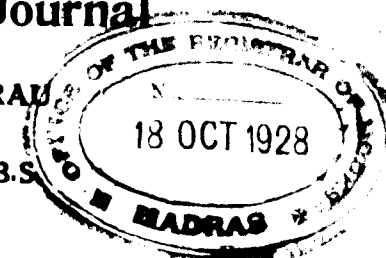


MAY, 1928.

The Antiseptic

A Monthly Medical Journal

EDITED BY
THE HON'BLE U. RAMA RAU
AND
U. KRISHNA RAU, M.B. B.S.



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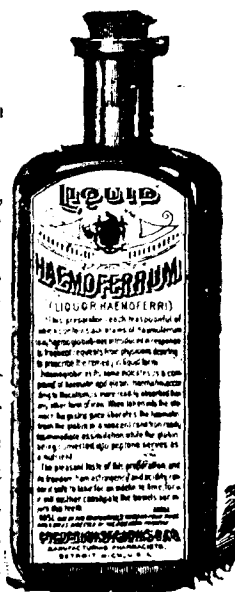
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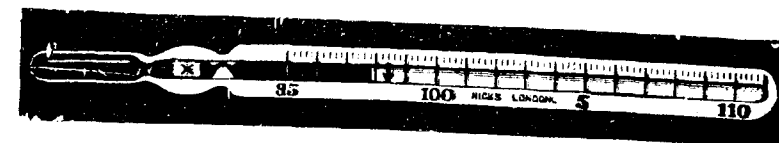
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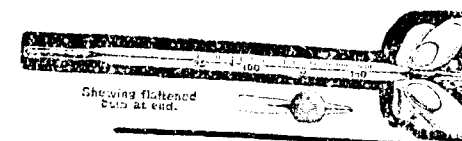
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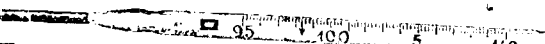
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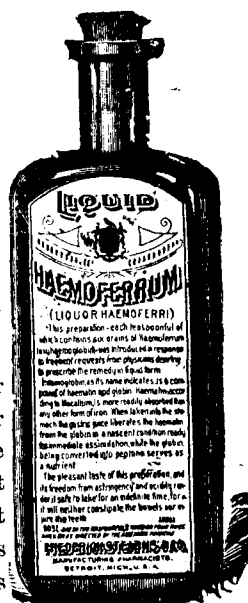
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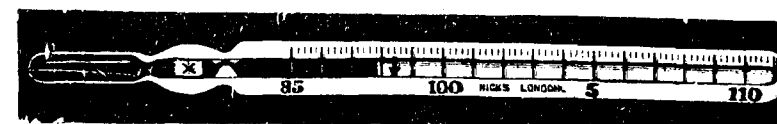
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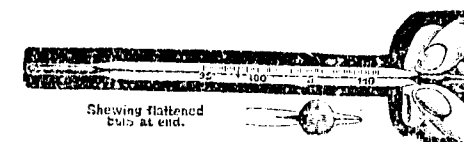
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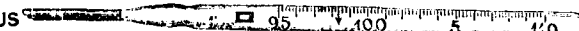
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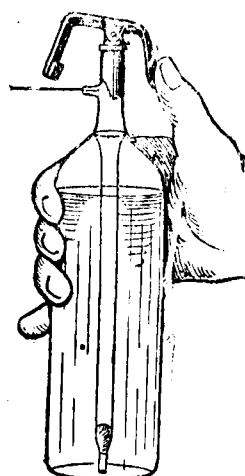
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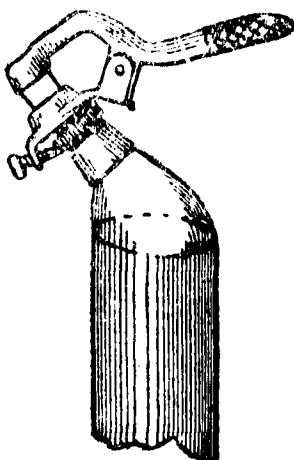
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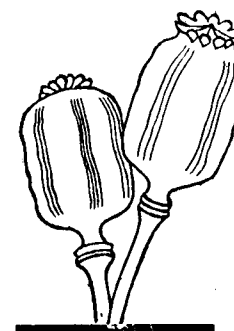
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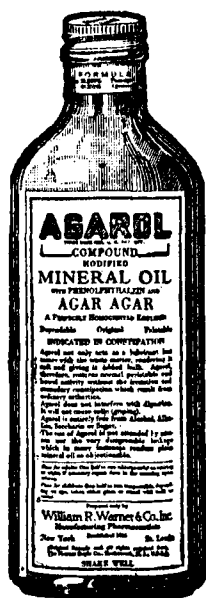
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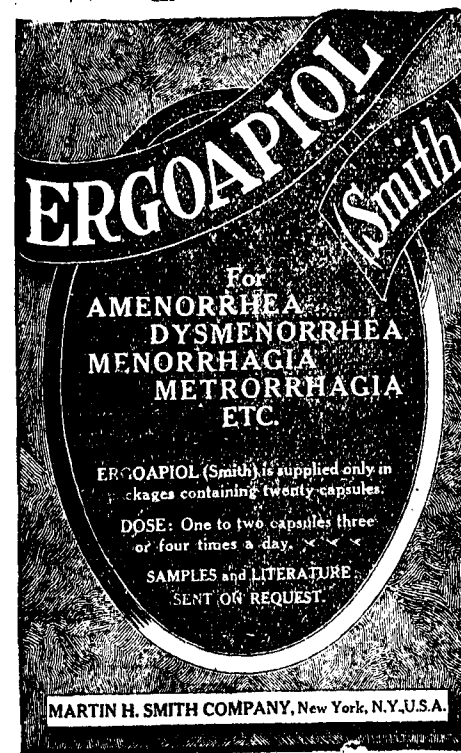
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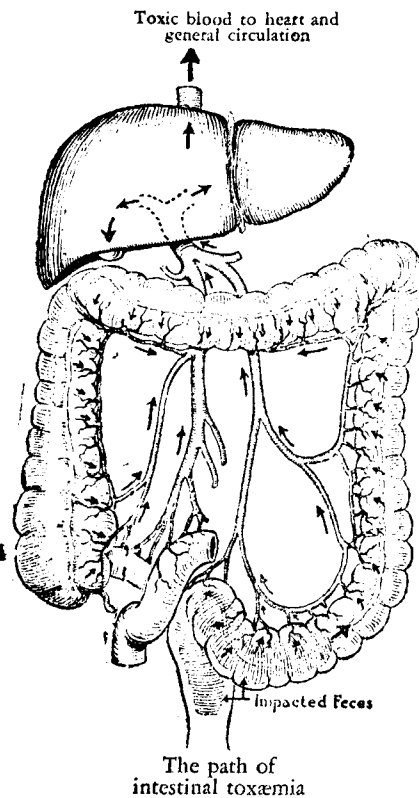
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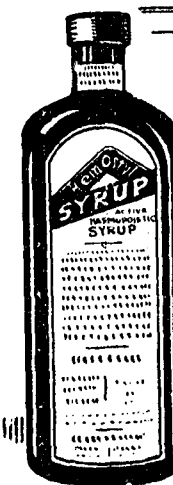
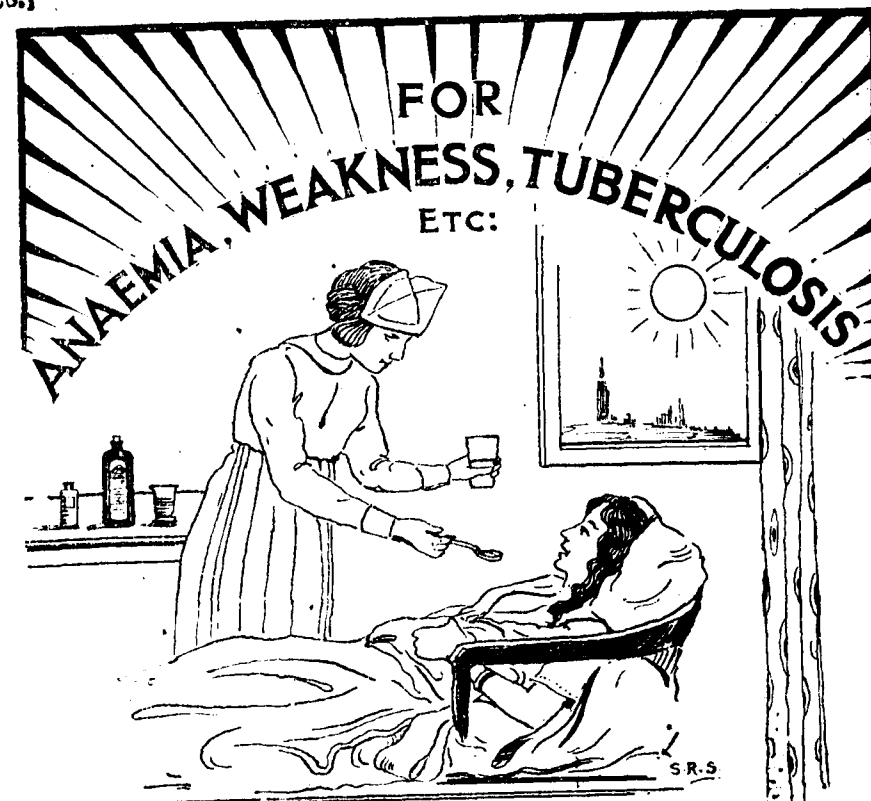


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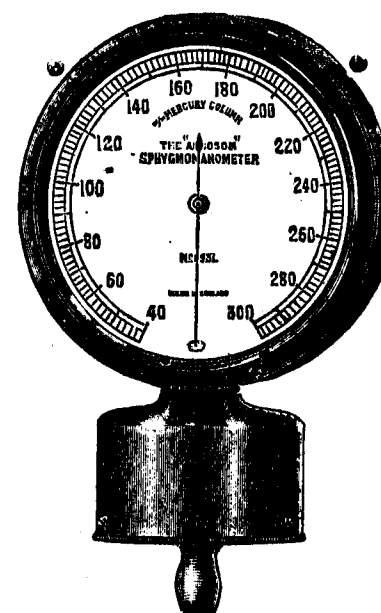
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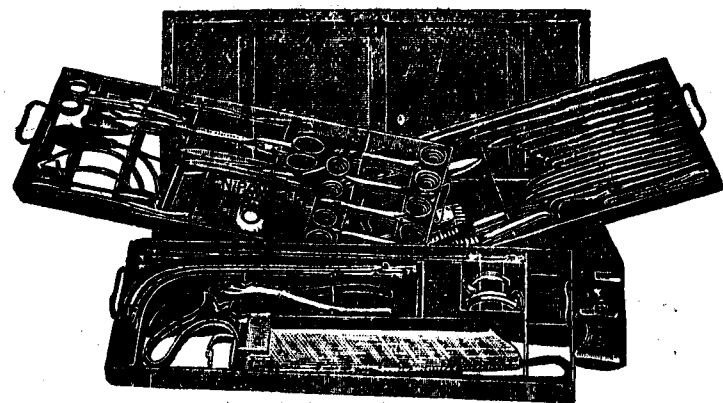
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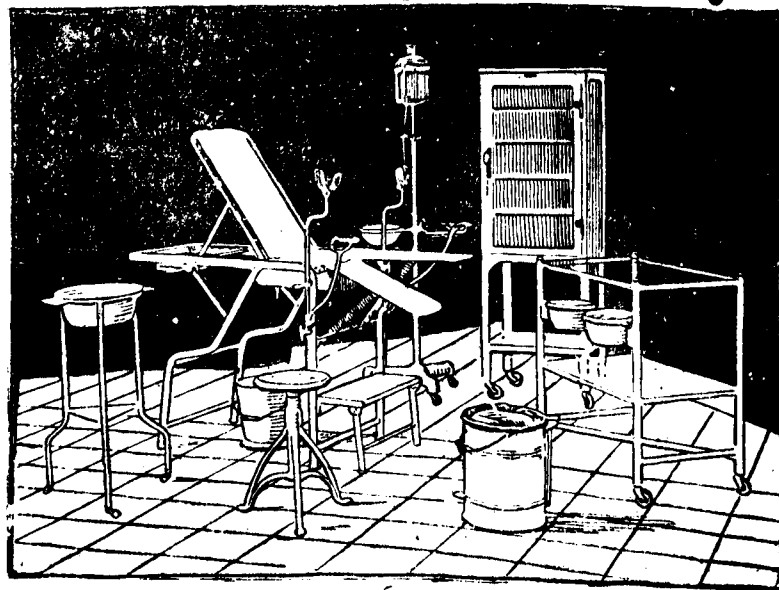
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The Antiseptic

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ORIGINAL ARTICLES.

* LOCAL ANÆSTHESIA

BY

DR. C. F. CHENOY, M.B., B.S., D.T.M., D.P.H.,
DISTRICT CIVIL SURGEON AND SANITARY OFFICER,
AURANGABAD DN.

Local anæsthesia in India still lacks encouragement. It is due not for want of skilled knowledge but purely because the conservative policy exists and with it chloroform and ether.

What do we expect of local anæsthetics? In days gone by the pioneer work of Corning, Reclus and Schleich was with massive intradermal infiltration of dilute cocaine solutions. From that time till now the pharmacologists have not been idle. Their brilliant efforts to find substitutes for the dangerous and expensive cocaine have given us a flood of successive remarkable synthetic products. Again with adrenalin we have found a new era in the history of anæsthesia. By its powerful and lasting ischemic action and vaso-constrictor effect it gives and leaves before the operator a bloodless field and has been rightly called by Brown a chemical tourniquet.

The products to-day in common use are Novocain and Apotherine. The former is made with ethyl alcohol and benzoic acid and Apotherine with propyl alcohol and cinnamic acid. The full formula of Novocain is diethyl-amino-ethanol ester of para-amino benzoic acid, and

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that of Apotherine is hydrochloride of gamma-diethyl-amino-propyl cinnamate. Both these drugs as we see are not a derivation of cocain, are not habit forming drugs and are not subject to Harrison's Laws. Both are readily soluble in water and alcohol, and the solution is neutral to litmus.

The action of the drug, like all synthetic compounds, is that it diffuses slowly through the tissues, and a reasonable time is required for its anæsthetic action and according to Wiener one has to "wait, delay and linger". There are no doubt few cases seen where the healing of the wounds had been slow. This may be due to many other causes, and there is no reason why this may be attributed to local anæsthetic. I feel sure if no local anæsthesia was used, and as usual chloroform administered, the same delay in healing might have taken place. I have been often questioned regards its toxicity. As far as my experience goes there were no signs of it. I have used as much as half an ounce and over of the solution of 2% novocain, but no untoward symptoms were found. For abdomen cases and in weak persons it is the anæsthesia of choice. I have used this anæsthesia in cases of appendicitis, T.B. Mesenterica, Omentoplexy, Hernia (Inguinal and Femoral), ligation of radial and tibial arteries, circumcision, removal of inguinal glands and suppuration of bubos.

PREPARATION OF SOLUTION.

The strength of the preparations used are 1 to 2% solution. It can be easily sterilized by boiling for a few minutes or placing the solution contained in a bottle in a sterilizer with dressings and leaving it there for an hour. The mouth of the bottle should be stopped with absorbant cotton to prevent evaporation of the solution. It should be prepared as far as possible fresh for every case and to prevent de-composition of adrenalin solution by heat, it is advisable to add adrenalin solution after sterilization and just before starting the operation. If any of the solution is left over and is intended to be kept, a drop or so of hydrochloric acid with a pinch of thymol is added and this remnant of the solution is kept in amber-coloured glass-stoppered bottle away from light. This solution will keep for few days. Apotherine in tablet form is very useful in small clinics. The only disadvantage with tablets is that they should be freshly prepared and sterilized by heat for each case separately.

TECHNIQUE

Prof. Braun's method is to anesthetize all layers of the abdominal wall before the operation. This I find does not work,

as well as anæsthetizing layer by layer. If layer by layer is attacked there is complete anaesthesia. The third way is to start off with black anaesthesia and supplement it with layer by layer, if the patient complains of pain.

Adrenalin solution is often used with Novocain to arrest haemorrhage and thus keep the wound clean for observation. My idea is that if Novocain is used with adrenalin, the action is also much quicker and lasts longer than when operation is done without adrenalin.

The usual procedure adapted in abdominal operations by me is to give the patient $\frac{1}{4}$ an hour before operation $\frac{1}{4}$ grain of morphia hypodermically. If the patient is drowsy, well and good; if, not $\frac{1}{4}$ grain dose is repeated just before operation. I usually use now a days Novocain, as Apotherine is a bit expensive, to which is added few drops of adrenalin 1: 1,000 solution after sterilization of the solution.

The first injection is usually into the skin along the line of incision and not under the skin as this does not act on the nerve tendrils branching into the skin. This causes the skin to be blanched. The next step is to pass the needle into the deeper structures and inject some drops. Thus we save the waiting after incision of the skin, as the deeper tissues are by then practically anaesthetized. It is most important to have the skin very well anaesthetized and thus gain the patients' confidence; otherwise the operation becomes irksome to the doctor and annoying to the patient.

It is advisable to wait for three or four minutes before dividing the skin or the subcutaneous tissue. A sharp scapel is advisable, for blunt instruments tear and pull the parts and thus produce dragging pain. The anaesthesia is next injected under the aponeurosis and into the muscles. Again one must wait and linger before attacking the parts, as this waiting saves a lot of pain, otherwise the local anaesthesia had no time to act. The needle is then passed obliquely and carefully under the peritoneum to prevent the possibility of its injuring a coil of intestines and some anaesthetic is once more injected. After waiting for some time the peritoneum is divided. If the above procedure is carefully followed then there should be no pain upto this part.

Now one finds that the visceral peritoneum of stomach liver omentum, gall-bladder, and kidneys have no sensory or

thermic or touch reaction, these parts could be easily handled and cut. The perietal peritoneum is very sensitive and hence pulling or clamping of mesentery produces pain. The walls of stomach and intestines on the contrary are painless. The following rough classification meets surgeon's needs.

Painful.	Painless.
1. Skin	1. Subcutaneous tissue
2. Muscles with nerve bundles	2. Muscles
3. Tissue around tendons	3. Tendons
4. Arteries and nerve	4. Veins
5. Periosteum and Dura	5. Bone
6. Cartilage, joints, capsule	6. Thyroid gland
7. M. M. of nose, mouth, pharynx and urethra	7. M. M. stomach and intestines
8. Parietal peritoneum	8. Visceral peritoneum
9. Mesentery	9. Wall of stomach and intestines
10. Pulling or clamping of Gall-bladder	10. Fundus of Gall-bladder
11. Testes or epididymes	11. Liver and kidney

ADVANTAGE OF LOCAL ANÆSTHESIA.

With chloroform and ether there is always danger to life. The danger depends upon the patient placed under the effects, for some apparently take good risks and some fare very badly; others who seem apparently bad, take it well. Again pneumonia unusually takes more lives after general anæsthesia than the operations themselves. There can hardly be a surgeon so lucky who has not seen an aspiration pneumonia prove fatal five or more days after operation. If it is not fatal, the cough, the fever, and sleeplessness usually undermine the patient and drive him nearer the door of death. Paralytic ileus is the other bug bear. How often we find patients after abdominal operations vomit for days? This does not kill the patient usually, but sends for his death warrant and breaks open the sutures and gives him all the fear and worry, nay it may give him a hernia. One often hears the joke among the lay people and friends "Operation successful, result failure"

With local anaesthesia all the above trouble is avoided. Increasing experience serves to strengthen the conviction that

many of the dangers of major operations are avoided. Many of the post-operative complications are either entirely absent or considerably lessened.

Many patients we meet in practice, who we say are bad operative risks, when in fact we mean are bad anæsthetic risks. Take few of the patients and give them for half an hour or so chloroform and do no operation at all. We will find them having a stormy time for several days and some might even die as a result of general anæsthetic.

There are again a few disadvantages but they are hardly any. First and foremost is the fear of pain. With experience and good technique and good selection of cases, pain is completely eliminated. The other is that local anæsthesia takes longer time, but if we take into consideration the time spent to bring patient under and again out of general anæsthesia, then the time spent is not really very much. The only other real objection is that it is more annoying and troublesome for the surgeon to operate, as he has to proceed very gently and also encourage the patient and do the injection himself step by step.

The more a surgeon uses local anæsthesia he finds he is justified in saying that local anæsthesia saves more lives as it eliminates pneumonia and other post-operative complications, which formerly were thought to be due to operative risks, but now it is known to be due to general anæsthesia. It is especially indicated in all lung operations, in cases of diabetes and nephritis. It now remains for surgeons to dig deeper and find out more out of this valuable mine. This could only be attained by broadly using local anæsthesia.

* AFTER TREATMENT OF FRACTURES NEAR THE ELBOW JOINT

BY

P. GURURAJACHAR, MADRAS.

Fracture is the most common serious injury to the extremities. The most common fracture in older people is one about the hip joint, in adult life the fractures about the wrist, and in children, by far the most common fracture is that about the elbow joint. Non-union and delayed union are very common

* Specially contributed to "The Antiseptic."

after fractures of the weight-bearing lower extremities, and limitation of motion following fractures about the joints in the upper extremities is very common. Sir Robert Jones has laid down the generally accepted rule for the emergency treatment of these fractures. His 'Golden rule of Treatment' says, "They should all be treated with the elbow fully flexed and the forearm supinated with the single exception of fracture of the olecranon, which requires full extension." This treatment is so generally known that few doctors, be they general practitioners or specialists, pass up the opportunity of treating a fracture about the elbow. But the after-treatment is little understood. Many volumes on fractures are found in the literature, but the few notes they contain about the after-treatment are hazy, often misleading and the therapeutics advocated are only empirical.

