorry. I was just coming to raise his rent!

—Lustige Gesellschaft (Berlin).

"The Modern Life".

Mrs. Knicker.—Have you had a busy week?

Mrs. Bocker.—Rather; I've had two husbands, three landlords, and four cooks!

—Sun and New York Herald.

"A Losing Game!"

He.—Life with me has been a failure.

She.—You must have had and wasted some opportunity.

He.—No; I have spent half my life raising whiskers to conceal my youth, and the other half dyeing them to conceal my age.

—Edinburgh Scotsman.

"Couldn't Tell a Lie".

New Maid.—Mr. Dubbleigh, ma'am.

Young Mistress.—That dreadful bore! Tell him I am out of town.

New Maid (hesitatingly).—I can't tell a lie, ma'am. I'll just say you're out!

BOSTON TRANSCRIPT.

The Optimist (whose house is burning): Why, just think, my dear! This will solve our servant problem!

We hear that there is a lack of brains in the anatomy department and that the pathology department has been requisitioned for a supply. One wonders if the brains supplied would be pathological.

Orthopædics.

Heard in Hospital.

You students must have everything at the tip of your toes!

Horsey.

At the Medical College Sports.

Now-a-days Indian girls don't shy!

Don't shy! Don't shy!

From the P. M. Room.

This is a very interesting case!

What is this case Mister?

At the Biology Examinations.

Examiner.—I can't find the nervous system of the cockroach in your dissection.

Candidate.—It has a shattered nervous system.

Re Hanging drops.

Examiner.—When you have all finished hanging send for me.

Surgeon.—Hallo, John. How are you getting on now? We have scooped out a good bit of your brain when you were in hospital.

Patient.—It does not matter now doctor. I am in Government Service.

Extract from an advertisement.

After trying this medicine my eat improved, and I became stout to the surprise of my surroundings 40 or 50 in number who also tried.

Gentleman.—"I say, waiter, there is a fly in my soup!"

Waiter.—"Surely not, Sir; may be it's one of those vitamin bees you hears so much about these days."

"My doctor tells me that I must sleep out in the open air more".

"Then why not get a job as a night watchman?"

Nurse.—Do you use baby-talc on the child madam?

Mother (late school mistress)—Certainly not, only the very bes English please.

Which is your favourite recreation, Doctor?

Sleighing.

Ah yes, but I mean apart from your profession.

(MERRY MAGAZINE).

"Stop" cried the policeman to a doctor driving speedily.

Doctor (angrily) "If you hadn't stopped me I would have been in the hospital by now."

Policeman.—"Truly, Sir."

"A wise man never blows his own knows".

"Silence is nearly always golden, but sometimes it is guilt".

(TIT-BITS).

" Happiness is the ability to forget the past and trust the future " says an authority.

The poet says " Trust no future, however pleasant ".

It can still be the ability to forget the past and distrust the future.

Well-wisher.—" How is your business getting on ?"

Businessman —" Oh, just like clock work."

Well-wisher.—" I don't quite catch you "

Businessman.—" It has just been wound up ".

Wit and satire of the Greek Anthology.

It may be surprising to many to learn of the rich vein of humour of the ancient Greeks. To a certain extent, just as Hippocrates is the father of modern medicine, so are his less sober contemporaries the fountainhead of wit and satire. The medical profession, comes in for a good deal of thrusts, given and enjoyed, when the giver is not actually in their hands. The Greeks could be more sardonic than swift, more lovable than Lucas and more witty than Mark Twain.

The following are some of the examples :—

A new use of a human face.

With nose so long and mouth so wide,
And those twelve grinders side by side,
Dick, with a very little trial,
Would make an excellent sundial.

Long and short.

Dick cannot blow his nose whene'er he pleases,
His nose so long is, and his arm so short ;
Nor ever cries, God bless me ! when he sneezes—
He cannot hear so distant a report.

A convenient partnership.

Damon, who plied the undertaker's trade,
With Doctor Crate as an agreement made,
What linens Damon from the dead could sieze,
He to the doctor sent for bandages ;
While the good Doctor, here no promise breaker,
Sent all his patients to the undertaker.

Grammar and Medicine.

A thriving doctor sent his son to school,
To gain some knowledge, should he prove no fool ;
But took him soon away with little warning,
On finding out the lesson he was learning—
How great Pelides' wrath in Homer's ryhme,
Sent many souls to Hades ere their time.
" No need for this my boy should hither come ;
That lesson he can better learn at home—
For I myself, now, I make bold to say,
Send many souls to Hades ere their day,
Nor e'er find want of Grammar stop my way."

The musical doctor.

Nicias a doctor and musician,
Lies under very foul suspicion,
He sings, and without any shame,
He murders all the finest music :
Does he prescribe ? our fate's the same,
If he shall e'er find me or you sick.