The bones that take part in the elbow joint develop from not less than seven centres of ossification. It is really a joint with three articulations; one between the humerus and radius, the second between the humerus and ulna, and the third between the radius and ulna. Due to the difference in size between the articulating surfaces of the capitellum and the trochlear and the obliquity of the latter, the axis of the extended and supinated forearm is not in the same line as the carrying angle is produced for the purpose of clearing the forearm from the pelvis and hence the carrying angle is most marked in the female.

The lateral and medial epicondyles serve as origin for the flexors and extensors of wrist and fingers, and the olecranon is the insertion of the strong triceps and this accounts often for the separation of fragments after fractures about the elbow. It is also of importance to remember that the very delicate movements of hand and fingers are dependent on the integrity of supination and pronation of the forearm which can only take place with freely movable radio-ulnar joint.

The immediate result of a fracture is a hæmorrhage which is central, sub-periosteal and muscular and may extend along fascia and subcutaneous tissue. This hæmorrhage produces the clinical symptoms of pain, swelling and muscular spasm. These symptoms indicate clearly nature's attempt at immobilization and, after the best possible reduction has been accomplished, our efforts should be to maintain this reduction by

effective, but not constricting, immobilization. The immobilization of the fragments is so important in this first stage of repair, that any attempt at relieving the pain, muscular spasm or swelling by gentle effleurage, as advocated by Lucas-Championniere, thereby jeopardizing the reduction, seems neither rational nor safe.

A few hours after the fracture, a productive inflammatory process begins which, through the granulation tissue formed and the exudate of fibrin and serum, changes the hæmorrhage into a hematoma. The clinical symptoms of pain, swelling and muscular spasm persist and they tell us to keep our hands off and maintain the immobilization.

Forty-eight to seventy-two hours after the reduction the blood clot surrounding the fragments is further organized by connective tissue that has grown in from the periphery. Osteoblasts appear on the stage and some bone matrix is formed from the intracellular substance. By this time the pain and muscular spasm disappears and swelling decreases.

On the fourth or fifth day, we have a soft callus consisting of osteoid tissue. The calcium salts are deposited in the connective tissue stroma of the perivascular areas. These salts are carried in the circulation by colloids and by carbon dioxide and are also available from the fractured ends of the bone by a process of demineralization and atrophy. The calcium phosphates and calcium carbonates are in solution in an acid media. It is, therefore, believed that the hydrogen-ion concentration becomes lowered, and when this reaches a certain point below that of the blood plasma, precipitation of the calcium salts occurs. If at this stage, the splintage permits, it is easy to see how the application of heat will help to restore the condition of the soft parts about the fracture. The physiological action of heat, however, also tends to lower the Hydrogen-ion concentration of the blood and, therefore, is helpful in the precipitation of the calcium salts.

Between the second and the third week, the connective tissue is well-organized and new blood vessels are seen. Osteoid tissue appears in the perivascular areas and there is a gradual transition in the appearance of the cells from connective tissue to osteoid tissue.

The absorption of the excessive callus begins and there are signs of the re-establishment of the bone marrow.

At this stage, the patient often complains of stiffness in the shoulder, elbow and wrist joint and the soft parts about the fractures are described as being without life. Now we are dealing with a convalescing joint where the bony repair has gone on to a soft callus and there is no muscular spasm, swelling or pain which contraindicates manipulation.

With these observations as a criterion for the after-treatment, it seems rational to fix the end of the second week after reduction as the beginning of the after-treatment. For one who understands this process of bone repair and who has any knowledge of the physiological significance of pain, it seems incredible that most surgeons dealing with fractures still prescribe massage of the elbow and passive motion for the after-treatment. Gentle massage of the soft parts above and below the elbow is of great value, but any massage about the joint and over the callus is of little or no help and may produce excessive callus and myositis ossificans. It is easy to conceive how massage will dislodge osteoblasts and spread them in the soft tissue and accelerate their growth or increase the transition of connective tissue cells or muscle cells into bone-producing cells. Therefore massage about the elbow joint and in the vicinity of the callus is contraindicated.

Any attempt to regain the function of the elbow by means of forceful passive motion in the child screaming from pain, only adds another chapter to the history of inquisition, and the result obtained compares favourably with the result obtained by painful passive motion in the early treatment of fractures in children. If good results are obtained with massage and passive motion of the elbow, it only shows the wonderful compensatory power the human organism is capable of when exposed to insults by members of the healing art.

The after-treatment should consist of external heat, internal heat by means of diathermy, massage and therapeutic exercises. When heat in any form strikes the human body, there is an increase of the surface temperature. To protect the body against any excessive increase of heat, the heat-regulating mechanism responds with hyperæmia. The capillaries are dilated, heart action is increased and the circulation is accelerated. Thereby, some heat is carried into the systemic circulation and some is eliminated through respiration. The sweat glands increase their activity and begin to eliminate

and everything tends to keep the body temperature at a constant level. On application of heat, the musculature relaxes and the sedative effect on the sensory nerve endings is well-known and probably, also acts reflexly on deeper structures.

The practical application of external heat may be divided into conductive heat and convective heat. Under conductive heat, we include all measures where the source of heat is in contact with the skin. Hot applications and the different forms of hydro-therapy belong here. Convective heat consists of exposing the patient to a source of heat at a distance from the body. In our institute we make use of carbon filament incandescent lamps for this purpose. They can be used on the stand with a reflector over the lamp to throw the heat rays parallel; or several lamps are mounted on bridge or heater. This heater is put over the elbow, which is thus exposed for fifteen or twenty minutes. By this means though much of the applied heat is absorbed and carried away by the blood stream, it is only rational to believe that some heat penetrates deeper, by means of conduction, in the tissue underlying peripheral circulation.

In addition to the conductive and convective heat, we speak of converse heat, which means heat produced in the tissue by means of its resistance to a high frequency current, oscillating between two electrodes. The diathermy current used therapeutically has a voltage of 1000-10,000 and an amperage of 200-4000 milliamperes. The oscillations vary from 1,000 000 to 2,500,000 per second. These rapid reversals of the current prevent the occurrence of any chemical effects or any neuromuscular responses. The therapeutic value of diathermy is, therefore, based solely on the development of heat.

In applying diathermy to an elbow, we have three techniques to choose from. We may place the two electrodes on opposite side of the joint or we may place the electrodes in the form of cuffs, one above and one below the elbow. The third technique consists of placing one electrode over the lower half of the triceps and an equal sized electrode over the volar surface of the forearm, just below the elbow. The first named method is preferable. It is safe to send 1000 ma. through these electrodes, but any rule as to the dosage of diathermy is best governed by the tolerance of the patient. The current is turned on slowly till the milliammeter reads 300-400. This is gradually increased, until after about two minutes, the milliammeter reads

the dosage desired. This is maintained for about twenty-five minutes and the current is turned off gradually.

The therapeutic application of heat produces a loss of acid or an alkalosis. The acid base equilibrium also undergoes striking changes in exercises, as shown by Barr and his co-workers. The result in exercises being an acidosis, due to the production of lactic acid and co.

Sir Robert Jones has said that the value of massage is too well established to require defence, but it cannot be denied that many of the ideas prevalent as to its methods of use are often vague, and surgeons who have made a close enough study of the subject to give definite directions to a measurer are still very few. The main physiological effects of massage are to—

Assist the circulation, and

Aid the movement of lymph and exert tension on some structures which we hope to free or stretch.

Championniere has studied the histological changes that take place when soft tissues are crushed. He found:

1. Dissociation into fibrillae of muscular fibres, as shown by well-marked longitudinal striation.
2. Hyperplasia, sometimes a simple thickening of the connective tissue.
3. Increase in places of nuclei in connective tissue.
4. Interstitial haemorrhages.
5. Enlargement of blood-vessels with hyperplasia of their adventitious coats.
6. Multification of nuclei in the sarcolemma, resembling interstitial myositis.

When massage was applied to the tissues, he found the following histological picture:

1. Muscle appeared normal.
2. No secondary fibrous bands separated the muscle fibres.
3. No fibrous thickening around the vessels.
4. General bulk of muscle was greater.
5. There was no sign of haemorrhage.

The effect of massage on the body fluid reaction, according to Pemberton, is a restoration to normal. The application of massage should be left to technicians chosen for their skill

rather than their personality. Supple and warm hands, with an educated sense of touch, are preferable to great strength. Any hand massage that calls forth a protective contraction is an error in technique. A good way judging a technician is by the way she or he places the patient for the treatment. The patient should be in a position that permits the utmost possible relaxation and that is the recumbent position. This applies to the treatment of the upper extremities as well as any other part of the body.

The kind of lubricant a technician uses usually shows his experience. For any normal skin, a lubricant with a fatty base is best, but when a skin shows tendencies to eruptions about the hair follicles a soft powder is preferred. As mentioned already, massage should not be used about the callus in fractures about the elbow, but is of great value above and below the elbow.

The physiology of exercises or muscular contractions may be reviewed as to their local and general effect, but in relation to fractures about the elbow only the local effect is of interest to us. In order to get a muscular contraction, we must have nerve stimuli, the contractibility of muscular fibres and the fuel of carbohydrate and fat. The physiology of muscular contractions may be divided into.—

Mechanical which is produced by means of approaching the muscle's origin and insertion on skeletal parts, which act as levers.

Metabolic.—The muscle utilizes carbohydrate and fat for its contraction, leaving as waste products lactic acid and co. which are probably responsible for muscle fatigue. Protein is mainly repair material.

Thermal.—An increase of temperature always follows muscular contractions.

Electrical.—There is some change in the electrical potential of the muscle, preceding and following the contraction.

Functional.—By systematically continued muscle contractions, there is an increase of volume, toxicity and power of the muscle.

In the after-treatment of fractures about the elbow, we have to make use of the mechanical effect of muscle contrac-

tions, because of their pull on the skeleton, in order to prevent or correct deformity. Sir Arthur Keith has formulated the relative function of muscles and ligaments of a joint, when he says. "Ligaments come into action only when the normal muscular support and defence of a joint has broken down". When we realize the physiological truth in this statement, we can understand how irrational it is to advise a patient with a flexion deformity of the elbow as follows:—"Go home and carry a heavy weight in your hand, and the elbow will straighten out." The patient carries the weight as long as the flexor muscles of the elbow permit and then drops it. If he is conscientious, he repeats it often and develops strong elbow flexors, which only increase the deformity by counteracting gravity which, if left alone, might have corrected the deformity.

Exercises may be divided into active, passive and resistive groups.

By active exercises, we mean voluntary contractions of muscles by the unassisted patient. During the first week of treatment, the patient goes through the motions of elbow and forearm to the best of his ability.

Passive exercises comprise exercises performed on the patient by means of apparatus or by a technician. As mentioned elsewhere, these forcible manipulations of the elbow do not belong to modern therapeutics. They are unphysiological; the benefit from them is very questionable and they may produce a myositis ossificans.

Resistive exercises are performed by a technician in co-operation with a patient or by the patient herself, using her body weight or some apparatus for resistance. In the second week of treatment, these resistance exercises can be started. If the biceps is contracted in an attempt to flex the elbow, the inner and outer head of the triceps will contract in elongation, but if resistance is offered to flexion of biceps, the triceps will relax instantaneously. When the elbows are extended against the body weight, the triceps are strengthened, which will promote extension of the elbow. These exercises are to be repeated to the point of fatigue.

Thus I may summarise in conclusion that the immobilization of fractures about the elbow, carried on more than one month, is responsible for longer after-treatment, and usually, incomplete return of function. The question of when to start the after-treatment, therefore, comes up, and we have tried to answer

this, by using the physiological bone repair as a criterion. This should suggest the end of the second week after the time of reduction, as a safe time for the beginning of the after-treatment.

Further, massage and passive motion of the elbow are contraindicated, because they are unphysiological and may produce myositis ossificans or, at least, excessive callus.

Early application of heat and active motion to the injured part promotes early functional restoration.

The after-treatment should not be entrusted to technicians without supervision. It should include physical means, the physiological action of which is well understood and well conductive to nature's way of healing and restoration.

Any treatment by physical means that may require one hour out of every twenty-four or forty-eight hours is insufficient and of little avail, if it is not followed up by some home exercises, which can be repeated every two or three hours.

In spite of best efforts at reduction as well as after-treatment, about 10 per cent of the fractures about the elbow will show poor end results.

* TREATMENT OF BACILLARY DYSENTERY

BY

SANTOO RAM, L. C. P & S., NADIAD.

General Treatment:—No sooner the symptoms present, to avoid exertion, patient should take rest in bed and should use bed-pan and in severe form, water-proof sheet over the bed to pass motions. The matter should be collected and burnt afterwards. The attendant should wear rubber gloves and must remain careful. Avoidance of cold is most necessary. Warm clothing and hot-water bottles to keep the body warm are required.

Di.—It should be nutritious and easily assimilable. To the Hindus it may consist of rice or barley water, fresh whey, albumen water, conjee. Otherwise beef tea, sagoo pudding etc. Milk in any form is not advisable to administer in bacillary dysentery. It curdles in the intestined canal and casein clots which irritate the intestine and increase irregular movements.

* Especially contributed for the "Antiseptic".

Our object of treatment by drugs is to clear the intestine, to combat the morbid agent and to treat the symptoms.

*Acute cases:—treatment by drug:—*In all the cases of dysentery one should begin with a mild aperient to clear the bowels: castor oil emulsion with Tr opii m. 15 will serve the purpose on the first day. Side by side one has to mind the gravity of pain and tenesmus. To relieve the patient of pain, and tenesmus is the first duty of the physician. When it is very severe a hypodermic injection of $\frac{1}{4}$ gr. of morphine hydrochloride is necessary or morphine suppository if it can be retained in the rectum, or a high enema of starch and opium. Paint the anal mucosa with cocaine solution or the like, where required for its thorough work.

Hot fomentation over the abdomen gives some relief of pain.

When the pain is relieved our second aim is to clear the bowels.

*Castor oil:—*Some prefer castor oil emulsion with tr. opii. This is good in amebic dysentery than in bacillary type. However, if saline-sulphates treatment is not followed, it is next to saline. It is good to combine Bismuth salicylate:

Rx.—Ol Ricini	oz i.
Bism. Salicyl	gr. 15
Soda Bicarb	gr. 15
Tr. opii	m. 5
Muek	gr. $\frac{1}{4}$
Aq. M. Pip.	ad. oz i.
mft.	T.D.S.

*Saline Sulphates:—*These are specifics for the bacillary dysentery. The results vary in different hands.

Sodium salt is better than magnesium salt. The combination of both is very useful.

They are prescribed in a good dose of *Saturated solution* or in *divided small doses*. At the start of the disease and in a strong patient first method should be followed—oz i. of each in one oz. of water, such two doses in 24 hours are prescribed on the first day. Second day one dose and until motions become faecal. In old and feeble patients it is ordered in small divided doses. It is efficacious in this form but bowels do not get rest. Acid Sulphuric Dil or acid sulphuric aromatic may be added to soothe the irritation and. Tr opii when there is severe pain, tenesmus, dysuria, or the

stools remain watery. If the patient becomes drowsy and comatose during this treatment, it may be the poisoning symptom of sulphates. Calcium chloride is the antidote to it.

*Bismuth:—*If the diarrhoea persists after sulphate treatment, Bis. salicyl is prescribed in oz i. doses. In children it is combined with grey powder.

Bolus alba is a mixture of animal charcoal and Kaoline, given in large doses every few hours to check diarrhoea and remove toxins from the canal.

Naphthal is used as a gastro-intestinal antiseptic and its local action is certain and sure. The symptoms are relieved in a very short course. It is administered in the following combination:

Rx:—Beta-naphthal	gr. 5
Abine oil	oz. i
Ol. cinnamom	m. i
Mucilage	q. s
Aq. M. Pip	ad. oz. i
Mft. one	(Bose K. L.)

Bismuth. Beta-naphthal in 3-15 grs. is also preferred.

*Anti-dysenteric Serum:—*It neutralizes the toxins and prevents necrosis of the mucosa. The indication for its prompt use is pyrexia with more than 15 motions in 24 hours. In very severe and fulminating case it is best to give it intravenously in 50-60 c.c. doses diluted with a pint of saline.

Before injecting serum one should not forget to inquire whether the patient has taken the injection of horse-serum to avoid the danger of anaphylaxis.

Intramuscular route is better than subcutaneous route. In children intraperitoneal route is recommended. 10-30 c. c. serum with 150 c.c. of 5 % glucose in normal saline solution is given.

To prevent serum sickness calcium lactate 20 grs. should be prescribed from the day of the injection for two or three days more.

Polyvalent serum sold in the market is useful.

With serum treatment, some prescribe sulphates orally.

*Collaps:—*Large quantity of saline intravenously. Adrenaline chloride $\frac{1}{4}$ c.c. as a vasomotor stimulant.

Calcium chloride 5 to 10% solution alone or with glucose solution,

Sthrophanthin, atropine may be injected. Strychnine and pituitary better to avoid as they increase the peristalsis of the intestine.

Acidemia: Rogers' solution indicated.

Arthritis: Anti-dysenteric treatment. Salol Hexamine with Mag. Sulph internally. Locally, Scott's dressing, strapping.

Meningitis:—Anti-dysenteric serum, Hexamine internally. If asthenia is combated, in about a week time it is cured. Locally over the head rub oilum hydrarge.

Intussusception:—Surgical treatment, but when not carried out or refused, Tr. Belladonna 10 ms dose every 2 hours and lower bowels washed with saline.

Perforation:—Belladonna 10 ms. doses and for pain chloretone 10 grs. in olive oil.

Chronic cases:—Diet should be carefully regulated and constipation treated with liquid paraffin or saline aperient.

Isphaghula:—Oz. 1 per day has a good soothing effect.

Vaccine:—Treatment is in vogue in chronic cases but is of no definite value. In acute form it is contraindicated.

Rectal Lavage:—Keeps the large colon clean with antiseptic fluid and stimulates the repair.

Principal drugs used in irrigating solution are sodium chloride (oz 4—01) Soda Bicarb, Boric acid, Quinine hydrochlor, creoline, lysol, methylene blue, corrosive sublimate, thymol, Tannic acid, Silver nitrate (oz ii to oz. i), albargin argyrol or Protargol and what not.

An aperient of castor oil oz. $\frac{1}{2}$ should be prescribed before 12 hours to irrigation time, light diet in the interval, and $\frac{1}{2}$ hour to it a large enema of Sod Bicarb should precede.

If the patient is robust, genupectoral position, otherwise lateral or simply raising the foot of the bed should be adopted. The funnel should be held 1' high above the level of the pelvis; and rate of flow 1" per minute. Temperature of the fluid should be 100° F. to 110° F. Patient should be encouraged to retain the fluid as long as he can.

Things used in it should be well sterilized and aseptic precautions should be observed as well. Rectal tube should be well greased with sterilized vaseline.

Surgical treatment is adopted when medical treatment fails. The object is to irrigate the colon and give rest.

Right inguinal colostomy or appendicostomy is performed.

Indications: (1) Polypoid condition of the mucous membrane. (2) incessant distressing blood stained diarrhoea.

The lower bowels are washed out daily with boric solution and Paul's tube is used for fæces to come out from the small intestine, when the mucous membrane has recovered. The wound should be closed.

Post-dysenteric constipation is well treated with warm sod. chloride sol., enema and occasional dose of castor oil or liquid paraffin. Dysenterics should wear warm woollen clothing and food should be extremely simple and regular.

Prophylaxis:—Pure water, avoidance of unwholesome and contaminated food, isolation of a suspected case, proper disposal of sewage and campaign against house fly should be carried out.

Prophylactic inoculation of vaccine serum at a time is injected, but the immunity lasts not more than 3 months. Oral administration of vaccine is on trial.

* PNEUMONIA

BY

DR. RAJA RAM,

NANKANA SAHIB (PB.)

President and Gentlemen: I am impulsed with an idea of reading this paper simply because Pneumonia has started on account of the cold weather that has set in. I also apprehend that all of you would be greatly interested to add fresh to my knowledge. I wish to appraise my ideas simply to mend them.

Man is always imperfect and apt to make mistakes at every step of life; hence I feel greatly needy of your advice and feel sure that your kind suggestions will prove highly beneficial to me, not because they will rectify my defects but I will be better equipped to serve humanity.

Gentlemen, Pneumonia is a wretched disease because it devastates many families yearly by annihilating numberless lives. If God blesses, our joint forces might reduce the mortality to a great extent.

I do not want to describe its causes, symptoms etc., but wish to limit myself to its pathology and treatment.

*Read before the Sheikupura Medical Association.

Pathology:—During the first stage, the lung is only infected, dark red and heavy. It floats on water.

During the second stage, the part involved becomes solid, friable and red granular in appearance. It sinks in water.

During the third stage, it becomes grey in appearance, is softer and more friable. On pressure, a dirty purulent fluid exudes.

During the fourth stage, resolution starts either by absorption or liquefaction and expectoration.

By recent investigations, especially regarding the Influenzal type, it has been found that the Pfeiffer Bacillus lodges in the Pulmonary Alveoli which present all the conditions of its growth *i.e.* Hæmoglobin, Oxygen, and temperature. The bacillus produces 'Pulmonary Necrotic Alveolitis' as shown by post-mortem. The most peculiar feature of this disease is the hyaline necrosis involving only the terminal bronchioles and alveolar walls; the cyanosis which exists in this disease points clearly to the asphyxial condition which widespread the destruction of the air vesicles.

Further study showed that we are protected to a degree estimated at 80 % by Naso-Pharyngeal defences and the Ciliated Epithelium of the respiratory tract down to the terminal lobules. So perfect is this Naso Pharyngeal barrier that moderately contaminated air is found completely sterilised after passing through it.

Again we know that leaving the sick bed too soon is usually followed by another and often fatal attack of the disease.

With numerous alveoli as the seat of active colonies, perfect quiet in bed, by ensuring slow respiration, enables the expired air to be sterilised. If conversely, the patient arises too soon, the increased respiratory activity prevents complete sterilisation of the expired current and the inspired current thus carries active germs back to many previously unharmed alveoli; thus starting the disease anew—a true Auto-infection.

It accounts also for many previously unexplained clinical phenomena *i.e.*, cyanosis, sometimes intense, by interference with oxygenation of the blood precisely where this method is carried out in the alveoli; also for the early high temperature with relatively low pulse, thus shown not to be a true fever, but the result of a passive dilation of the peripheral arterioles, thus permitting the admission of blood of high temperature

(103 to 105F) from the deeper organs into the cutaneous vessels.

The researches published in recent years from the Rockefeller Institute have shown that the virulent strains of the pneumococcus can be recovered frequently from the mouth and throat of the cases convalescent from pneumonia, and from those in attendance upon or in contact with them, whereas they can be recovered only rarely from non-contacts.

The possibility that pneumonia can be disseminated by carriers should therefore be kept in mind and careful prophylaxis instituted. Having the above facts in view, the treatment can thus be divided into prophylactic and curative.

Prophylactic:—The patient should be isolated in a room by himself and visitors prohibited. Particular attention should be paid to the frequent cleansing and disinfection of the mouth.

The throat of all the contacts should be swabbed, and if pneumococci found, appropriate disinfectants such as Liquor thymolis 1 in 10 prescribed.

Sputum should be expectorated into a sputum-cup containing 1 in 20 carbolic acid, or into a paper handkerchief which can be burnt.

After convalescence, the room should be thoroughly disinfected and the bedding sterilised.

Treatment:—I should divide the treatment under the following headings:—

1. Condition of the bed-room.
2. Diet.
3. Symptomatic treatment.
4. To conserve an efficient circulation.
5. Miscellaneous points.
6. Specific therapy.

CONDITION OF THE BED-ROOM.

The room should be well ventilated and kept at a moderate temperature of 60-65° F. The bed should be kept clean and the patient kept warm and protected from draught. He should also be brought out in sunshine for few hours in the day.

DIET.

The diet should mostly consist of milk and water, fruit juices; two or three ounces of sugar in 24 hours is a valuable

addition to the diet and can be given as lactose in the milk or glucose in the fluids.

Egg-flip has proved beneficial to the elderly and debilitated patients. In children, especially good plain chocolate is a convenient method of giving glucose.

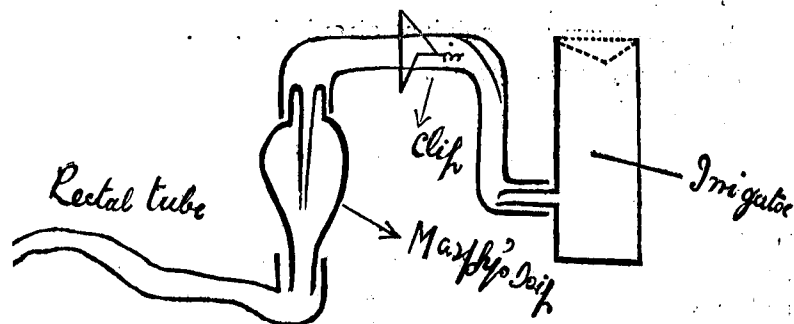
Home made lemonade, prepared from fresh lemons and sweetened with glucose or ordinary sugar, is a palatable beverage, of which the patient should be encouraged to take two or three pints a day in order to promote an efficient action of the kidney and to reduce the acidosis.

Sixty grains each of cream of tartar and sod. bicarb. in a pint of water and sweetened with sugar also serves the purpose.

Thoroughly irrigating the rectum with 2 % Boric lotion and injecting per rectum 6 ounces of normal saline with 5 % glucose, has proved excellent for delirium.

In fact, if the above restricted diet is continued, the delirium will never occur.

In cases of severe delirium, protolysis of normal saline with glucose 5% in it by Murphy's drip method is useful along with internal medication. It is not out of place to mention something of the Murphy's drip method; it is a glass bulb with its upper beak turned inside, as described in the figure below. This end is attached to the tube towards the irrigator and the other end to the tube to be introduced into the rectum. A fixation clip is attached to the tube intervening in between the bulb and the irrigator; it is so adjusted, that only about 16 drops a minute of the fluid may fall out of it, as it is considered that the rectum does not absorb more than this in a minute.



The various preparations of sugar have lately been given in all kinds of infectious fevers with an idea that it is a food for

the cardiac muscles and burns the waste nitrogenous matters of the body and assists in its elimination, thus protecting the body from acidosis, delirium etc.

SYMPTOMATIC TREATMENT.

At the commencement of the disease the bowels should be well evacuated by a dose of calomel, followed by a morning saline aperient. Constipation must be avoided throughout the course of the disease by suitable aperients. The abdominal distension is sometimes a troublesome symptom, which can best be relieved by pituitrin injections and turpentine stapes and enemata.

The procuring of sleep and rest and relieving pain are two of the most essential principles in the treatment.

For the relief of the pain the application of Antiphlogistine locally is the best, as it alleviates the pain and does not need to be changed more than once a day.

The patient should not be allowed to exhaust from want of sleep and there is no harm in using morphia in the earlier stages. Of course it is contra-indicated in severe toxemia or where the respiration is impending or heart is failing.

I am an advocate of prescribing Dover's powder in ten grain doses at bed time and I found it very effective.

Dover's powder also relieves the painful and non-productive cough of the early stage of the disease. This cough is very annoying to the patient and needs the attention of the physician. Glycoheroin in drachm doses controls the cough. Sedatives like Tr. Camph Co. and Syp Pruni Virg are also beneficial. Give the following prescription:—

Rx:—Tr. Camph Co m. 30

Sy Pruni Vir m. 60

Aq. Camph ad oz i.

mft mist.

Sig to be given 4 hourly,

Once the diagnosis is established, the patient should not be disturbed and if needed only the front of the chest should be examined for the condition of the heart etc. Complete rest is essential for the above mentioned pathological reasons. He should be allowed to assume the position he feels most comfortable; but the position should be changed to avoid the congestion of the bases.

Tepid sponging is also comforting.

There is no drug which can modify the course of the disease, though it is customary to prescribe diaphoretics.

It is unscientific to prescribe medicines of the expectorant group when there is dense consolidation; I do not understand how they can do any good. They will conversely affect the sleep and rest which is an essential factor of the treatment. Of course, Pott Iodide and expectorants do good after the resolution has set in. In spite of the negative findings from the pathological side, most clinicians are agreed that in fatal cases of pneumonia, the issue is decided in the greater number of failure of the cardio-vascular system, either from right-sided failure or from failure of the blood-pressure regulating mechanism or from both, and for these reasons the main object of the treatment is to conserve and promote by every possible means an efficient circulation. As pointed out by Levy, aside from structural changes, the three factors which throw an added burden on the heart are 1. The impairment of the circulation in the pneumonic lung. 2. toxæmia; and 3 anorexæmia.

Careful watch is needed for the signs of the right-sided failure e. g., an increasing cyanosis, weakening of the second pulmonic sound, slight venous stasis in the vessels of the neck, oedema of the lung bases or a fall in the tension of the pulse and of the blood pressure.

Digitalis either in the form of tincture or infusion or decoction is considered to be the best for this purpose. Strychnine has lately fallen out of the fashion. Caffein, adraneline and pituitrin are also recommended.

The action of strophanthus is the same as of the digitalis; the former shows its effect instantaneously and the latter after two days; hence the former should be commenced with and the latter started two days after it. Considering all the above facts, I am fond of the following prescription:—

R:—Caffein Cit	gr. 5
Pot or Sod cit	gr. 20
Liq. amm cit or acet	m. 120
Tr. Stroph or Digital	m. 7
Aqua Camph ad	oz. 1

Mft Mist

Sig. one such dose to be given 4 hourly.

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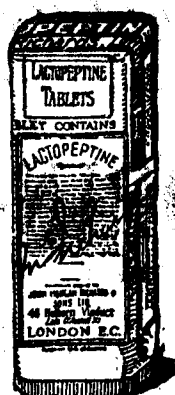
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MISCELLANEOUS POINTS

Where there are signs of œdema of the bases of the lungs or where there is excessive sweating at the crisis atropine is of great value. It should be given hypodermically in doses of 1/100 of a grain.

The use of alcohol is only useful in elderly and debilitated or those habituated to its use. Young robust people never need it.

Oxygen has a considerable effect in relieving the cyanosis, but has generally little effect on dyspnoea.

Venesection is also useful in obese plethoric individual, with a full bounding pulse and marked cyanosis; the withdrawal of 20 ounces of blood at the outset of the disease relieves the symptoms considerably. Later on, it is indicated when there is sign of right-sided failure of the heart.

Mild delirium can also be relieved by it but Paraldehyde in doses of 2 to 4 drachms, repeated as necessary, should be tried.

SPECIFIC THERAPY

Various types of vaccines and anti-sera have been used practically with no benefit; even autogenous vaccines have proved of no value. Perhaps it may be of any good in cases of delayed resolution.

CASES AND COMMENTS

SOME INTERESTING ASPECTS OF SURGERY IN SOUTH INDIA

BY

N. S. NARASIMHAM, L.C.P.S., ROYAPURAM.

[*Abdominal Surgery.*]

GASTRIC ULCER.

A male aged 35 was admitted on 14-12-25 with history of acute pain in the abdomen of 6 hours' duration. Patient was operated under C HCl₃. Laparotomy was done. Peritoneum congested with flakes of lymph here and there. Bowels distended. Tapped the intestines in several places. Abdomen closed with a drain. Patient died on 4-1-26.

Gastro-jejunostomy operation is being done frequently all over. It must be emphasized that a thorough examination of

the patient is absolutely necessary. Those who frequently perform this operation on the poorer classes of people shirk often to advise the operation to the middle class or the rich class of people. Before undertaking an operation the habits which predispose to the gastric condition as the use of tobacco, drink, ganja smoking and hygiene of the mouth must be attended to. During the course of routine Wasserman reaction in all gastric cases, it has been found possible to recognise some cases of gastric syphilis which have yielded to treatment. Cases of tabis mesenterica simulate gastric-ulcer in pain and symptoms. In three out of fifty cases this was found to be the case. All the three men were not benefited by the operation and rapidly went downhill and died. Cases of stricture of rectum, tubercular disease of the cæcum, gall-stones, renal colic and colic of adherent intestines have been mistaken for gastric ulcer. With judicious examination it is seen that one surgeon does only half the number of cases than by another surgeon. Cases of Tabis mesenterica simulating gastric pain is mentioned in books. The one case in which anterior gastro-jejunostomy was done died of vicious circle. Acid diarrhoea was met with in one case which proved fatal. Jejunal ulcer was noticed in one case.

K. 44. M. H. admitted on 4th January 24. Cancer stomach. X-Ray examination with Bismuth meal showed the stomach to be full even after 24 hours. To relieve the patient a posterior gastro-jejunostomy was done; secondary deposits were found in the liver; stomach very much adherent; mesenteric glands enlarged; patient died of shock.

Ruptured Gastric Ulcer.—M. aged 55, male. Hist. of Ch. Indigestion for 1 year, acute pain for 3 days, admitted 3 days after acute pain. Local infiltration anaesthesia, ruptured gastric ulcer, lesser curvature 1" × 1". Sutured drainage tube. Died two days after operation, of Peritonitis.

Perforation ileum peritonitis. A woman aged 32 admitted 3 days after onset of pain. No history of any previous illness. The perforation was closed, patient died 10 hours after operation.

Gastro-jejunostomy—A man aged 35 was operated in 1921 for post-gastro-jejunostomy when he was readmitted with recurrent symptoms. X-ray examination with Bismuth meal did not show the presence of Stroma. He was re-operated in General Hospital, Madras, and a bigger stoma was made. Patient got quite well.

Intestinal obstruction.—Many cases of intestinal obstruction both in children and adults of both sexes show multiple bands over the small intestines and the caecum making them together. They are probably tuberculous in nature. One is not able to know the actual condition before the opening of the abdomen as there is no history of previous illness in these cases. Most of them die. Operation done is generally one of releasing the bands and adhesions and emptying the intestinal contents. A resection can never be attempted in these types of cases.

P. aged 30—a bandy driver by occupation—was struck with severe abdominal pain 4 hours previous to admission. There was a history of gastric pain. Haematemesis and vomiting for six months before being struck with pain. He had actually started for work that morning. The right upper quadrant was rigid. Pulse 84, vomited blood once. Immediate operation was done under C.H.Cl₃ Conducted by Dr. S. M. Trasi. There was a small perforation in the anterior surface of the stomach about midway between the cardiac and pyloric end near the lesser curvature. The liquid contents of stomach, finding their way into the greater and lesser sacs. The margins of the ulcer thick and indurated. A purse string suture was put in and a posterior gastro-jejunostomy done. A supra pubic drain was also put in. There were no complications. And the patient was discharged cured. Of the many cases of perforation of gastric ulcer this was the only patient that did well after the operation and all the cases were operated six hours after the perforation.

Perforating ulcers of the stomach.—Eight cases have been treated. One patient aged 11, female child, with a history of abdominal pain for 2 months. 12 hours duration.

K, aged 32, duration one day, history of gastric disturbance one year. Admitted for severe pain and vomiting blood. During operation pylorus thickened and there was a perforation. There were adhesions to the gall bladder and liver. Patient died a few hours after the operation.

Ruptured Gastric ulcer.—A man aged 50 was admitted with a history of indisposition for 5 days—sudden pain at 7 p. m. Admitted at 3 a. m. Rigidity of whole abdomen. Thoracic respiration 60, pulse 100, soft, Temp. 98. Rect. examination nil. Hernia right side reducible. Bowels acted. Pain in the shoulder.

nearly 90% of them died. The causation of this condition has not been worked out.

Traumatic rupture of intestine in irreducible inguinal hernia must be remembered. Two cases occurred when the men were at work and it was mistaken for obstructed or strangulated hernia. In one case—a man aged 45—there were two ruptures and there was a good deal of gas in the peritoneum. Patient died a few hours after operation.

In a child aged about 6 years there was history of bullchase, the bull lifting him up and the child falling down. Symptoms of peritonitis developed after 4 hours of injury. During operation ileum was found ruptured and even a round worm was found divided in two. The usual operation was done. The child died. It is important to recognise that external injuries as the flying of a bit of silver from the furnace of a gold smith when he was sitting nearby, a blow on the abdomen, and the above case warrant one to be very careful in the examination of these apparently non-severe injuries. In one case a man aged 40 on whom a gastro-jejunostomy and an appendicectomy had been done three months before, developed intestinal obstruction. During operation it was found that intestines were adherent by means of bands from jejunum to large intestines. When did these form? They were carefully released. Patient did not improve but died.

(To be continued)

A CASE OF OBSTRUCTION WITHIN URETHRA BY THREADWORMS

BY

DR. N.C. BASU, B.Sc., M.B., L.T.M. MEDICAL OFFICER,
FALAKATA HOSPITAL, DIST. JALPAIGURI.

A child aged 5½ years, Mahomaden, male child, was brought to the hospital on the morning of 22-4-27 with paroxysmal convulsions.

Temperature 98.2° Extremities cold in comparison with other parts of the body. He passed hard stools one in the morning and one in the evening of 21-4-27, but passed no urine for these two days and complained of severe pain in the genital

organs. In the course of my examination, when I was observing the urethra and pressed it from the root to the urethral orifice, I found something obstructing the mouth of the organ, which came out by itself after two or three minutes, but the patient passed no urine. I kept the patient under observation and waited for half an hour. After this I tried No. 1 and No. 2 Jaque's catheter, but the catheter only entered 1½" and blood came out. For fear of false passage I did not dare try a metal catheter. Suspecting that there may be threadworms obstructing the passage, I injected two per cent. solution of quinine urea-hydrochlor and kept the mouth of the urethra closed for 5 minutes with the thumb. When I removed the thumb, first the fluid, then a small clot of blood, then two threadworms about ½" in length rounded into a mass with blood clot came out and the patient passed urine immediately. After half an hour the convulsions ceased, the patient regained consciousness, when I prescribed him a mixture of urotropin. One dose of calomel was given on that night and an enema next morning. The patient passed innumerable threadworms and was all right from that time. The threadworms came out of the rectum, entered the urethra and obstructed it.

A CASE OF ANAPHYLAXIS AS A RESULT OF BITE OF RED ANTS

BY

DR. N. CHATTERJEE, M.B., DOMJAH, HOWRAH.

I was called in to see a case of a boy 9 years old lying on the floor for unconsciousness.

History:—No history of convulsion or Epilepsy. The boy was playing in the room when he suddenly began to cry till his voice became hoarse and gently lied down on the floor till he was unconscious. I saw the child ½ hour after unconsciousness.

On Examination:—(1) Complete unconsciousness. (2) Pupils widely dilated with loss of light and conjunctival reflex. (3) Pulse irregular, soft and running 120 per minute.

Respiration:—Stertorous; 40 per minute.

No Temperature:—Either in the axilla or rectum. Heart and lungs nothing abnormal. On the body of the patient I found wheals which were just disappearing gradually. While

I was examining the patient his respiration became irregular as if the child was being suffocated. With my fingers I pulled out the tongue which looked swollen and flabby. I put my fingers in the mouth and found the base of the tongue and epiglottis swollen and oedematous. I recapitulated the causes of coma :—

- A.—Alcohol. Apoplexy
- E.—Epilepsy
- I.—Injury
- O.—Opium
- U.—Uræmia
- F.—Fever

But the wheals and the oedematous condition of the epiglottis suggested Anaphylaxis? (Because a similar picture was noticed by me as a result of injection 3 years ago). I at once injected $\frac{1}{4}$ c.c. sol. of Adrenalin chloride. The injection acted like a charm. Within 3 minutes patient's respiration became almost normal and within a course of ten minutes he regained his consciousness but could not speak for $\frac{1}{2}$ hour. The boy's voice was still hoarse and he gave me the history—how he was bitten by some red ants—as a result he experienced violent scratching sensation in his body and he gradually lost his senses.

AN INTERESTING CASE OF ABDOMINAL INJURY

BY

KAMAKHYA PRASAD LAHIRI, L.M.S. P.O. BERA,
DISTRICT PABNA.

A Bengalee, middle-class Hindu widow, Multipara, age 65, was travelling by a village road with some fresh cowdung in her hand. She was suddenly charged by a bull and was gored by the animal. One of the horns pierced the abdominal wall and a coil of intestine came out through the puncture. She immediately placed the edge of her cloth over the extruded gut and pressing her hand over it, she walked to her re-

sidence, a distance of about half a mile. The movement of walking helped the escape of the further portions of intestine.

I examined her about 2 hours after the accident. On doing this I found a puncture about an inch in diameter and an inch above the region of the left external abdominal ring. About 3 feet of small intestine escaped through this. The proximal ends of the extruded ring of the gut were very tightly caught in the puncture so that all my attempts at the reduction failed. The subject was then put under chloroform and the wound was enlarged and the coil of intestine was introduced into the abdomen after it was carefully washed with warm Boric lotion. A horse hair drainage was placed between the edges of the wound which were secured with four stitches of silk ligature. There was practically no hæmorrhage. A slight oozing from one or two points was stopped with pressure-forceps. An ordinary dressing was then applied. A thick pad of cotton wool was placed over the dressing to maintain pressure and thus prevent re-escape of the gut.

Considering the circumstances of the case, I did not give out much hope of recovery to the relatives of the lady as there was risk of peritonitis, tetanus and giving way of the stitches.

The wound gradually healed and horse-hair drainage was gradually reduced in size.

A week later the patient refused to remain confined to her bed and at night pulled off the dressings of the wound. She did not allow any body to re-apply them. Three days after this, the lower part of the wound suppurated. This greatly frightened her and she was prevailed upon to have this dressed. I was naturally disgusted at the attitude of the patient, but still examined her that day. The edges of the wound were somewhat swollen and there was pus in this. The part was thoroughly douched and an ordinary bandage was applied.

The patient made an uneventful recovery.

A medical man practising in a village is occasionally confronted with surgical emergencies. In the absence of proper appliances and surgical skill he has got to make the best of a bad business.

A surgeon will find much to condemn in what was done in the present case, still I send this report simply to bring to the notice of my brother practitioners who are placed like myself, that they may not take a gloomy view about lives of their

surgical cases when proper measures could not be adopted adequately.

This case illustrated that nature usually provides vitality enough to tide over serious accidents because the subject ran every risk of peritonitis, tetanus and suppuration.

COLLOSOL MANGANESE IN THE TREATMENT OF BOILS AND CARBUNCLES

BY

M. BAROOA, L.M.P., F.T.S., SAHITYABHUSHAN,
MANCOTTA T. E. HOSPITAL,
THE BRITISH INDIAN TEA CO., LTD.,
DIBRUGARH, ASSAM.

The following cases were successfully treated by me with collosol manganese (Crookes').

Case No. 1. One case of multiple boils in the right leg of an adult male. The boils were of a long duration and would not yield to any rational treatment. So I resolved to try collosol manganese (Crookes') with a view to have a radical cure. The patient had altogether two intramuscular injections, 1 c.c. each time at an interval of 3 days and was discharged cured 4 days after the second injection.

Case No. 2. One case of carbuncles where the non-operative treatment was adopted (The Indian Medical Journal, September, 1927). This case also had 2 injections as above. The checking of further appearance of carbuncles was attributed to the good virtues of collosol manganese (Crookes').

May I ask my professional brethren to try this remedy in such cases of deep-seated coccogenic affections?