E. C. S.

Medical College Association

The first business meeting of the academic year was held on Friday the 12th July in the Library Hall, with Major Pandalai in the chair. Among the 50 members present were prominent Drs. T. Bhaskara Menon and N. Mangesh Rao.

The Chairman at the outset thanked the outgoing office-bearers for their strenuous work and complimented them on a successful term of office. He hoped that the ensuing year would be equally if not more successful.

The following were elected as office-bearers :—

VICE-PRESIDENTS :

Major K. G. Pandalai, F.R.C.S., I.M.S.

Dr. A. Lakshmanaswamy Mudaliar, F.A., M.D., C.M.

MAGAZINE COMMITTEE :

President : Dr. S. Mannady Nayar.

Editor :— (Acting till the return of Dr. M. R. Gana-swamy Mudaliar) Dr. T. Bhaskara Menon, M.D. (Mad.), M.R.C.P. (Lond.).

Associate-Editor :—Dr. N. Mangesh Rao, L.R.C.S.

Student Editors :—Mr. E. C. Srinivasan (final year), Mr. Thambidurai (IV year.)

Mr. A. Booth and Mr. Chandrasekharan were nominated for the assistant secretaryship, the election taking place by ballot on the 17th.

Mr. K. S. Ramaswami and Mr. V. O. Zachariah were nominated for the sports secretaryship, the election being to be balloted on the 16th.

A resolution moved from the chair, giving the students of the Sanitary Inspectors' class, the privileges of associate membership on payment of Re. 1 each (without however any franchise) was accepted *nem con.*

A committee with Mr. N. Srinivasan, as Secretary and Miss B. Mahadevan and Mr. A. Booth as members was formed and authorised to take the necessary steps towards forming the college dramatic club.

The Secretary deplored the indifference of the members, most of whom were absent and pleaded for some enthusiasm, and co-operation towards making the meetings successful. The ladies were conspicuous by their absence.

With a hearty vote of thanks to the Chairman proposed by the Secretary the meeting terminated.

University of Madras

Medical Examinations.

[NOTE.—Names in italics denote female candidates.]

The following is the list of successful candidates at the Final Medical Examinations held in April 1929 :—

Final M. B. & B. S. Degree Examination.

MEDICAL COLLEGE, MADRAS.

Rank.	Reg. No.	
		PART I.
1	13	Muhammad Abdul Hadi
		PART II.
1	142	Sitarama Rao, M.
2	156	Swaminathan, P.
3	90	Masilamani, J. A. S.
4	146	Srinivasan, C.
5	51	Ganapatisundaram, S. N.
6	74	*Kanthamani, D.*
7	85	*Mammen, Anna T.*
8	152	Sundaram, N.
9	115	Ramachandran, A. S.
10	111	Rajagopala Ayyar, S. N.
	43	Chandrasekharan, S.
	49	Durairaja, P. S.
	93	Narayana Menon, P. P.
	103	Parthasarathi, S.
	104	Paul, C. K.
	105	*Paul, Sarah J.*
	113	Ramachandra Hebbar, K.
	137	Selvaraj, A. S.
	138	Seshadri, T. R.
	139	Seshadrinathan, L.
	147	Srinivasan, L. V.
	151	Sundaram, C. S.
	158	Thimma Reddi, G.
	161	Vadamalayan, P.
	162	Vareed, K. P.

Final L. M. & S. Degree Examination.

Rank.	Reg. No.	
		PART I.
*	3	Ganapati, C. K.
*	5	Ganavadivelu, T.
*	10	Kuppuswami, P. R.
		PART II.
	29	Abraham, K. A.
	40	Brahmanandam, P. V.
	41	*Chacko, Mariam W.*
	45	Chokkalingam, P. M.
	80	Krishna Wariyar, E.
*	84	Mallikarjuna Rao, M.
	89	Mascarenhas, J. A.
*	91	*Mathuranayagam, Florence K.*
	108	*Puvayya, Accamma C.*
	120	Ramaswami, G.
*	129	*Samuel, Mariam P.*
	141	Shripada Rao, M.
	144	Somaskandan, T. S.

The following candidates who appeared for the Final M.B. & B.S. Degree Examination have qualified for the L.M. & S. Degree :—

Rank.	Reg. No.	
		PART I.
†	2	Johnson, A. S.
		PART II.
	32	*Alankaran, S.*
	49	Bhimesvara Rao, K.
	50	Eapen, A. J.
	53	Gnanaolivu, J. K.
	59	Govinda Rao, P.
	69	Joseph, T. J.
	72	Kameswara Rao, D
	75	Kesava Menon, C.
	78	Krishnamurti Rao, S.
	96	Narayanaswami, B.
	116	Ramachandran, R.
	121	Ramaswami, H. V.
	136	Sebastian, A. P.
*	148	Subbanarayanan, S.

* Obtained passing marks for the Final M.B. & B.S. Examination.

† By combination of results.

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