TREATMENT OF NAGA-SORE

BY

M. BAROOA, L.M.P., F.T.S., SAHITYABHUSHAN, MANCOTTA
T. E. HOSPITAL, DIBRUGARH, ASSAM.

The notes on the treatment of Naga-Sore, published in the November issue of the "Antiseptic," prompt me to make the following observations:

In the past I had the opportunity of treating numerous Naga-Sore cases especially in some of the Colliery hospitals

of the Assam Railways and Trading Company, Ltd., where it is very common. At first I had had recourse to various antiseptic remedies including cauterisation with pure carbolic and strong nitric acids. Copper sulphate lotion (5 grs. to an ounce) was also tried in some cases, though not with encouraging results. Later on the following treatment was adopted and it really proved a great success even in some worst cases which tried my patience when treating them with antiseptic stuffs as a routine practice.

The technique was a very simple one. I injected 1 or 2 cc. of Liqr. Hydrarg. Perchlor. (B.P.) deep into the unhealthy tissues from the margins of the ulcer, a few minims at a time and in different spots. The injection was daily repeated until the sloughs were removed. This did not generally take more than 3 days on an average. The part was daily washed with mercury lotion (1 in 2000) and bandaged. The patient was put on to blood tonics and stimulating diet. The only drawback was that the patient would complain of excruciating pain which, however, disappeared in a couple of days.

By the removal of unhealthy tissues and sloughs the formation of healthy granulations was found to be hastened presenting clear-cut margins and a red base. In a number of cases where the granulations became higher than the surrounding skin, one or two injections of Liqr. Hydrarg Perchlor (B. P.) brought them down to the level of the ulcer in no time.

"COBRA EGGS"

BY

BALAKRISHNA N. MEHTA, M.B.B.S. JEEVANSINGJI
DISPENSARY, BHAVNAGAR.

In Deepavali holidays cases of poisoning by "Cobra Eggs" take place every year.

"Cobra Eggs" is a sort of fire works. They are small white pieces which when burnt evolve out serpentine forms. Children are very fond of them.

Big boys generally know that they are poisonous if taken in; but young children who are playing by big boys who are busy exhibiting fireworks steal away some eggs and eat them up.

The usual symptoms of poisoning are:—

Vomiting and burning sensation in the pit of the stomach, sometimes drowsiness.

No death has been known to occur as the cases come under treatment very early.

From the symptoms it seems that it is an irritant poison.

The treatment adopted was the administration of ghee (clarified butter) which protects the mucous membrane of the stomach from further damage and then emetic in the form of mustard water followed by tickling of the throat, if necessary. I do not know the chemical composition of "Cobra Eggs." If any of your readers knows, he will do me a favour to publish it in the Antiseptic.

PROCTITIS

BY

DR. GORDHANDAS RAMCHAND MUKHIJANI, L.C.P.S., SUOKKUR.

Dr. M.G. Ramachandra Rao, Maharaja's Hospital, Pudukota, has cited a case of Proctitis in your issue of February 1928 and has invited suggestions of any of your readers.

I have had chance to treat such a case successfully. I am sorry detailed notes are not available. Yet I can give full account of it.

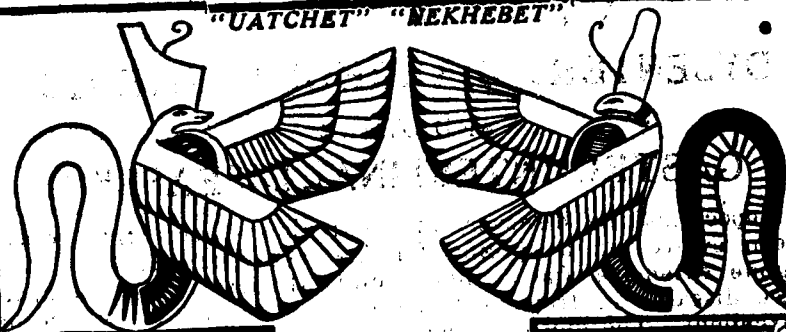
Personal history:—Mrs. S, a female patient, aged about 30 years.

Previous history:—Her husband had suffered from gonorrhoea and the patient also gave history of the same disease contracted from her husband.

Two weeks after the pus from urethra and uterus had stopped (having been treated for the complaint by a qualified nurse) she felt terrible pain in the pelvic region. Having examined the case (of course the P. V. examination was allowed), I came to the conclusion that possibly the tubes were going to be affected. Antiphlogistine was applied over the painful region with the result that the pain subsided in 48 hours; but with the disappearance of the pain she passed pus from the anus. A qualified nurse was called for and rectal examination made and the case was diagnosed to be Proctitis. The patient was kept on injections of Ferro-manganese with general treatment to no good. By this time the pus had increased in quantity and frequency with a tinge of blood. After a dozen injections, I resorted to Neosalvarsan injections in small doses of 3 grms in 10 cc. of distilled water intravenously repeated after every week and rectal injections of Yatren solution every night. I am glad to inform you that the patient was completely cured with four injections continued with rectal injections of Yatren for a month. Yatren solution was injected high up in the rectum with a four ounces glass syringe and retained overnight. No further Neosalvarsan injections were allowed by the patient she being very nervous but the rectal injections were continued for a month more.

Neosalvarsan though recognised as anti-syphilitic treatment, works sometimes wonders in cases of subacute and chronic ulcer, not amenable to any other treatment.

My friend therefore can try this treatment on his patient, if there are no contra-indications.



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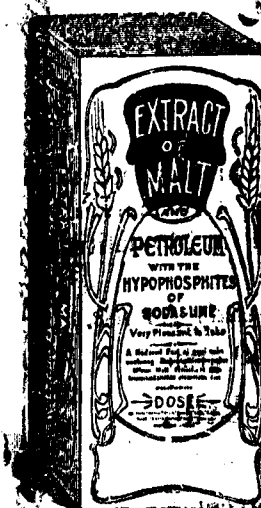
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The Antiseptic

MAY, 1928.

EPILEPSY

The advance in our knowledge of biochemistry has offered new lines of investigation, has brought to light many ideas widely divergent from those conceptions which were formerly held to be orthodox, and thus has revived our interest in the subject of epilepsy. In the Lumlen lectures, Dr. James Collier reviews this subject in every aspect, analyses the opinions held by the different schools and attempts to bring the divergent views into line, thus producing a useful working theory. He argues that the clinical phenomena met with in idiopathic Epilepsy, in Epilepsy from local lesions of the brain and in the symptomatic Epilepsy occurring in disordered metabolic states, in general diseases and intoxications, are identical and are indistinguishable, that those occurring in Narcolepsy, migraine, vasovagal attacks, idiopathic syncopal attacks, and also in tetany are phenomena of the same order and are closely allied to those of epilepsy, and that there is one pathological factor which is common to all the conditions.

In all the conditions it is a disorder of metabolism which is the fundamental cause. In the first place, there is the common incidence in early infancy when the personal metabolism may not as yet be strongly organised, nor the developing brain highly stable, and the very important influence which so definite a metabolic disorder as rickets has, in determining the incidence of epilepsy. There is, again, the incidence at the time of puberty when important metabolic changes may be presumed to occur, and again, a small incidence in the degenerative period of life when metabolic regulation may be failing. There is the periodicity of epilepsy with its often amazing regularity; and more strikingly, those cases in which batches of fits at long intervals occur—sometimes many in a day—and during the

long intervals nothing will induce the patient to have a fit. Such periodicity is more reasonably explained on the grounds of a metabolic dyscrasia—now present, now absent, than upon any other hypothesis which has been advanced. Further it is usual for the epileptic woman to have complete immunity from the attacks during pregnancy, and this fact can only be explained on the basis of the correction of a faulty metabolism in the mother by that of her foetus. On the other hand, epilepsy occurring only during pregnancy and with repeated pregnancies, surely belongs to the class of eclampsias due to anaphylaxis from foetal products. Dr. Collier opines that status epilepticus is only explicable on the grounds of an acute auto-toxic process. It arises sometimes in an epileptic subject who has had no fits for a very long time, and whose cerebral condition might therefore be deemed to be more stable than in the epileptic who has frequent fits. Sometimes over-exertion is the immediate exciting cause, sometimes the discontinuance of medicinal treatment and sometimes no exciting cause can be attributed. The attacks begin and recur with increasing frequency and severity in spite of the apparent complete abrogation of cerebral function. In several of these cases convulsions might be arrested, consciousness restored and adequate nutrition secured, yet death may occur in a few days from exhaustion with a rising temperature and pulse rate. Autopsy invariably shows the most acute and intense fatty degeneration in the cardiac muscle. Such fatty degeneration must surely be the result of an acute toxæmia, which is at the same time the cause of the external manifestations of status epilepticus. It is a remarkable fact that the habitual epileptic person shows immunity from so many of the common diseases, such as the specific fevers of childhood, tuberculosis, pneumonia, and carcinoma. The epileptic shows this immunity in common with the subjects of infantilism or of idiocy or of cerebral diplegia, in all of which diseases a perversion of bodily metabolism is the essential cause. The bodily peculiarities and the somewhat aberrant mental make-up which is seen in some habitual epileptic persons is the expression of this same metabolic error, and the mental aberration, mental deterioration and terminal dementia are results of the same process, either by deprivation of activators necessary for the maintenance of cerebral function or long continued poisoning. The prodromal symptoms of the epileptic seizure are surely the indications of some

general bodily change which culminates in the paroxysm. Mental deterioration, mental aberration and terminal dementia occur only in some cases of epilepsy. In some, the highest degree of mental attainments may be acquired and preserved throughout a long life. The condition of mentality does not bear any constant relation to the frequency or severity of the epileptic manifestations. In Pyknolepsy though the attacks are of very frequent occurrence, yet mental deterioration is said never to occur. On the other hand, there are many cases in which the epileptic attacks though mild and not very frequent, are followed by progressive and irrecoverable mental deterioration. Hence it is argued that the epileptic occurrences are not responsible for the mental deterioration, but they must be the result of some concomitant metabolic fault akin to that which is supposed to give rise to the progressive mental deterioration in *Dementia Praecox*.

The occurrence of epilepsy in connection with every conceivable variety of local disease of the cerebral hemispheres is a difficulty in the conception of a fundamental factor for epilepsy in a disordered metabolic state. This organic epilepsy has for the most been considered as something quite separate and apart from idiopathic epilepsy and as having a different clinical aspect and ætiology and requiring a separate description and as amenable to surgical methods. Dr. Collier holds that there is in reality no difference whatsoever between the clinical manifestations of organic epilepsy and of idiopathic epilepsy. The peculiarity in the epileptic attacks which have hitherto claimed as characteristic of organic disease of the brain such as local commencement of hallucination or convulsion, slowspread or restriction of the disturbance to one region with retention of consciousness, are all common features of idiopathic epilepsy. Every conceivable variety of local attack can occur in idiopathic epilepsy. Many times in Jacksonian epilepsy nothing abnormal is found on craniotomy and yet subsequently the attacks may cease, as often happens in local idiopathic epilepsy; and these cases are claimed as a cure by surgical measures. Further, epilepsy is observed to result only in a small minority of organic lesions of the cerebrum, and with some lesions it is very rare. And there is no lesion of the brain that will certainly produce epilepsy, whatever be its nature or position. Obviously, therefore, it is not the lesion of the brain alone which is responsible for the

epilepsy. There must be some other factor which, together with the brain lesion, can produce epilepsy. Dr. Collier opines that this second factor is the same metabolic dyscrasia which is the fundamental cause of idiopathic epilepsy, but existing in a minor degree, so that there are no spontaneous outbursts until the local lesion of the brain is added. He further argues that since a train of phenomena sometimes precisely, and at other times closely resembling those of epilepsy, are well known to occur from disordered nutritional states, interference with important organs of metabolism and from infections and intoxications, all of which are productive of metabolic dyscrasia, it is fair to say that all epilepsy may be similarly caused and that symptomatic convulsions and other epileptic-like manifestations should be included in descriptions of epilepsy, the more so because any of the latter may persist after its apparent cause has disappeared as an established epilepsy. This idea of unity in the cause of idiopathic, symptomatic and organic epilepsy is also supported by the experimental work of Dandy, Elman and others.

Dr. Collier also draws attention to the close affinity to epilepsy—of Migraine, Narcolepsy, Pyknolesy, Vasovagal attacks and Tetany. These are closely associated clinically or though not clinically associated, the manifestations are very like or parallel to those of epilepsy, or they may arise under the same circumstances as does epilepsy, and the only successful treatment of some of them is that which is applicable to epilepsy. He argues that a metabolic dyscrasia is the causal factor in these several conditions also. He includes these maladies in the same clinical and pathological group with epilepsy, of which some of them may be only varieties. He considers migraine as a protracted form of local epilepsy, having its seat of origin most often, but not always, in the posterior regions of the brain and having the special association of swelling of the brain which gives rise to the conspicuous headache and vomiting. Migraine is usually regarded at the present day as dependent upon a metabolic dyscrasia, and its close similarities and relations with epilepsy are of some weight in the hypothesis that epilepsy has a similar origin.

There is a parallelism between many of the signs of Narcolepsy and those of epilepsy, and it is advanced that there is a metabolic disorder peculiar to the individual and alternatively a local lesion of the nervous system. Both of these conditions form the pathological

explanation of the malady. Thus Narcolepsy has a similar pathology as epilepsy, in a metabolic dyscrasia and in local lesions of the nervous system and in some cases the nature of the metabolic change may be such as to produce a coincidence of the two diseases in the same patient.

Pyknolesy is a condition characterised by the somewhat fulminant onset in childhood of attacks indistinguishable from the minor attacks of epilepsy, which becoming very frequent and sometimes innumerable, persists for years with an unvarying monotony of character, but associated with no ill-health and with no impairment of mental or physical development, and utterly uninfluenced by treatment, but invariably come to a spontaneous end some time after puberty never to occur again. The attack in this disease is said to be always an inhibition of the higher psychical processes lasting from five to ten seconds; the power of speech and of voluntary movement is in abeyance, but the automatic movements are retained; the patient stands with limbs relaxed, staring vacantly, but he never falls and never drops anything that he is holding; lids flicker, eyeballs roll upwards, but there is no convulsive movement and consciousness is never entirely lost. It is, in fact, simply a variety of epilepsy. The variation in the nature of the metabolic disturbance which underlies epilepsy is responsible for the type and constancy of the phenomena which result. This points out that in epilepsy, provided that high intelligence be maintained and education be uninterrupted, though the attacks be very numerous over many years and though treatment be entirely futile, there is good hope of complete and lasting recovery.

Dr. Collier regards the vasovagal attacks as distinct, though belonging to the same clinical and pathological group. These attacks, of which little has been written in recent years, have the characters of a longdrawn out petittal attack; the aura, the pallor, and the semi-consciousness last minutes or hours instead of fractions of a second whereas velocity is an essential element in the attack of ordinary epilepsy. Syncopal attacks also are not epileptic, but are to be classed in the same group. The clinical distinctions between the syncopal and the epileptic are not absolute. They are usually personal, but they may be familial and hereditary. They do not commonly commence in childhood, but they do more often after puberty and like the attacks of epilepsy and of migraine they tend to persist

throughout life. One has to make a diagnosis rather from the course of the case than from the nature of the attack.

The site of origin of the disturbance is in the cerebral cortex, because it is when tumours are so situated as to affect the cortex that they are associated with convulsions. But the view is taken that as a result of the disturbance of cortical function, positive and negative phenomena occur, which have their pattern determined by the function of the lower levels of the nervous system. The most commonly occurring feature in all epileptic symptoms is loss of function—*e.g.* loss of consciousness, loss of speech etc., while the positive symptoms which occur such as convulsive movement and sensations of vision or of taste or smell, are elementary crude phenomena which do not seem to belong to the highest levels of the nervous system. By reason of these considerations Dr. Collier adheres to the hypothesis of Hartenberg that the essential element in the epileptic attack is a sudden loss of function in the higher levels of the nervous system and that all the positive phenomena which occur have their origin in lower centres. This, of course, is very different from the orthodox teaching of "cortical excitation" from which there appears now to be a reversion.

As for treatment it is advanced that the less the life of an epileptic person departs from that of a normal person, the better will be the result of medicinal treatment and the more hopeful the outlook in the end. Hence education, occupation and recreation should be continued without restriction. Even excitement, which is well-known as a cause of fits, need not be interfered with. It is better to fortify the patient with a preventive dose before any excitement is to happen and let him go through with it. States of bodily peculiarity and ill-health have so often been held responsible for the onset and upkeeping of epilepsy and the treatment of these considered essential for the betterment of the malady, such as digestive troubles, nasal obstruction and so on. Since the introduction of the malonyl-urea compounds for the treatment of epilepsy, of which luminal may be taken as a type, their great value has gained universal acceptance and the use of luminal has largely supplanted that of the bromides. Whichever drug is used there seems to be no advantage in administering it more than twice a day nor in using any but moderate doses—up to grs. $1\frac{1}{2}$ of luminal and grs. 20 of sodium bromide. The whole purpose of these remedies seems to be to

anticipate and prevent a fit. Therefore it is useless to give these drugs for the treatment of nocturnal epilepsy except in a single dose in the morning, and for epilepsy that occurs both by day and by night, both night and morning. The only other remedies that have any influence are zinc salts and belladonna. Status epilepticus, however, is utterly rebellious to these remedies. In this condition it is necessary to preserve the bodily nutrition and strength by careful watering and feeding and by the use of stimulants. Any remedy which has any depressant effect does more harm than good. Paraldehyde, however, is of signal value in status epilepticus. It is a stimulant besides having a most powerful action in checking convulsion. It can be given in large doses, up to eight drachms without ill-effect and readily absorbed from rectum when mixed with equal quantity of olive oil. This drug is recommended in any epilepsy whatsoever in which convulsive attacks are of frequent occurrence. The above medicinal treatment is applicable to all the maladies grouped under epilepsy.

CURRENT TOPICS.

SURGERY.

Post-operative Complications of Appendicitis.—According to C. W. Cutler, jun. (Amer. Journ. Surg., December, 1927, p. 602), success or failure in the treatment of suppurative appendicitis depends largely on the post-operative events. In a series of 394 cases 41 patients died, giving a mortality of 10.5 per cent. It becomes apparent that in the vast majority of cases procrastination is more dangerous than operation. Peritonitis was the most serious complication, and in these cases the injection of saline solutions and morphine with the Fowler position was the chief line of treatment. Gastric lavage and nitritrin were also employed. High enterostomy was performed for paralytic ileus in five cases, and one patient recovered. Cutler insists that enterostomy to be of any use must be performed early. Secondary abscess was also a serious complication in 18 cases; 5 patients died, including 2 with subphrenic abscesses. In these cases drainage was employed as soon as the abscess had become localized. There were 5 cases of faecal fistula and 2 required further operation to close them. To prevent this Cutler advises that the drains should be moved daily.

Mechanical ileus occurred in 5 cases and necessitated operation. Post-operative hernia was found in 6 cases (1.5 per cent.); to prevent this the wearing of a belt is advised for six months after operation. Pulmonary complications were not frequent, but one patient died from embolism on the fifth day.

Recurrence after Operation for Carcinoma of the Breast.—E. Dahl-Iversen (Lyon Chir., November–December, 1927, p. 648) refers to the numerous attempts to determine the frequency of recurrence of carcinoma of the breast after operation, and adds that the relation between the histological appearances of the growth and the prognosis after operation has not been settled. Statistics show that after the radical operation 45 per cent. of the patients remain for three years without sign of recurrence. In a series of 126 cases he finds that 33 per cent. showed no sign of reappearance of the condition at the end of three years. He concludes that a point on which a prognosis can be given is the size of the tumour; when this was small, the size of a plum, only 17 per cent. showed recurrence, but in large growths, the size of an egg, 57 per cent. showed recurrence within three years. Cases of medullary carcinoma all recurred within this period, as did 57 per cent. of cases of scirrhus. When the axillary glands were involved there was recurrence in 80 per cent., but if the glands were not affected only in 41 per cent. within three years. Involvement of these glands was found in 65 per cent. of the cases. The clavicular glands appear to be affected in 27 per cent. of cases. As experience shows that the clavicular glands may be affected, even when the axillary glands are clear, they should, according to the author, be removed in all cases.

Diaphragmatic Hernia.—S. W. Harrington (Archives of Surgery, January, 1928, Part II, p. 386) reports that an increasing number of cases of diaphragmatic hernia are being detected and that the condition is probably more common than is at present recognized. The embryonic formation of the diaphragm predisposes to herniation at certain sites, and there is a great preponderance of cases on the left side. The types may be classified into the main groups—namely, the traumatic, and the non-traumatic or congenital in origin. The symptoms are often obscure, and indefinite upper abdominal signs demand x-ray examination of the diaphragm. When the symptoms are

mild without incarceration of viscera medical treatment may be adopted. Definite attacks of obstruction due to incarceration demand operation. The abdominal approach is usually preferred, and closure of the hernial opening is essential to relieve the symptoms. Paralysis of the diaphragm by phrenic neurectomy assists in closing large apertures. Eight cases are recorded, with no mortality but with recurrence in one case. The best results are said to be obtained in the traumatic variety of hernia.

Treatment of Fistula in Ano.—Lop (Bull. Soc. de Ther. December 14th, 1927, p. 276) states that he is now less inclined than formerly to operate on fistula in ano. It often happens that a primary localization of tuberculosis may simulate an ordinary acute abscess of the margin of the anus, giving rise to violent pain, interference with defaecation, and a high temperature; in such cases an operation is inevitable. In at least six-tenths of the patients a blind external or complete fistula communicating with the rectum is left, and in such cases Lop considers it advisable not to interfere, even when clinical examination, radioscopy, and laboratory tests show that the lungs are normal. He has found that a localization of anal tuberculosis due to passage through the bowel of infected broncho-pulmonary secretion is much less frequent than a primary localization, if, indeed, it really exists. Lop therefore only operates on cases of anal fistula after carefully examining the lungs and sputum, and investigating the discharge from the wound for the tubercle bacillus. He refuses to operate whenever the bacillus is found in the discharge, even when it is absent in the sputum and nothing abnormal is found in the lungs, nor does he operate on any individual in good health in whom the fistula has been in existence for some time and has not been painful. He has recently seen ten cases in which a radical operation was successfully performed; six of the patients subsequently died of pulmonary tuberculosis. Abstinence from operation applies only to the so-called spontaneous fistulae, since it is required for those which result from trauma of any kind.

Post-operative Biliary Vomiting and Regurgitation.—In Southern Medical Journal (December, 1927) A. L. Lavin states

that post-operative vomiting can be prevented or relieved by the following measures:

1. Careful pre-operative preparation of the patient is necessary.
2. Expert anaesthesia should not be unduly prolonged.
3. Early use of the stomach or duodenal tube is advised.
4. A careful watch should be kept over the alkali-acid balance of the body. If acidosis exists, use a solution of sodium bicarbonate, according to the older methods. Recently the use of glucose and insulin (1 unit per 3 grams of glucose) has been highly recommended. In alkalosis, 1 per cent. sodium chloride with 10 per cent. glucose (a liter 2 or 3 times in 24 hours intravenously) is used.
5. Cardiac stimulation should be employed when necessary.
6. Nourishment must be kept up, the mode, character and quantity according to the condition of the case.
7. Encourage elimination.
8. Early surgical interference is necessary if medical efforts fail to bring quick results.
9. Drugs should be carefully selected.
10. Morphia should be used judiciously.

Head Injury.—John F. Ford (Texas State Jour. of Med., July, 1927) summarizes his views as follows: 1. The mortality rate in head injury cases has not shown a material change in the last fifteen or twenty years. 2. Every head injury case should be considered as serious until it has been investigated thoroughly. 3. A patient may receive a fracture of the skull without suffering a serious injury. It becomes a thing of real moment only when complicated by injuries to the intracranial structures. 4. All cases of head injuries, accompanied by unconsciousness, should be subjected to an early x-ray examination. When it is impossible to do so, in a case accompanied by a hematoma of the scalp, an incision of the hematoma should be made and a direct inspection of the bone performed. 5. Increased intracranial pressure should be estimated early by the use of the spinal manometer as a routine procedure. 6. Temperature, pulse, respiration and blood-pressure should be recorded hourly, until the extent of the

injury is ascertained in these cases. 7. Dilatation of the pupils and the failure of the pupils to react to light with a persistent absence of the deep reflexes should be considered as serious prognostic signs. 8. Nasal and aural haemorrhages may indicate local injury strictly limited to the nose and ears. It is the presence of cerebrospinal fluid draining from the nose or ears which points to a fracture of the skull. 9. The bony defect in skull fracture cases should be filled in with the same bones that are removed at the operation. If this is not possible the best substitute is fascia which contains an abundance of fatty tissue or fatty tissue alone. 10. My experience leads me to believe that local anesthesia is the anaesthetic of choice in most cases where surgical interference is indicated. 11. Long periods of rest in bed following serious head injuries should be insisted upon, in an effort to diminish the percentage of serious and permanent ultimate sequelæ.

Loose Bodies in the Knee-Joint.—Victor F. Marshall (Wisc. Med. Jour., June, 1927) states that loose bodies occur not infrequently in the knee-joint. Its complicated anatomy, the trauma, twists and sprains to which it is subjected as well as the occurrence of general diseases like tabes, tuberculosis and osteoarthritis predispose to their formation. Their presence is manifested by locking of the joint, by pain and in time relaxation of the ligaments. They can frequently be palpated or demonstrated by roentgenograms. The treatment is surgical removal, and this is best accomplished by a median longitudinal incision which gives the widest exposure of the interior of the knee joint. Locating and removing the loose body is facilitated by this method. Following the operation, passive and active motion and having the patient walk within a week or ten days gives the best results.

OBSTETRICS AND GYNÆCOLOGY

Treatment of Asphyxia Neonatorum.—Randell Henderson (Jour. American Med. Assoc., p. 583).—After a prolonged labour the child may refuse to breathe effectively in spite of all the ancient practices. The respiratory centre has been depressed by the diminished blood supply resulting from compression of the head, and needs more than the normal amount of carbon dioxide to stimulate breathing. The baby should not be treated with the slightest roughness, but as gently and with

as little irritation and injury as possible. It should not be allowed to get cold, much less "stimulated" by being plunged in cold water. Nor should it be subjected to certain other ancient and unphysiological procedures, such as the still common practice of allowing an appreciable amount of blood to flow from the cord before it is tied. No blood that can be saved should be lost, for it will be many months before its food contains an appreciable amount of iron.

As to the things that should be done: The child should be carefully kept warm, for it has not yet developed its own heat regulating functions. If the child has not itself spontaneously expanded its lungs by the first cry and does not then continue to breathe normally under the stimulus of its own blood gases, the obstetrician should inflate the lungs a few times slowly and gently. Air from his own lungs may be used—the practice ever since the days of Elisha. But it is better to use oxygen containing 5 or 6 per cent. of carbon dioxide, or perhaps even with a higher percentage of the stimulating carbon dioxide. Continue to administer an inhalation of the mixture of oxygen and carbon dioxide as long as respiration is subnormal without it. If the respiratory centre is incapable of normal activity under these conditions, no amount of irritation of the afferent nerve endings in the skin will induce continuing respiration. As a stimulant to respiration, nature offers carbon dioxide, but no alternative.

Administration of oxygen alone, either for the inflation of the lungs or for inhalation, is far less effective than oxygen and carbon dioxide, for oxygen has not a stimulating action on respiration. Artificial respiration is to be avoided apart from the few initial inflations. Even these inflations should be gentle.

Any one of the common anæsthetic inhalers having a rubber bag may be used. For the mask, the nose piece used by dentists is a convenient size for the infant's face. The lungs are expanded by gently compressing the bag. Until hospitals and obstetricians are provided with an apparatus for the inflation of oxygen, and with cylinders of oxygen and carbon dioxide, remember, when the baby does not breathe, that the fire department in every progressive city has such equipment.

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Spinal Anaesthesia in Obstetrics.—S. A. Cosgrove (*Amer. Journ. Obstet. and Gynecol.*, December, 1927, p. 751), as the result of an experience of 54 cases concludes that spinal anaesthesia has an important place in obstetrics, since theoretically it appears to be ideal for use in pre-eclamptic or eclamptic operative procedures. In practice he has found it free from danger, except in hypotension, the safe systolic minimum being 110 mm. Hg; it is unfitted for first-stage analgesia on account of its short duration. Working with a dosage of 50 mg. in the fourth lumbar interspace for vaginal and perineal operations and 75 mg. at the third interspace for laparotomies, he uses needles of small calibre, 22 to 20 gauge, dissolving weighed quantities of sterilized novocain crystals from sealed ampoules in 2 to 2½ c.cm. of spinal fluid, and injecting as slowly as possible with the patient on her side. At the end of the second stage there is entire soft-tissue relaxation which may obviate lacerations or the necessity for episiotomy. Its chief usefulness should be in conditions for which a general anaesthetic is contraindicated, and it appears to be directly conservative of both maternal and foetal life. Cosgrove claims that in obstetric laparotomies it has the same advantages as in general surgery—giving complete anaesthesia and muscular and visceral relaxation, with relatively slight bleeding, minimal post-operative discomfort, and a smooth convalescence. For operative procedures in pregnancy toxæmia and eclampsia this method is especially indicated.

Causes of Uterine Haemorrhage.—R. Magarey (*Med. Journ. of Australia*, October 8th, 1927, p. 504) agrees with Whitehouse's classification of excessive uterine bleeding into (1) epimenorrhoea, or too frequent menstruation; (2) menostaxis, or too prolonged menstruation; (3) true menorrhagia, or too great a loss at a period otherwise normal; and (4) metrostaxis, or irregular uterine bleeding. Under extra-genital causes of haemorrhage he refers first to excessive thyroid action, and attributes menorrhagia at the end of lactation to a continuance of the increased thyroid activity of pregnancy; the appropriate treatment is radiation of the thyroid and the exhibition of calcium salts. He next mentions influenza, when the menorrhagia is only temporary. As regards the uterine causes, the retention of the products of conception is common even when the confinement has been normal; in inevitable abortion

the author does not advise immediate curettage, but advocates packing the vagina tightly for twenty-four to thirty-six hours, dilating the cervix and stimulating uterine contraction; this facilitates the subsequent curettage and lessens hæmorrhage. Under malignant causes of hæmorrhage endocervical carcinoma is important, because it may be easily missed before the tumour has reached the vaginal surface; even a diagnostic curettage may fail to detect it, the only indication of its existence being the fusiform shape of the cervix from the external to the internal os. Non-malignant causes most commonly over-looked are: (1) small sessile cervical polypi, which are easiest found by inspection; (2) intrauterine polypi, often associated with small fibroids, and frequently missed at a curettage—these may cause temporary amenorrhœa, followed by profuse loss; (3) enlarged, thickened, and possibly lacerated cervix; (4) previous operations on tubes or ovaries, because the infection which necessitated operation has caused a fibrosis uteri; in such cases complete hysterectomy is necessary. The author has found treatment by radiation particularly useful for menopausal hæmorrhage, especially if due to sub-involution and to fibroids. He adds that it should be remembered that the full effect of radiation is frequently delayed for several months, during which time menstruation may be quite irregular, and that for six weeks or so the patient may have a rather profuse leucorrhœa.

Uterine Rupture during Labour.—V. Oooq and J. J. Saccœk (Bruxelles-Médical, January 1st, 1928, p. 269) record three cases of uterine rupture during labour, and describe in detail a fourth personal one. In one case the rupture was evidently caused by manual or instrumental intervention, death ensuing during the confinement. In another case the rupture was apparently spontaneous, and a subtotal hysterectomy was performed. The patient, a multipara aged 35 progressed favourably after the operation, but broncho-pneumonia supervening on the fifth day she succumbed in six weeks. The authors classify uterine rupture as incomplete, and complicated with involvement of neighbouring organs; it may be of traumatic origin or occur spontaneously. They agree with Bandl that certain spontaneous ruptures in multiparae are due to an exaggerated development of the uterus, the result of former

pregnancies, which by too strong and too frequent contractions can cause a tear of the lower segment. Factors predisposing to rupture are multiparity (only 6 to 12 per cent. occur in primiparae), neoplasms, cicatrices (the result of previous operations), degeneration of the uterine muscular fibres, and any factors causing abnormal resistance to the uterine contractions, such as retracted pelvis and hydrocephalus. Two important traumatic causes are version and ill-judged forceps application. The prognosis is bad, the maternal mortality being 60 per cent. and the foetal 96. The treatment in these cases, as soon as a diagnosis is made, is abdominal section followed most frequently by subtotal hysterectomy, though in exceptional cases suturing of the uterine tear is sufficient. Extraction of the child through the natural passage is indicated only when the presenting part is deeply engaged in the pelvis. The authors strongly deprecate version and the application of forceps to a non-engaged head, or before dilatation is complete. Internal podalic version in a uterus void of liquor amnii, and especially if preceded by forcible dilatation, is fraught with grave risks to both mother and infant.

OPHTHALMOLOGY.

The Ocular Manifestations of Epidemic Encephalitis.—According to G. W. Vandegrift (Med. Journ. and Record, December 21st, 1927, p. 729) paralysis of convergence is a very common prodromal symptom of epidemic encephalitis; the patient complains of double vision, especially on reading. Instead of paralysis of convergence there may be a paralysis of a lateral muscle, usually the external rectus, with homonymous diplopia, or a paralysis of divergence with the same diplopia without paralysis of either external rectus. While ptosis may accompany any of these paralyses it is more likely to be a later development. Fundus examination reveals marked fulness of the central vein and its branches. Optic neuritis is rare and choked disc develops only as a result of very high intracranial pressure. As the severity of the disease increases, photophobia and visual irritability appear. The usual ocular paralysis is of the third and sixth nerves, separately or in various combinations; abducens and levator palsies are common. Fourth nerve paralysis is rare. Associated with the ocular palsies may be disturbance of other cranial nerves, especially the fifth, seventh, ninth, and tenth, and any or all of these may be accompanied

by sympathetic disturbance. The pupillary reactions show a great variety; one or both eyes may be involved, and, when binocular, the phenomena may be similar or dissimilar. In 35 per cent. there was defective pupillary light reaction with irregularity and inequality. The Argyll Robertson pupil may be present, though more frequently the convergence is absent as well as the light reaction. As the acute encephalitis subsides the ocular symptom may disappear or persist, or there may be a recurrence of ocular symptoms after periods of absence or quiescence. The value of treatment is doubtful, but bismuth salicylate intramuscularly and sodium iodide internally may be of benefit in some cases. In the later stage a cosmetic operation may be needed.

The Causation of Glaucoma.—Glaucoma is essentially an increase in the intraocular fluid pressure, greater than the inextensible outer coat of the eyeball is able to sustain without involving serious injury to the visual mechanism which it encloses. The fluid content of the eyeball is in either constant or intermittent flux, the ingress depending either, as Treacher Collins first taught, on the secretory activity of the ciliary body, or, as W. E. Duke-Elder maintains, on the osmotic interchange of fluid through the capillary walls, whilst the egress depends, apart from this same osmotic interchange, on the efficiency of the drainage system. In normal eyes this is so perfect that any extra influx of fluid into the eyeball is at once compensated for by an extra outflow of an equivalent amount. It was at one time supposed that the cause of glaucomatous rise of tension is to be found in an increased influx of fluid, and recently this idea has been revived by E. P. Fortin. On the other hand, the view till lately almost universally held is that the cause of high tension is an interference with the drainage system by the partial or complete closure of the angle of the anterior chamber, rendering it difficult for the aqueous to have access to Schlemm's canal. Nevertheless, Duke-Elder, in the work already referred to, inclines to the opinion that obstruction to the exit of fluid is a secondary or adjuvant factor in the ætiology of the disease. In chronic glaucoma adhesions of the periphery of the iris to the back of the cornea have been demonstrated and it is generally believed that such adhesions are facilitated by a large crystalline lens, a relatively small cornea, a swollen ciliary body, and, generally speaking, by anything which increases the pressure from behind the

iris, causing the anterior chamber to be shallow. It is in these cases that the trephining operation is most likely to be successful. In glaucoma secondary to iritis or to some other primary cause the matter is not so simple. We must attack the primary condition. There are yet other cases which may show a glaucomatous cupping of the disc and a progressive contraction of the visual field without a shallow chamber and without any demonstrable rise of tension. Long ago Schnabel called these cases "cavernous atrophy of the optic nerve." Others have observed similar cases of late years, and it is difficult to understand how a trephining operation could do them any good. But borderland cases also occur in which periods of raised tension may be few and far between but do occur. We shall have to recognise that the term "glaucoma" is a wide one covering cases of varying pathology and possibly requiring varying treatment. Meantime, with regard to the great majority of cases the weight of opinion among ophthalmic surgeons in this country will coincide with the views put forward by Mr. Leighton Davis in the article which appeared in our columns last week. It is well to remember, however, that though the trephining operation is an excellent one it can scarcely be deemed perfect. No operation in which the failures amount to as many as 9 per cent can be considered as such, and no ophthalmic surgeon can undertake an operation for glaucoma without a certain amount of anxiety as to the result. In these circumstances, and in view of the number of cases in which any operative treatment is for one reason and another impracticable, we do not think that the importance of treatment by eserine should be minimised. In some cases it is capable of preventing the vision from deteriorating for years; though this may be exceptional, and though the practice of relying upon it in cases in which it fails to reduce the tension to normal or to prevent a progressive contraction of the field can only be condemned, yet there are few cases of glaucoma in which its use as a temporary expedient is not called for. The pathology of the disease is still a matter of debate, and it would be a mistake at the present time to be dogmatic about it.—*The Lancet*.

Fundus Changes in Arteriosclerosis.—W. B. Lancaster. (Boston Med. and Surg. Journ., p. 1346)—Arteriosclerosis can often be detected in the retina before there is evidence of it in

other parts of the body, not because it attacks the retina first, but because the ophthalmoscope so facilitates study of the vessels in the eye.

Visible Walls.—The normal vessel walls are invisible because transparent. When they are sclerosed and thickened, they become visible. In the early stages it is easiest to see this where an artery crosses a vein. The artery conceals the vein not only (as under normal conditions) for the width of the blood stream, but in addition for the width of the vessel walls, because they are now sufficiently opaque. Ordinarily when an artery crosses a vein, the vein is visible right up to the red blood stream, the walls not being seen. In sclerosis the underlying vein is obscured not only for the width of the opaque blood stream but for a distance each side equal to the thickened arterial wall.

Indentation of veins.—Another effect, and one of the most easily recognised, is indentation of the vein by the artery at its crossing. Exceptionally this leads to banking of the blood in the distal portion of the vein.

Rectangular Crossing.—Evidence of sclerosis is also seen in the rectangular crossing of a vein under or over an artery where they originally met at an acute angle. As a result of the thickening and increased rigidity of the artery, the course of the vein is changed so that instead of running in a long oblique line across the artery, it takes the shortest path, which is square across. This indicates advanced sclerosis.

Irregularity of Lumen.—The incidence of the changes in the vessel walls is not uniform. Whether the thickening encroaches on the lumen, the column of blood is narrower. Proliferation of the intima is particularly responsible for the reduction in the lumen, as is seen in cases of obstruction of the retinal vessels.

Copper Wire Artery is an exaggerated brightness and modified colour of the normal reflex streak seen on the retinal arteries and due to the thickened media. It is not easy to be sure that the reflex is more than normally bright, so that this is not a sign to be relied upon.

Tortuosity.—When the arterial wall undergoes hypertrophy, it enlarges in all directions. It becomes thicker, but also considerably longer. The increase in length produces tortuosity. The variation in tortuosity in normal vessels in the retina is so great that this is not an important aid in diagnosis.

Silver Wire Arteries.—Here the periarteritis has resulted in such thickening and opacity of the vessel wall that the blood stream is hidden beneath the white wall of the artery. The artery looks white, rather than red. Usually this is not uniformly distributed, but shows in patches on one or a few branches. It is a mark of advanced sclerosis. This condition is also called "pipe-stem sheathing." It does not obstruct the lumen.

Hæmorrhages in the retina take their form from their site. If located in the superficial nerve fibre layer, where all except the finest branches of the vessels are situated, the blood spreads between the nerve fibres in flame-shaped, striate, radiate hæmorrhages. If the bleeding takes place in the deeper layers of the retina, the shape of the hæmorrhage is approximately round, since the anatomical structure permits the blood to spread in all directions with equal facility.

As a general rule to which there are very many exceptions, the hæmorrhages due to vascular disease (arteriosclerosis with hypertension) take the flame shaped form because they are situated in the superficial layer. They are most numerous also in the posterior part of the eye, where the retinal vessels are larger. On the other hand, hæmorrhages of toxic origin, such as those occurring in purpura and other blood diseases and in diabetes and nephritis, are small, round, and deeper-seated. Hæmorrhages in diabetes or nephritis of vascular, not toxic, origin, would, according to this classification, be in the nerve fibre layer and therefore flame-shaped. These small retinal hæmorrhages are absorbed in a few months; but new ones are being formed, so that the picture is not much altered.

If we take the early changes in the vessel walls as the first stage of arteriosclerosis, the hæmorrhage is the next; and that is followed later by tiny white spots or dots. This is *arteriosclerotic retinitis*. The white spots are small, less than the thickness of a primary retinal vein in diameter, not numerous at first but later they increase in number and may become confluent, forming good-sized patches. They are frequently limited to one eye for a long time, whereas the white spots or patches of renal origin are rarely limited to one eye for more than a short time in the earliest stages.

In advanced sclerosis the lumen may be so encroached upon that the blood supply beyond is precarious. Any slight spasm at a point where the lumen is already small may so

reduce the blood supply beyond as to produce scotoma, due to the ischemia, in spite of a high blood pressure. Foster Moore has shown that the intra-arterial pressure in the retinal arteries may be quite low when the general arterial tension is high. Any cause reducing the general blood pressure may so far lower the pressure in the obstructed retinal arteries as to produce sufficient ischemia for symptoms to appear. This may be transient, or last some time. The patients complain of a blur coming over the page so that they have to stop reading. After a few minutes' rest, sight is recovered. Fatigue favours transient ischemia. Sometimes the blur may be due to ischemia in the brain, not in the retina.

The significance of retinal arteriosclerosis is that the arteriosclerosis is not limited to the retina. Of the other parts which may be affected only three are of much importance—kidneys, heart, and brain.

DIFFERENTIAL DIAGNOSIS.

The white spots in renal retinitis are typically large, cotton-wool-like patches, sometimes resembling snowbanks. When small, the spots are more numerous and may be arranged in fan-shape or star shape about the macula, but even then they are larger than the spots of arteriosclerotic retinitis. The lesions are bilateral except in the early stages, while arteriosclerotic retinitis is often limited to one eye. The two conditions grade into each other because arteriosclerosis is often complicated by nephritis and *vice versa*. Hæmorrhages are common to both forms. Oedema is an important ophthalmoscopic feature of renal retinitis. It is visible in some degree in most cases. If severe, diagnosis is easy, as both retina and nerve head are affected. In slight degrees, diagnosis is difficult because it depends on rather indefinite appearances.

TREATMENT.

The early detection of arteriosclerosis may be made of benefit to the patient provided it results in such modification of habits and mode of life as will tend to arrest the progress of a disease which in its early stages causes little or no reduction in efficiency but is bound to progress if disregarded. Work should be adapted to capacity to carry on without strain. To say, "Take a vacation" or, "Cut down your work," "Don't eat so much," "Take regular but not excessive exercise," etc. is only the beginning. Some one must see that the advice is followed intelligently.—*Med. Rev.*

MEDICINE AND THERAPEUTICS.

Tularaemia.—L. L. Merriman (Minnesota Med., December, 1927, p. 719), who records four cases originating in Minnesota, remarks that tularaemia which in nature occurs in wild rats, ground squirrels, and wild rabbits, may be transmitted to man by (1) handling diseased animals; (2) contamination of the hands or conjunctiva with the tissues or body fluids of diseased animals; (3) the bite of diseased animals; (4) contamination of the hands or bites of flies, ticks, bed-bugs or lice which have bitten diseased animals; (5) the bite of any animal that has eaten diseased rodents. The causal organism, *B. tularensis*, can penetrate the unbroken skin or conjunctiva, but a frequent portal of entry is a wound. Laboratory workers are very prone to contract the disease. The organism is Gram-negative, and non-motile and non-spore-bearing; it occurs in both bacillary and coccoidal forms and appears early in the blood of the lower animals as well as in man. It grows well on coagulated egg yolk and blood glucose, and on cystine agar, but not on ordinary media. Four types of the disease are described: the ulceroglandular, oculoglandular, glandular, and typhoidal. The period of disability is rarely less than a month. The mortality is not high, but occasionally a fatal case occurs. Tularaemia must be distinguished from typhoid fever, septicaemia, tuberculosis, and Malta fever. The following points are of diagnostic value: a history of contact with rabbits or rodents or of bites; a primary papule or wound; persistent local glandular enlargement; fever of two to four weeks' duration; a negative Widal reaction; and a relatively low leucocyte count. The diagnosis is proved by agglutination of *B. tularensis* with the patient's serum. The treatment is entirely symptomatic.—*British Medical Journal*.

Treatment of Syphilitic Cardio-vascular Diseases.—A. Sezary (Bull. et Mem. Soc. Med. des Hop. de Paris, December 1st, 1927, p. 1547) agrees that antisiphilitic treatment should be modified in the case of patients suffering from any grave cardiac, hepatic, or renal complications which are not of syphilitic origin. Advancing age is not a contraindication to the use of the arsenobenzols, but only necessitates their careful administration. He doubts whether there is any real danger of aggravating the arterial hypertension in the case of aged syphilitic patients by specific medicaments, even when the hypertension is

non-syphilitic, and thinks that the treatment of cases of cardiac syphilis, as of syphilitic skin diseases, should be governed by the individual circumstances. In ordinary cases bismuth and mercury are most often employed, but neosalvarsan remains the most powerful agent, and occasionally mixed arsenical and bismuth treatment is indicated. Patients under the age of 50 bear the treatment better and the clinical diagnosis of cardiovascular syphilis is easier in such cases, since atheroma and arterio-sclerosis are seldom present. Syphilis may play an important part in cardio-vascular disease in much older patients; angina pectoris and aortitis may yield to antisyphilitic treatment even though the clinical diagnosis of syphilis is not fully established. Such treatment should be neither brief nor insufficient, and arsenic, bismuth, or mercury should be used, as indicated clinically. Unsatisfactory results may be due to the presence of atheroma or to degeneration of the tissues. Three cases of aortic aneurysm treated with bismuth are reported. One patient was relieved, and skiagrams showed that the aneurysm had not increased in size. In the two other cases, however, the symptoms became worse, and in one of these, in spite of three courses of bismuth, the aneurysm increased to double its size in a few months. The results of specific treatment of angina pectoris are, however, so encouraging that it should be given in all cases where syphilis is suspected. Sezary quotes seven cases, in four of which the results were very good. One man, aged 61, contracted syphilis when 23: the slightest exertion caused an anginal attack. He was treated with bismuth for two years; the attacks gradually decreased and finally disappeared, and the patient was able to lead an active life. In three other cases, however, the patients were not relieved. The average age of those who were relieved was 56.5 years while that of those who were not relieved was 51 years. Of the former two were treated with novarsenobenzol and two with bismuth; of the latter, one was treated with novarsenobenzol and the other two with bismuth. In aortitis the disappearance of bruits cannot be expected, but symptomatic improvement may follow specific treatment although the Wassermann reaction remains positive. Of twelve cases of aortitis five were greatly benefited. Sezary believes it possible to cure completely syphilitic cerebral arteritis and advises that intensive treatment should be started immediately in all cases of hemiplegia in young subjects unless contraindicated by grave visceral disease.

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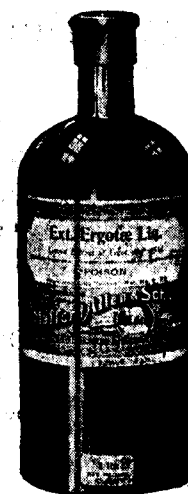
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Treatment of Bronchial Asthma.—H. B. Wilmer (Arch. Phys. Therapy, January, 1928, p. 18) maintains that the infra-red and ultra-violet rays should be used in all cases of bacterial sensitivity as an adjunct to bacteriotherapy. The treatment is indicated in all children suffering from asthma, no matter what the cause, who are definitely anaemic and show evidence of rickets; in all patients whose living conditions are poor with inadequacy of sunlight; and in adults with a dry cough and very tenacious sputum. Of 20 children aged from 2 to 10 years, 14 were relieved, 3 improved, and 3 showed no benefit from this treatment; of 12 patients aged from 10 to 21, 6 were relieved, 2 were improved, and 4 were not benefited; and of 50 between 21 and 72 years of age, 30 were relieved, 8 improved, and 12 were not benefited. Most of them had been unsuccessfully treated by various methods before radiation was employed.

Oedema due to Hypothyroidism.—P. Pagniez and L. Rouques (Bull. et Mem. Soc. Med. des Hop. de Paris, February 23rd, 1928, p. 268) illustrate the occurrence of oedema in hypothyroidism by describing a case of this nature. A woman, aged 32, had noticed for six weeks gradual swelling of the legs and arms which interfered with the movements of the limbs. When first observed the oedema, which was hard, tender, and pitting only on firm pressure, reached to the elbows and almost up to the knees. Pain was present, not only on movement, but at rest also, and there was insomnia from this cause, but x-ray examination revealed no lesion or enlargement of the bones. There had been no remissions since the onset, and no significant history of previous illness was obtained. The extremities were cold and cyanosed, there was no evidence of endocrine disturbance, and complete examination revealed no sign of myxoedema or Graves's disease, nor any further abnormality except a regular tachycardia of 120, which did not yield to rest. Treated by diuretics and calcium chloride the patient made no progress, but on administration of thyroid extract in doses increasing from 0.05 to 0.1 gram daily the swelling and cyanosis gradually disappeared, the oedema resolved, and movements of the limbs became unrestricted. Some months were needed for restoration to the normal, but nine months after starting treatment withdrawal of the drug occasioned relapse. After a year's treatment only slight non-progressive oedema appeared on discontinuance. During this period the pulse rate fell steadily to 80. A study of the literature shows

that oedema of this nature occurs principally in thyroid lesions—for example, in Graves's disease—and in certain allied conditions showing permanent tachycardia and tremor without goitre or exophthalmos.

High Blood Pressure and Focal Infection.—In M. J. & Record, Sept. 7, 1927, Dr. L. Napoleon Boston, of Philadelphia, gives the clinical data regarding 20 patients between 30 and 50 years old and 25 patients of over 50 years, all of whom showed a systolic pressure exceeding 200 mm. These are selected cases in which any other pathologic condition than the presence of a focal infection could be excluded.

The important clinical symptoms, vertigo, cephalalgia abdominal angina, mesenteric angina etc., observed in these cases are described.

Twenty-two of these patients were cured, 13 improved and 9 unimproved after removal of the infecting focus. By cured is meant that the blood pressure was restored to normal, with the disappearance of annoying symptoms, verified for at least a year following treatment.

The character of the focal infections differed widely in these cases, but there was no doubt of the direct connection:

Sodium Chloride Injections in Acute Intestinal Obstruction.—A Gosset, L. Binet, and D. Petit-Dutaillis (*Presse Med.*, January 7th, 1928, p. 17) conclude, from a study of the evidence obtained by French, British, and American research workers, that the increasing toxæmia from the moment when obstruction occurs is due to the using up of the sodium chloride in the blood in the course of the conversion of toxins into some innocuous compound. They give experimental figures to show the decrease of sodium chloride in the blood after experimental tying of the intestine in dogs, and record how, in other experimental cases where the intravenous administration of hypertonic saline solution has kept the sodium chloride content of the blood at the normal level, the life of the animal has been prolonged beyond the usual three or four days after operation to as much as twenty-eight to thirty days. The authors think that the diminution of the sodium chloride content of the blood is a far more important factor in cases of intestinal obstruction than the mere loss of fluid by vomiting; moreover, they show

how the urea and residual nitrogen content of the blood constantly rises as that of the sodium chloride falls. They describe cases of acute intestinal obstruction in human beings where severe toxic symptoms had supervened in spite of surgical relief of the condition, and in which the administration of hypertonic sodium chloride intravenously had brought the patients from a moribund to a convalescent state. In one series of cases reported in America there was an operative mortality of only 11.1 per cent, as compared with 50 per cent. in another series not treated by this method. The authors consider that intravenous medication should be begun immediately after operation; the longer the delay the less is the likelihood of success. The maximum dose is given as 1 gram per kilo of body weight during forty-eight hours (that is, about 70 grams for a man of average weight), but a total quantity of about 20 grams is said to be sufficient to make good the loss of body fluid. Subcutaneous administration of 1 litre of physiological serum should be given during the same forty-eight hours. Although stronger concentrations have been used without mishap it is recommended that a 10 per cent. hypertonic saline solution should be employed, and that not more than 30 c.cm. should be given at a time.

Therapeutic Uses of Carbon Dioxide.—J. C. White and L. M. Huxthal (*Boston Med. and Surg. Journ.*, December 15th, 1927, p. 1117) review the present therapeutic status of carbon dioxide, especially with regard to research during the past seven years in its use as a respiratory stimulant. In concentrations varying from 5 to 7 per cent. its use is recommended for all purposes where a respiratory stimulant is needed, but in cases of carbon monoxide poisoning it should be given in oxygen rather than in atmospheric air, since by this means the dissociation of carbon monoxide hæmoglobin is more rapidly brought about. The authors mention its value in the elimination of volatile drugs—as, for example, in de-etherization after anaesthesia by the closed method and in alcoholic intoxication—and as a means of producing smooth and rapid induction in a struggling patient or in one who persistently holds his breath. In combating respiratory failure after overdoses of depressant drugs—for example, morphine or veronal—it has been used with success, as also

in the treatment of prolonged hiccups and in the resuscitation of the newborn. Owing to its action in increasing respiratory effort it aids expansion of the atelectatic lung, and its use in the obliteration of large empyema cavities is recommended as an accessory to the usual breathing exercises. The authors consider that there is practically no contraindication to its use in sufficient quantities to produce moderate degrees of hyperpnoea and to supplement without replacing other therapeutic measures.

BOOK REVIEWS.

AN INTRODUCTION TO MEDICAL PROTOZOOLOGY.

By Robert Knowles, B.A., M.R.C.S. (L.R.C.P.), Lt. Col., Indian Medical Service; Professor of Protozoology, Calcutta School of Tropical Medicine, 1928. Pp. 887 with 15 coloured plates and 174 text illustrations. [Thacker, Spink & Co., Calcutta] Price Rs. 25.

Lt. Col. Knowles has placed us all under a deep debt of gratitude by publishing in a clear, up-to-date, easily readable manner a not very expensive book on protozoology. The book is divided into three parts. Part I describes in a series of nineteen lectures the main facts which are known about the parasitic protozoa of man. Rhizopoda, Mastigophora, Sporozoa and Ciliata are successively dealt with. The Intestinal Amœba are clearly described. An appendix is given which describes the diagnosis of dysenteric stools. The Mastigophora including the Trypanosomes, the Leishmania and the allied flagellates receive considerable attention. The chapters on Leishmaniasis are among the best in the book. The author's extensive experience of these diseases, especially Kala-Azar, in India, make these chapters, fascinating reading and authoritative in their information. The true history of the work on the transmission of Kala-Azar can be lucidly learnt from the pages of this work. Col. Knowles has hard things to say about Paton and his associates who worked on the bed bug theory, and about the 18 years of work being a monument of wasted and misdirected effort, but we must admit that the last thing on this transmission problem has not yet been said and that Paton and workers of his school were all actuated by the one and only desire to solve the problem of Kala Azar transmission. Researches have perhaps solved the problem differently, but to Paton goes the credit of having started the controversy which ultimately led to what is perhaps the solution of the problem. The Sporozoa, especially the plasmodia, are fully dealt with. The Ciliata are also described in detail. Although

the spirochaetes are not regarded as protozoa they are fully considered. Part II deals with laboratory methods. This portion of the book is replete with practical tips on almost all subjects the laboratory worker has to deal with. Insect dissections, cultural methods, micrometry etc., are all described in detail. Part III is devoted to references to literature and includes all the important publications on subjects dealt with in Part I. The index and the very illustrating coloured plates and half tones complete the book. In publishing such a volume much that may be unnecessary to the average, or even the special worker, or minor errors in description may creep in, but these, we are sure, do not detract appreciably from the general excellence of the work. We heartily congratulate Col. Knowles on having produced a book which, while including the results of his own personal work, also includes a review, as it were, of the existing knowledge. To the student of tropical medicine, and to all who are interested in tropical diseases the book will be of very great use.

THE CONDUCT OF MEDICAL PRACTICE.

By the Editor of the Lancet and expert collaborators. Published by "The Lancet", 1, Bedford Street, London, W.C. Price 10 s. 6 d.

This volume contains much of a series of chapters which have been appearing in the Lancet for some time under the common title of "The Conduct of Medical Practice". It consists of VI parts. Part I deals with the medical career, which includes a chapter on the preliminary examinations, the professional examinations, the medical curriculum and such other topics relative to Medical Education in the United Kingdom. The chapter on 'choice of career' is both informative and instructive. Part II discusses how a practice should be started, how the terms of purchase or terms of partnership should be settled, the position of medical assistants and locum tenens and other kindred subjects. Part III treats of matters which must certainly interest the medical profession in India. The constitution and functions of the General Medical Council of Great Britain, the Registration of Medical Practitioners, the penal procedure against infamous conduct on the part of the Medical Practitioner, the issue of Certificates, Notification of Infectious Diseases, offences such as covering, advertising and canvassing, the sale of poisons etc., are clearly set forth under 9 chapters in this part which enhance the value and importance of this book and reflect the real worth of the contributors. Part IV relates to Medico-Legal situation, a subject which must arouse equal interest among Medical Practitioners in this country. Information regarding Public Services such as the Navy Medical Service, the Army Medical Service which includes the Indian Medical Service, the Colonial Medical Services, the Civilian Public Services including the Poor

law Medical Service in England, is given in part V. Part VI is appendix giving instructions to the General Medical Practitioner on the two essential and indispensable items of book-keeping and Income-Tax Return with which the General Practitioner must be well-acquainted. The Lancet, has by the production of this inestimable book, placed the medical profession in the whole world in general, and of the British Commonwealth in particular, under a deep debt of gratitude and no praise will be too high for the services which the Lancet has rendered to the profession at large. We heartily commend this book to every reader of the Antiseptic and the rest of the medical profession in India.

THE DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES

By David Lees, D.S.O., M.A., M.B., F.R.C.S. Surgeon in charge of Venereal Diseases. The Royal Infirmary, Edinburgh. 605 pages, illustrated, 1927. [E. & S. Livingstone, Edinburgh].

The subject of venereal disease has become an important part of the medical curriculum of to-day and an important branch of public health work. The general practitioner and the public health worker are the two who can really do something to prevent the spread of venereal disease. The old standbys—glass syringes, Pot. permanganate, Zinc sulphate, Mercury and Iodide of potassium—have given place to more modern and scientific methods of diagnosing and treating venereal diseases. Syphilis and Gonorrhœa can be said to be at the bottom of most troubles the human flesh is heir to. Therefore no man can be said to know too much about these diseases. Dr. Lees who is an experienced teacher with a mass of valuable material at his command has succeeded in producing a book which is essentially practical. Part I of the book deals with Syphilis. The interesting chapters in this section are those on diagnosis, generalised syphilis, the cerebro-spinal fluid and treatment. Part II deals with Gonorrhœa. Starting with an account of the anatomy of the male urethra the author proceeds to give a detailed description of the clinical examination of the patient, the complication of urethritis in the male and female and treatment. Probably the most important chapter from the social point of view is that dealing with the standard of cure in Gonorrhœa. A pharmacopœia and an Index complete the book. It is profusely illustrated with illustrations from the author's own cases. The general get up is very satisfactory. We have no hesitation in saying that it is one of the best books on the subject. Every student, medical practitioner and public health worker will find it very useful.

ORTHOPÆDIC SURGERY.

By W.A. Cochrane, M.B., Ch. B., F.R.C.S.E., Asst. Surgeon, The Royal Infirmary, Edinburgh. Late Clinical Asst., Orthopædic Department, Massachusetts General Hospital, Boston, U.S.A. Pages 528. Illustrations 504. [E & S. Livingstone, 16 & 17 Teviot Place, Edinburgh].

The book under review presents the main principles and essential details of Orthopædic surgery. Unnecessary details in pathology and clinical features have been carefully omitted. By reading this book the student will learn how to discover crippling conditions and physical blemishes at an early stage and will appreciate the preventive aspect of these conditions in their ætiological significance. In this first part of the book the author attempts to present a study of bodily mechanics and posture with reference to the body as a whole as a basis for the restoration of function. This section emphasises the link between this speciality and other special branches of medicine and surgery. The second part deals with the disabilities and deformities of the foot, ankle, knee, hip, spine, thorax shoulder, elbow, hand and wrist and torticollis. A large number of X-Ray plates and blocks of actual cases is a special feature of the book. A perusal of this book will guide the student and general practitioner how to intelligently handle these crippling conditions.

A POCKET GUIDE TO MEDICAL LIFE ASSURANCE.

By J. J. Cursetji M.D., L.R.C.P., L.R.C.S. L.M. & S. 2nd Edition. Pp. 85 with appendix. Published by Oriental Life Assurance Company. ["Times of India" Press, Bombay.]

We have great pleasure in reviewing this guide to Medical Life Assurance by Dr. Cursetji, the Chief Medical Officer of the Oriental Life Assurance Company. This is the second edition. The book deals with almost all the problems which an examiner in India is called upon to tackle. A detailed description is given regarding the correct method of examining an applicant, his family and personal history, his present state of health and environments. Special pages are set apart for the examination of Indian women for life assurance. An appendix giving an analysis of average heights, weights, chest and abdominal measurements of Indian assured lives based on over fifty thousand lives accepted by the Oriental Life Assurance Company of Bombay and dealing with different Indian races is included. The book is much more than a "pocket guide". It is bound to be of very great use to all medical examiners in India.

BOOKS RECEIVED.

The following books have been received and the courtesy of the Publishers in sending them is acknowledged. Reviews will be published from time to time. [ED. ANTISEPTIC]

Kala-Azar.—By L. Everard Napier, M.R.C.S., L.R.C.P. (Lon). Published by the Oxford University Press, and Messrs. Constable & Co., P.B. 31. Bombay.

Surgical Dressing.—By Lt. R. C. McWatters. Published by Messrs. Thacker Spink & Co., P. O. Box 54, Calcutta. Price Rs. 3-8-0.

Malaria.—By Lt. Col. Robert Knowles and Ronald Senior-White. Published by Messrs. Thacker Spink & Co., P. O. Box 54, Calcutta. Price Rs. 7-8-0.

Diary for 1928.—Published by Messrs. The Nestle & Anglo-Swiss Condensed Milk Co., Calcutta.

Incompatability—By S. K. Mukherji M.B. Published by Rai Sahib B. N. Mukherji & Son, 44, Badur Bagan St., Calcutta.

Histology.—Published by Messrs. E. & S. Livingstone, 16 and 17, Teviot Place, Edinburgh. Price 1 s. 6d.

The Treatment of Pulmonary Tuberculosis.—By Dr. Marg. Jaguerod. Published by Messrs Baillere Tindall & Cox, 7 & 8 Henrietta St., Covent Garden, London W.C. 2. Price 1 s. 6d.

The Conduct of Medical Practice.—By the Editor of the Lancet and Expert collaborators. Published by the Lancet Office, 1, Bedford St., London W. C. 2. Price 10 s. 6d.

Physical Diagnosis.—By Richard C. Cabot, M. D. Published by Messrs. William Wood & Co., 51, Fifth Avenue, New York.

Management of the Sick Infant.—By Langley Porter and William E. Carter. Published by Messrs. C. V. Mosby & Co., 3523 25. Pine Bouelward, St. Louis.

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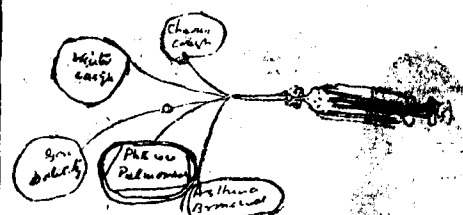
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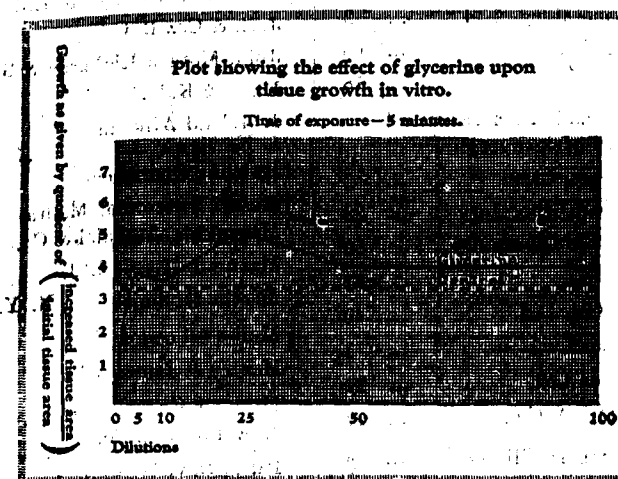
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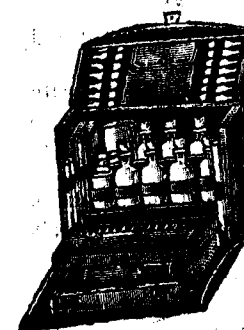
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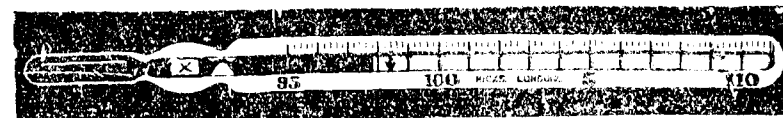
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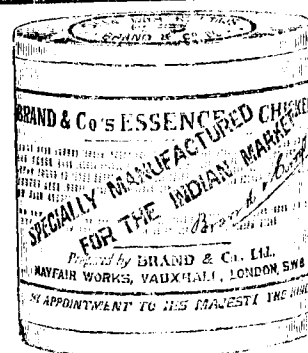
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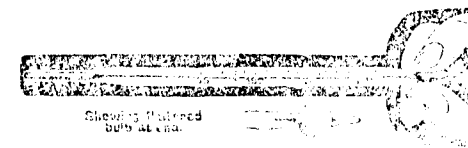
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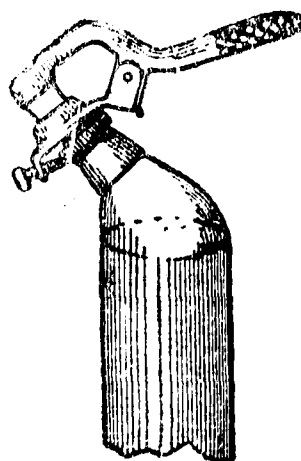
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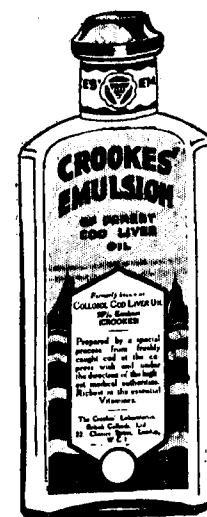
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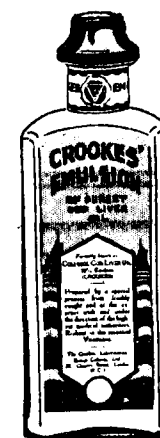
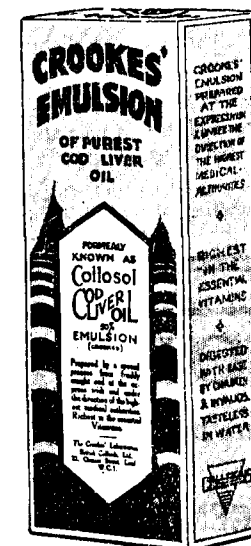
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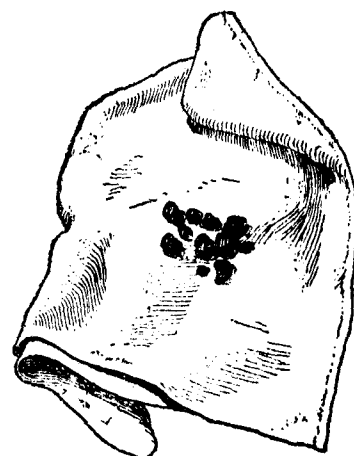
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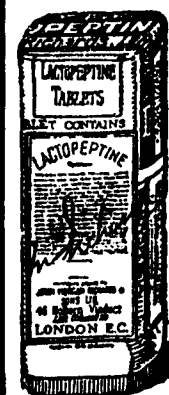
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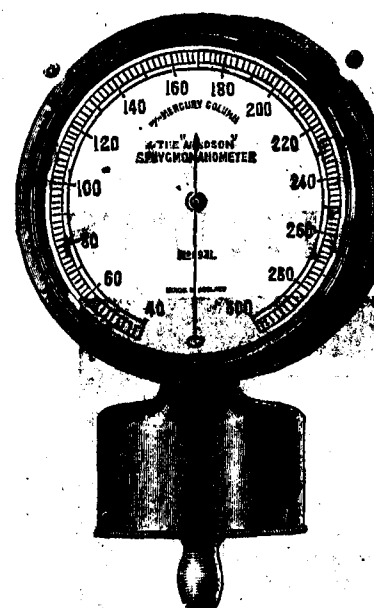
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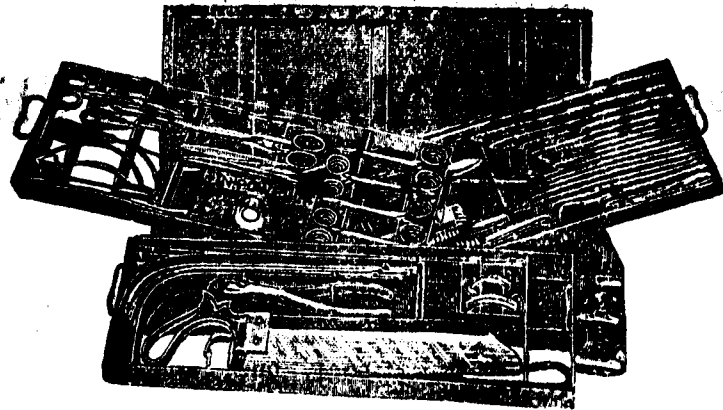
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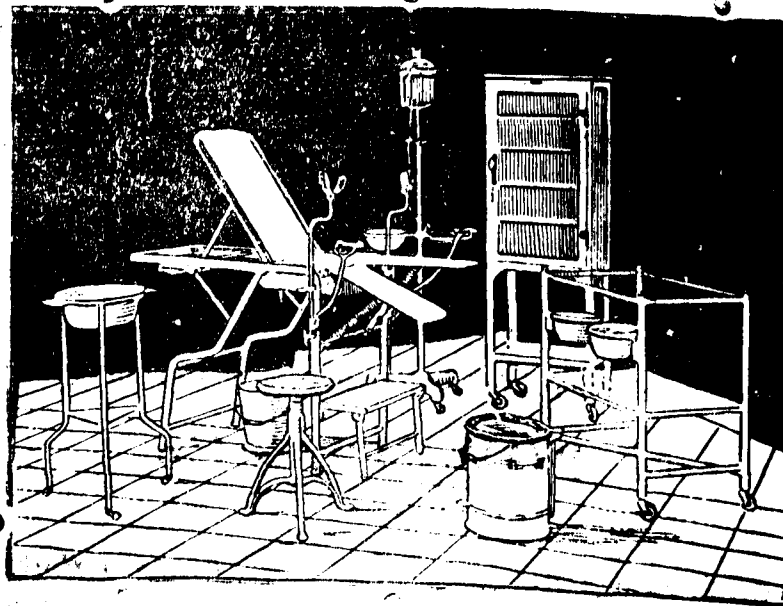
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The Antiseptic

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ORIGINAL ARTICLES.

*CINCHONA THERAPY—A REVIEW PART III.

BY

G. RAGHUNATHA RAO, D.T.M., LATE MALARIA MEDICAL
OFFICER, E. B. RY.

It was pointed out in a previous part of this paper (*vide* part II "The Antiseptic" November 1926) that the action of quinine is governed by 3 factors:—

- (1) Rate of multiplication of the parasites and the duration of the infection.
- (2) The time of sporulation and the time when quinine reaches the maximum concentration in the peripheral blood, in relation to the former. In other words, is the time of maximum concentration of quinine in the peripheral blood coincident with, or precedent to, the time of sporulation?
- (3) The dosage and methods of administration.

Now let us consider how these 3 factors influence the treatment of malaria with quinine and other cinchona alkaloids.

(1) (a) *Rate of multiplication of the parasites.*—This varies with the species of the parasites. The following figures have been arrived at after laborious research and represent a fairly accurate estimation of the multiplication rate of the different species of the parasites.

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Malignant Tertian	8 to 14 in 24 hours (11) average.
Benign do.	10 to 19 in 48 hours (14) average.
Quartan	6 to 12 in 72 hours (9) average.

It is obvious, from a consideration of these figures, that M.T. is the most prolific of the 3 species and following the general parasitological law—the greater the power and rapidity of multiplication of a parasite, the greater in proportion is its pathogenicity—this species is the most pathogenic; and so the treatment to be effective must be commenced as early as possible—in fact immediately after the infection is suspected. We all know how protean are the clinical manifestations of M.T. infections. In a fairly large proportion of the cases, a positive diagnosis in the very early stages is really a problem notwithstanding the frequent use of the microscope. Any one who has had to examine numerous slides from cases of malaria for a long time will at once realise the truth of this statement. To consider in detail the many and varied difficulties encountered in the attempts to arrive at an absolutely positive diagnosis in the early stages of this infection, does not come within the scope of this paper. Briefly, they are:—

- (i) The minute size of the parasites—about $\frac{1}{10}$ th to $\frac{1}{12}$ th of the size of an R.B.C.
- (ii) Their tendency to play “hide and seek”. This is due to the fact that the parasites multiply in the internal organs—chiefly the visceral and portal blood streams and come to the peripheral circulation only occasionally.
- (iii) Faults in the technique of staining—This is the difficulty often experienced by beginners.
- (iv) Amount of time and care devoted to the study of the slide. In this connection, it may not be out of place to emphasize the extreme importance of going through the entire slide from side to side and from corner to corner. The parasites may be found in a single spot but nowhere else in the same slide. Sometimes, it may be necessary to examine several slides before a few parasites can be seen.

Considering the difficulty of obtaining an absolutely positive diagnosis in the early stages, when such diagnosis is essential, coupled with the fact that this species is extremely pathogenic, it becomes imperative to commence treatment the moment the

infection is suspected. But let it be clearly understood that the early commencement of treatment, as is urged here, in no way exempts the physician from his duty of examining the peripheral blood every day, for the parasites.

Next in order comes Benign Tertian. This species is not so very prolific nor so very highly pathogenic as M. T. But, the devitalisation and the consequent inefficiency caused by this infection cannot be overestimated. B. T. cases are more prone to relapse than M. T. cases, especially when treatment is commenced late. The greater the duration of infection before treatment, the greater will be the tendency to relapses after treatment especially when such treatment is not carried out on thoroughly scientific lines as is commonly done in the hurry-burry of general practice. Quinine, by itself, as has already been stated in previous parts of this paper, seems to have very little effect on this species. So, the appropriate treatment should be with Quinidine or Cinchona Febrifuge as will be seen later.

Last of all comes Quartan. This species probably ranks with B. T. in its tendency to cause devitalisation, though it is not so prolific as the latter. But it is a well-known fact that cases of Quartan infection, have a remarkable tendency to relapse if treated only with quinine, as is commonly done in general practice. Also in the matter of resistance, if one may use this term in relation to malarial parasites, Quartan ranks foremost. The writer has seen some cases of Quartan infection relapse very frequently, after a thorough course of quinine. Ultimately these cases were cured by Quinidine. The appropriate treatment should therefore consist in the administration of Quinidine or cinchona febrifuge, in the absence of the former.

(b) *Duration of the infection.*—The later the treatment is commenced, the greater becomes the difficulty in eradicating the infection. This is true of all parasitic diseases, but it is more so in malaria. Quinine and other cinchona alkaloids as has already been mentioned in part II of this paper, have absolutely no action on the sexual forms of the parasites. Consequently, if treatment is commenced before the sexual forms appear,—there is no reason why the infection cannot be eradicated easily. It has been estimated by competent observers that 4 days' treatment before the Gametocytes appear, is equivalent to 10 days' treatment after their appearance. This is a very useful maxim found on long experience though it

cannot be proved with mathematical accuracy. Once the sexual forms have appeared, then the treatment becomes very tedious. This should be a sufficient warning to the physician to commence treatment before the Gametocytes appear.

The time that elapses between the date of infection and the date of first appearance of the Gametocytes in the peripheral blood, in the absence of re-infection, has been estimated approximately and this varies with the species of the parasites.

B.T.—8 to 9 days (10) after the first rigor. Add 14

M.T.—8 to 10 days (9) do. do. Add 8-12

Q. —7 to 9 „ (8) do. do. Add 8-12

N.B.—The figures in brackets indicate the average. Last column indicates the quiescent period that elapses between the contraction of infection and the first appearance of symptoms.

Also meteorological conditions, general health of the patient prior to acquiring the infection, institution of treatment and other factors have some influence on this period. Evidently, if treatment is instituted early in this period, Gametocyte formation may be arrested. Hence the imperative necessity of early commencement of treatment.

(2) *The time of sporulation and the time of maximum concentration of Quinine in the circulating blood in relation to the former.*—It is well-known that the sporulation-time depends upon two factors:—(i) The life-cycle of the parasites, and (ii) The nature of the infection—whether single or double—and even if single whether one brood or more than one brood of parasites, is undergoing the schizogony cycle. In cases of single infection where only one brood of parasites are present, the life cycles of the different species can be stated fairly definitely, with the reservation that M.T. is the most refractory of the 3 species.

B. T.—48 hrs. Q.—72 hrs. M. T.—24 to 48 hrs. (variable).

But, in practice, only now and then, one encounters a typical case, in which the successive times of sporulation can be clearly predicted and the dose of quinine and other alkaloids of cinchona adjusted accordingly. In cases of double infections with alternating life-cycles of the two species of parasites and in cases of single infections with 2 broods of parasites, it is well-nigh impossible to predict accurately the successive times

of sporulation and consequently, the administration of the remedial agent cannot be adjusted suitably so as to concentrate its action just at the time of sporulation. Although the ideal form of therapy would be to administer the drug so that it may reach its maximum concentration just at the time of sporulation, still, in practice, it is beset with so many difficulties. Hence, the imperative necessity of administering quinine or the other alkaloids of cinchona as the case may be, the moment "Malaria" is suspected without waiting for the "Sporulation Time." At one time much stress used to be laid on the spacing of the doses in relation to the time of sporulation, but now with increased experience of the treatment it is found to be very difficult and impracticable to do so on account of the aforesaid reasons.

(3) *Dosage and Methods of Administration.*—*Dosage.*—The experimental evidence bearing on this factor, has been fully stated in the first part of this paper; and from a recollection of the same, it will be evident that there seems to be universal agreement to the following doses of the different alkaloids for an average muscular adult male:—

Quinine.—(Oral) 10 grs. thrice a day, during the febrile period; twice a day for the next 2 weeks and once a day for a month more.

This dosage has been fixed for a robust European (average) adult, but it may not be quite suitable to an average Indian as the latter is not usually so very robust as his European brother. So the following slightly modified doses are suggested, as they have been found to yield equally good results.

Males.—9 to 8 grs. thrice a day for the first week; twice a day for the succeeding 2 weeks and once a day for another 2 weeks.

Females.—7 to 8 grs. (adult) the rest—same as males.

In this connection it may not be out of place to reproduce here the Dosage Table suggested by Col. Megaw of the Tropical School, Calcutta.

STANDARD DOSAGE—10 GRS. TO 1 OUNCE.

AGE & SEX.	FEBRILE PERIOD.	2 WEEKS.	1 to 2 MONTHS	ADDITIONAL
Robust adult European male.	10 grs. <i>tid.</i>	10 grs. B. D.	10 grs. daily.	10 grs on Saturdays & Sundays for a month.
Small adults (Indians) & robust females.	7 to 8 grs. <i>tid.</i>	7 to 8 grs. B. D.	7 grs. daily.	
10 to 15 yrs.	6 to 7 grs. <i>tid.</i>	6 to 7 grs. B. D.	6 grs. daily.	
5 to 10 yrs.	4 to 6 grs. <i>tid.</i>	4 to 6 grs. B. D.	4 to 6 "	
2 to 5 yrs.	3 to 4 grs. <i>tid.</i>	3 to 4 " "	3 to 4 "	
6 months to 2 yrs.	2 to 3 grs. "	2 to 3 " "	x	
Under 6 months.	2 grs. "	2 grs. "	x	

It should be distinctly understood that these tables are given only as a guide, to enable the physician to have some standard to go by. They need not be rigidly adhered to. They will have to be still further modified to suit individual cases such as very delicate and nervous patients and patients with idiosyncrasy to quinine etc, etc. On the other hand, the dosage may have to be slightly increased in urgent cases.

Quinine (Intramuscular and Intravenous).—The Bihydrochloride and Hydrobromide are the salts of choice. 10 grs. dissolved in 20 c.c. of normal saline (for Europeans) and 8 grs. dissolved in 15 c.c. of normal saline for Indians once a day, until the urgency is got over; plus the usual oral dose also.

The oral dose should not be dispensed with.

Quinidine (Oral).—For adult males 5 grs. twice a day during the febrile period and once a day for 2 succeeding weeks, and twice a week for a month more, if necessary.

Caution.—The heart should be daily examined very carefully. Any noticeable fall in the heart rate should be the signal for stopping the drug for some days and then reduce the

dose and continue it, if required. For females and children, the dose should be proportionately reduced.

Cinchona Febrifuge.—10 grs. thrice a day during the febrile period; and twice a day for two weeks more and once a day for a month further. In cases of females and nervous adult males the dosage may be reduced to 7 to 8 grs. For children the dose should be proportionately reduced.

Methods of Administration—Oral Method.—This has ever been and will continue to be, with very few exceptions, the standard method of treatment with cinchona alkaloids. Even in cases, where by reason of the urgency of the case, other methods of administration such as intra-muscular or intravenous, have to be resorted to, the usual oral dose cannot be dispensed with. No doubt, this statement may cause some embarrassment to those who are staunch worshippers of the syringe. In these days, when there is a craze for injections for every disease, the old and well-tried friend—"oral method"—seems to sink into oblivion. But, thanks to the latest researches of Acton and Chopra, the oral method will again continue to obtain the support that it so richly deserves. These workers have shown that it takes about 41 hours, for the complete elimination of a single dose of quinine given orally, whereas, if the same dose is given intravenously, 90% of it vanishes from the blood within 1 minute and it is extremely difficult to get the required concentration in the blood for a sufficiently long time.

The concentration of the drug at different intervals after the administration of a single oral dose has already been stated in Part II of this paper. A careful consideration of those figures will clearly show that there is a *sustained* concentration of the drug when given orally. On the other hand, when it is given directly into the blood, this sustained concentration cannot be obtained. This, then, must be the main reason for the superior efficacy of the oral method in uncomplicated cases.

The Madras Cinchona Commission of 1866, after repeated experiments, came to the conclusion that a concentration of 1 in 150,000 or at least 250,000, must be maintained for a period of 3 to 4 weeks to effect a complete cure. To obtain this concentration, it is necessary to administer the drug by the oral route, as it is difficult to get the same concentration, when

the drug is given direct into the blood stream. No stronger evidence is therefore necessary to emphasize the greater utility and importance of the oral method.

In administering the drug orally certain principles have to be kept in mind:—

(1) The administration of the alkaloids must be *continuous*; and not "off and on."

(2) Their administration should be so timed that they reach blood stream at the moment when the latter is at its most alkaline tide viz., 2 to 2½ hrs. after a meal. From this, it will be evident that, to get the best results, the oral doses should be taken, only 2 to 2½ hrs. after meals, and not before.

(3) The alkaloids should preferably be administered with alkalies, as the latter increase the absorbing power of the intestinal mucosa. And be it noted here, in this connection, that the chief absorption of the alkaloids takes place in the small intestines.

We owe it to Col Acton, who as far back as 1921 demonstrated clearly, that quinine is more powerful in an alkaline substrate than in an acid one. Later, Sinton proved clinically that better results were obtained with Alkali *cum* Quinine than with Quinine alone. The reason for the efficacy of the combined method of treatment was investigated by Acton and Chopra. Before this investigation was begun, it was surmised that the alkalis would alter the P.H. of the blood to the alkaline side and this altered reaction of the blood would prove deleterious to the malarial parasites. But this surmise was proved to be incorrect. These workers as a result of their investigation found out that there was an increase in the amount of quinine absorbed when an excess of O.H. ions was present at the surface of the cell membrane. The administration of the alkalies before quinine enhanced the rate of diffusion through the mucous membranes of the small intestines; and it was possible to almost double the concentration of quinine in the mesenteric blood by administering alkalies before oral quinine. This increased concentration of quinine in the blood is the chief cause of the greater efficacy of the new combined method.

The same workers have also found that generally, the concentration of quinine is relatively greater in the mesenteric blood than in the systemic blood and this they consider

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to be due to the absorptive action of the livers. Incidentally this finding explains why oral quinine is relatively more efficacious in M. T. infections. This species, it may be recalled, multiplies chiefly in the visceral and portal blood streams, and mesenteric vessels form one of the chief strongholds of these parasites. Oral quinine has just been shown to be in greater concentration in the mesenteric blood than in the systemic blood, and so greater number of parasites are destroyed per dose. This also explains why M. T. infections are so easily amenable to oral quinine.

To get the best results by this combined method of treatment, Sinton advises the following:—

Rx:—

Sodii bicarb	grs. 60.
Sodii citras	grs. 40.
Aqua	ad. oz. iii.
Ft. mist.	

1st Day.—Give 4 doses of alkaline mixture and 3 doses of Quinine or Cinchona Febrifuge in mixture. The alkaline mixture is to be given first. This should be followed *after 2 hrs.* by 1 dose of Quinine or Cinchona Febrifuge mixture as the case may be.

2nd Day.—Give 3 doses of alkaline mixture and 3 doses of Quinine or Cinchona Febrifuge mixture. To be administered as on the first day. For the remaining period—3 doses of alkaline mixture and 3 doses (or 2 doses) of Quinine or Cinchona Febrifuge mixture—until the patient is cured. For a criterion of cure, reliance is to be placed on 8 consecutive examinations of the peripheral blood by a competent observer proving negative to malarial parasites.

Several objections have been raised against the oral method; and it is necessary to examine them carefully, so as to assess them at their true worth.—

(i) That quinine and other cinchona alkaloids cause undue gastric irritation and so should not be administered orally.

In answer to this an impartial observer would be very much inclined to opine that the opponents have rather overstated their case. True it is, that cinchona alkaloids cause a certain amount of gastric irritation, but they do so only when given on empty stomach.

If they are given 2½ hours after food, as they ought to be given, the question of gastric irritation would not arise. Moreover, as has already been pointed out in part II of this paper, cinchona alkaloids depress the activity of the digestive ferments, of the body and therefore they should not be administered before food. Obviously it is the faulty method of administration that gives rise to gastric irritation.

(1) *Vomiting*.—On account of the very bitter taste of the cinchona alkaloids the patient feels a nauseating sensation while swallowing them. But the drinking of lemon juice or lemon syrup etc., will effectively stop this sensation. Only in nervous and delicate people, vomiting may ensue. In such cases it would be advisable to push on the administration. If the first dose is rejected, no matter, give a second dose. It has been found that a little persistence in the administration usually gets over the difficulty. But there may be some cases in which vomiting may reach very alarming proportions. In such cases the following recipe has given very good results in the writer's hands:—

Rx:—Chloroform	m. 10
Gum arabic	grs. 10
Glucose or common sugar	grs. 50
Aqua	ad oz. ss
Ft. mist Stratum.	
Or:—Adrenaline (P D & Co)	m. 5
Aqua	ad oz. i
Ft. mist. Stratum.	

One of these will succeed in stopping the vomiting. Or ice may be given to suck in small bits. Once the patient comes under the influence of quinine or the other alkaloids, vomiting and other symptoms of gastric irritation disappear rapidly. The digestion begins to improve.

To know if, in a particular case, quinine, given orally, will be retained or rejected, it is only necessary to look at the tongue. If the tongue is slightly moist and furred, then it is an indication that quinine will be retained. But if it is dry and cracked, then surely it means that the stomach cannot tolerate the drug. In these cases, resort may be had to the syringe.

Then, there is yet another type of cases in whom vomiting seems to be actually a contra-indication for the oral administration. This type is known as "Bilious Remittent" type. This

is one of the worst manifestations of malignant tertian infection. To begin with, these cases may be treated by injections but soon after the vomiting stops the oral method should be commenced, preferably with a small dose and increased gradually.

(ii) *Quinine fastness* or failure of quinine to act on the parasites. The advocates of this theory adduce as evidence the fact that in spite of heroic doses prescribed by them, they could find no improvement in the patient. Obviously this argument is open to several fallacies.—

First.—Their diagnosis of malaria might have been incorrect.

Second.—Granting the diagnosis was correct, the patient might not have taken the prescribed dose. Simply to write a prescription containing heroic doses and leave the carrying out of the instructions to the good sense of the patient, is all that is considered to be necessary. But the physician should remember that the case of quinine is certainly one in which "There is many a slip between the cup and the lip". With the price of quinine ranging between Rs. 16 to Rs. 32 a lb., and with a patient who is only too ready to avoid the "nauseating draught", no unscrupulous compounder could fail to be tempted to take advantage of the patient's reluctance. The prescribing physician deludes himself into the belief that the heroic doses prescribed by him are gulped by his patient. This class constitutes the majority of the so-called cases of quinine fastness, or quinine-failure. As a remarkable instance of how the patient evades taking the prescribed dose of quinine or cinchona febrifuge, and how the compounder takes advantage of this, may be mentioned that in a prominent research institution in Calcutta, with a very close supervision over the compounding of prescriptions, a simple case of malaria was found to show no progress after 4 days' treatment with quinine. The administrative head of the institution became rather suspicious and ordered an analysis of the mixture brought to the patient. It was found that the mixture contained only a fraction of the prescribed dose of quinine. This ought to be a sufficient warning to the general practitioners, not to deceive themselves into the belief that simply prescribing a big dose of quinine to a private patient will ensure the strict carrying out of the instructions. Personal supervision is necessary in treating with the cinchona alkaloids. The so-called cases of quinine fastness or failure, have, on careful

investigation, proved to be cases of "slip between the cup and the lip"; and on such improper evidence, allegations as to the failure of oral quinine or cinchona febrifuge have been boldly made. Scientifically speaking, a case of real quinine fastness is yet to be discovered.

(iii) *Quinine sensitiveness or Idiosyncrasy.*—There is some truth in this. But this class of cases is rather rare. The clinical manifestations vary according to the degree of intolerance shown by the patient.

In ordinary cases of sensitiveness the patient usually complains of rash and slight dyspnoea. But in *super-sensitive cases*, Erythema, Dyspnoea and Hæmorrhages into the skin and mucous membrane etc., may be complained of. To ascertain whether a particular individual has got this sort of supersensitiveness, a dermal test with a 10 per cent solution of quinine may be carried out. If a reaction occurs, it means that the patient is really sensitive. The treatment of such cases of supersensitiveness is no doubt a problem. Obviously, these cases require to be desensitized and so the following method of treatment may, with advantage, be adopted.

Begin with $\frac{1}{10}$ gr. of quinine combined with 10 grs. of sodii bicarbonas. *Two hours later.* $\frac{1}{2}$ gr. quinine + 10 grs. of sodii bicarbonas. *Two hours later still.* $\frac{1}{2}$ gr. quinine + 10 grs. of Sodii bicarb. After further 2 hrs. or 6 hrs. after the commencement 1 gr. of quinine + 10 grs. of Sodii bicarb. 12 hrs. after, 2 grs. of quinine + 10 grs. of Sodii bicarb. 24 hrs. after, 4 grs. of quinine + 10 grs. of Sodii bicarb, and so on. The patient becomes desensitized gradually and usually at the end of the 3rd day or so, he can take a full dose of quinine. If, at any stage, he shows signs of increasing discomfort, stop the next increase in dose or, if necessary, even go back a little. After a few days, change the alkaloid, say from quinine to quinidine etc. The practitioner need not be frightened, simply because the patient shows intolerance. Even in such cases, the use of any other drug to the exclusion of quinine or C. alkaloids, would be culpable trifling.

Among other factors that have contributed to the disrepute of the oral method may be mentioned the following:—

(i) Too little doses—some practitioners prescribe 2 or 3 grs. doses for adults.

(ii) Too large doses—some enthusiasts prescribe 20 grs. or 30 grs. doses twice or thrice a day. Such large doses, besides not being absorbed, are apt to cause considerable irritation of the gastric mucosa and give rise to gastritis etc.

(iii) The prescribing of tabloids and pills, without urging upon the necessity of purchasing the brand manufactured by a reputable firm of manufacturers. The writer was consulted as to the treatment to be followed in a case of "quinine resistance". On interrogating the patient it was elicited that the prescribed doses of quinine were taken in pill form; and the patient produced some of those pills remaining with him. Those pills were found, to the astonishment of the writer, to be so hard that they could not be broken or crushed in an ordinary mortar with a pestle. They were prepared by some compounder, a friend of the patient, secretly, and given to him. This incident is mentioned here just to warn the physician that little reliance should be placed on pills and tabloids which do not bear the stamp of a first class manufacturing concern. It is also advisable to insist on the patient's taking of a glass of lime juice after swallowing the pill or tabloid. This will ensure a prompt solution of the tabloid in the stomach.

The personal supervision of the Doctor, in administering the oral dose, as is urged upon here, may not, under the exigencies of private practice, be a practicable proposition, but the physician can still ascertain by a simple test of the patient's urine how much of the prescribed dose has been swallowed. The test is performed with the help of a simple mercurial reagent devised by "Mayer".

Mayer's Reagent.—(Tanret's modification) Dissolve 1.35 grms. of Hg Cl₂ in 75 cc. of water; and 5 grms of K.I. in 20 cc. of water in a 100 cc. flask. Pour the mercuric solution into the iodide solution under agitation and fill up with water to the mark (viz). 100 cc.

Routine Method of Estimation.—The total quantity of urine voided by the patient, from the time after the intake of the first dose up to the time when the next dose is due, should be collected and a portion of it heated to exclude albumin. To 1 cc. of the heated urine (cooled) add an equal quantity of the Mayer's Reagent, and shake the tube well. If the urine contains quinine, a kind of opacity will develop. This opacity is compared with a series of standards similar to Brown's opacity tubes used in Bacteriological work.

Standard Solution.—Ten glass stoppered bottles (2 ozs. capacity) are thoroughly cleaned and numbered serially, from 1 to 10. In the first, 1 gr of quinine sulph. is dissolved in 1 oz. of distilled water. (Acid sulphuric 1 m is used as a solvent.) The second contains 2 grs. of quinine sulph. to 1 oz of water; and so on, in increasing doses, up to 10 grs. in 1 oz. of water. Now, we have a graded series of quinine solutions from 1 gr. to 10 grs. in 1 oz. of water. Next, procure ten test-tubes of uniform size, such as are used in Kabu's test—3" x $\frac{3}{8}$ ". Number them serially from 1 to 10. Pipette into these tubes 1 cc. of the graded quinine solutions in such a way that the tube marked 1 contains 1 cc of 1 gr. to 1 oz. solution, and tube No. 2 contains 1 cc. of 2 grs. to 1 oz. solution and so on. Add to each of these test-tubes 1 cc. of Mayer's Reagent. Compare the test tube containing the urine + Mayer's Reagent, with these ten standard tubes and determine (roughly) the amount of quinine present in the urine tested. If, for example the urine tube corresponds closely to the standard tube No. 7, it means evidently that the specimen tested contains about 7 grs. of quinine. As the test is only relative and not absolute, opacity alone can be relied upon as a criterion.

Caution.—The tube containing the urine should be of the same dimensions as the standard tubes.

This test is so very simple and inexpensive that any practitioner who has the will to take some trouble about his patient, can carry out. The writer is conscious of the many imperfections and fallacies in the technique outlined above. But as it has the merits of simplicity and clinical applicability, and has given very satisfactory results in his hands, he has no hesitation in recommending it. Let it also be clearly understood that the test is, after all, a clinical one and like so many others of its kind, no mathematical accuracy can be claimed for it. In making the comparison, it is advisable to avoid direct sunlight. Indirect light, such as that transmitted through a window with a dark back ground is better. A blue sheet of paper (full size) gummed on the wall, may be used as a back ground.

Intramuscular method.—On this method of administration opinion is sharply divided. There are two schools of thought. One composed of the purely general practitioners who claim

that this method of administration is superior to any other method and insist on practising it as a routine method of treatment in all cases of malaria. The other school comprising the purely laboratory workers who shudder at the very idea of intramuscular administration of quinine or the other C. alkaloids.

Leaving these Extremists, there are others, who, by the way, constitute the majority of the medical profession, are of the opinion that intramuscular injections are of course risky and should be only resorted to when the advantages that are likely to accrue, outweigh the attendant risks. For example, in cases of pernicious types of malaria—hyper-pyrexial, cerebral, algid and bilious remittent etc,—when the patient cannot swallow and when intravenous injection could not be done for want of a suitable vein—as in children and fatty adults—intramuscular is the method of choice. But to practise it in all cases, as a "routine method" is rather unjustifiable. The practitioner who does so is taking unnecessary and avoidable risks.

Before proceeding to examine the grounds on which the two extreme schools of thought base their opinions, let us see what eminent authorities on medical practice, have to say:—

(1) *Sir Patrick Manson* (1914) opined that the intramuscular injections of quinine should not be practised without good reason or as a routine treatment in ordinary malarial attacks.

(2) *Sir Ronald Ross* (1914 and 1921) has, on many occasions, expressed himself very strongly against the use of injections in ordinary cases of malaria.

(3) *Sir Leonard Rogers and J.W.D. Megaw* (1902) found by experiments that quinine injected was far inferior to quinine by mouth.

(4) *S.P. James* (1918) states that, as quinine by mouth is equally efficacious as Quinine injected, it should be given orally and only exceptionally injected.

(5) *C.C. Bass* (1917) objected to Intramuscular Quinine on two grounds:—(i) Therapeutic inefficiency; and (ii) The feelings of the patient.

(6) *Prof Dixon* at the meeting of the British Medical Association in 1921, expressed his opinion that *Intramuscular Quinine was far inferior* in point of therapeutic efficacy to oral quinine.

Dangers attendant upon Intramuscular injections.—It has already been mentioned in a previous part of this paper that quinine is a general protoplasmic poison and in an acid medium it becomes hæmolytic. Quinine solutions of the strength ordinarily employed for intramuscular injections always cause immediate necrosis of the muscle fibres at the site of injection. Moreover, the solutions of the Bihydrochloride or the other acid salts used for injection are strongly acidic in reaction and, as such, cannot be tolerated by the tissues. HCl alone when diluted to the same degree of acidity is known to cause necrosis of muscle fibres to a lesser extent.

Macgil Christ (1911) conducted a series of experiments on animals. He found that when a solution of Quinine Bihydrochloride in the concentration ordinarily employed for intramuscular injection (i.e.) 1 in 10, is mixed with an equal quantity of blood serum, a gelatinous mass is the result. When injected into the muscles, the immediate effect was "Coagulation necrosis". Even in dilutions of 1 in 150, the drug killed outright all the tissues it was able to reach. He records the case of a man, whose gluteal muscle, 13 hours before death after an intramuscular injection of Quinine Bihydrochlor 11 grs. in 34 m. of water, showed a mass of necrosed muscle of the size of a pigeon's egg.

Col. Dudgeon (1919) found that whatever the salt employed and whatever its concentration, there was necrosis of the tissues into which the injection was given, and this occurred irrespective of the general health of the patient or the experimental animal.

Similar experiments which have yielded identical results conducted by numerous other workers in different times, serve to emphasize the grave risks attendant upon the intramuscular injections. Summing up all these experimental evidence, we can trace the sequence of events after an injection, as follows: Within 10 minutes after the injection, cedema of the tissues and necrosis result; the R.B.C's are broken up. Thrombosis of the vessels with active destruction of their walls occurs. If large vessels are involved, grave hæmorrhage may ensue. Large nerves (e.g.) sciatic, may be involved; either by the spreading necrosis or directly injured by the needle. In any case paralysis may result. Thus, the local dangers from intramuscular injections may be of 2 kinds:—

(1) Necrosis caused by quinine involving large blood vessels or nerves.

(2) Necrosed tissue acting as a pabulum for dangerous bacteria—Streptococci, Bacillus Tetani etc, etc.

These local lesions caused by intra-muscular injections take a long time to disappear. As a remarkable instance of this, Figdor and Pinnock (1922) have reported the removal of an encysted mass of necrosed muscular tissue, the result of multiple quinine injections, administered 5 years before. The literature on tropical medicine is full of similar instances. These examples serve to impress upon us that I.M. injections are not to be lightly thought of.

The advocates of intra-muscular injections, on the other hand, claim the following advantages on their side.—

(1) Intramuscular quinine is more rapidly absorbed and acts more quickly.

(2) The action is more prolonged.

(3) It prevents relapses by completely eradicating the infection.

(4) In therapeutic value, it is superior to oral quinine in that it cures attacks which the latter utterly fails to control. Let us see if these claims can be substantiated.

(1) *Rapidity of action*.—It is almost a general rule that medicinal substances administered intramuscularly act more promptly and vigorously, than when they are swallowed; but quinine is an exception to this rule. In this connection, it may be recalled that in a previous part of this paper, it has been mentioned that it takes about 41 hours or so for the complete elimination of a single dose given orally, whereas a few minutes after an injection large quantities of the drug can be recovered from the urine.

Macgil Christ who thoroughly studied this question on experimental animals in 1911, found that quinine by the mouth was of greater therapeutic value in respect of the rapidity and amount of its absorption.

(2) *Prolonged Action*.—Dudgeon in 1919 found that quinine injected into a muscle, was absorbed rapidly even in patients who were in "Extremis". So, the theory that the drug remains at the seat of injection for a long time and small quantities of it are absorbed into the general circulation from time to time, thus resulting in a sustained action of the drug, falls to the ground, for want of support, in the form of experimental evidence.

Niereustein (1918) has clearly shown that whether the drug is given by the mouth or intramuscularly, the proportion excreted is the same. Hence, use has been made of this constant excretion index as a criterion of the presence of the drug inside the system. Dr. Fletcher of the Kaulalumpur Institute found out that quinine was not excreted over a longer period when given intramuscularly, than when administered orally which means that there was no more retention of the drug in the system when given intramuscularly than when administered orally as was evidenced by Identical Excretion Index after both the methods of administration. Hence it is obvious that the available experimental evidence does not support the "Muscle Reservoir Theory". And the balance of evidence is distinctly in favour of the oral route.

(3) *The prevention of relapses.*—Prof. Stephens (1917-18) found that out of 30 men who received a drastic course of treatment (viz.) 15 grs. intramuscularly in both "Deltoids" and 10 grs. thrice a day by mouth, for 12 days no fewer than 26 relapsed within 60 days (of course there was no chance of reinfection). The same method of treatment adopted in Macedonia by Greig and Anderson (1922) gave a result of 59 % of relapses. Acton and his co-worker (1921) concluded that the percentage of relapses was the same whether intra-muscular or oral administration was resorted to. Thus it is seen that the so-called "better effect on relapses" claimed for the intramuscular method has no basis whatsoever.

(4) *Therapeutic value.*—Under experimental conditions with proper control and strict observation when oral and intra-muscular methods are compared, it is invariably found that there is but little difference in their therapeutic values; if anything the advantage lies with the oral quinine. Investigations by McLay and Hele (1922) at the Malaria Inquiry Laboratory at Salonika shows, that their results are distinctly in favor of the oral route. They have emphatically stated that the discomforts and risks of intra-muscular quinine are not justified unless some compensation is afforded in the way of more effective and quicker destruction of the parasites, of which there is no evidence at present. They have also opined that the intramuscular method should be reserved entirely for cases where the oral route is impossible.

Macgil Christ (1911) reached the same conclusion as the result of laboratory experiments on animals. There seems

to be only one point in favor of the I.M. method; (i.e.) as the injection is done by the medical man himself, there is a certainty of the prescribed dose reaching the patient, whereas, with the oral route, it is frequently a case of "slip" between the cup and the lip, as has already been pointed out.

Bearing all these accusations against the intramuscular route in mind, if the practitioner decides in a particular case to try this method (the indications for this method have been mentioned briefly in a previous paragraph), he will find the following recipe, used by French authorities, satisfactory:—

Rx:—Quinine Hydrochloride	0.4 grms.
Urethane	0.2 grms.
Aqua Distillata	1 cc.

The object must be to avoid as much as possible acidity, at least of an excessive degree.

Intravenous Injection.—This is the most valuable method of treatment in "Pernicious types of malaria" (e.g.) cerebral; algid and comatose, Hyperpyrexial etc. But, for routine treatment, it is useless. The reason for this will be quite evident on recollection of the fact, mentioned in an earlier part of this paper, that it vanishes from the blood a few minutes after the injection. For emergency this is the most suitable route. But, even in such cases, as soon as the patient is in a position to swallow, the oral dose should be commenced, to supplement the injection. Though the I.V. method is fully justified in urgent cases, yet it should be borne in mind that it is not without its own risks. Quinine, when given directly into the blood stream, causes a fall in the blood-pressure, as has already been mentioned in part II of this paper. Though this fall may vary within wide limits, in different individuals, still, that is a factor, which has to be taken into consideration. To obviate the occurrence of a dangerous fall of blood pressure, Adrenaline m 5 may be added to the quinine solution. Needless to say that the injection should be given very very slowly. If the following points are strictly adhered to, no fear need be entertained of any danger to the patient.

(i) *The salt.*—I personally prefer the acid Hydrobromide on account of its lesser acidity than the Bi-hydrochloride.

(ii) *The Dosage.*—7½ to 10 grs. for an adult, according to the weight, strength, and physique of the patient, of the chosen salt, dissolved in 15 to 20 cc. of sterilised normal saline

(freshly prepared), to which m 5 of Adrenalin chloride is added. The solution should be prepared fresh each day, as otherwise moulds are apt to grow in old standing quinine solutions.

(iii) *Posture*.—Keep the patient in a recumbent posture.

(iv) Give the injection direct into the lumen of the vein and not into the peri-vascular tissues. If the needle is inside the lumen of the vein, blood will rush into the syringe. It is a good plan to withdraw some blood so as to make sure that the needle is well inside the vein and then slowly inject the drug.

(v) Give the injection very slowly, taking at least 20 seconds per cc. If possible, better ascertain the blood pressure before hand. If it is below 100 mm. Hg, extra precautions are necessary. Have strychnine ready. In weak adults and nervous women, extra special care is necessary. On the slightest sign of restlessness, stop the piston and delay the injection for a minute or two. In almost all the cases, the injection is followed by a transient dizziness, lasting for a few seconds.

In selected cases, (viz) cerebral comatose and algid types, if the injection is given with due precautions, as advised above, the result will be nothing short of a dramatic revival.

Mac Carrison and Cornwall (1918) and Balfour (1919) have shown that intravenous injections cause a profound fall of blood pressure and the respiratory centre is gravely affected. They have also recommended the addition of Adrenalin m 5 to the quinine solution to avoid these unpleasant effects. Another great draw-back to the intravenous method is the markedly corrosive action of quinine on tissues. Thrombosis of the vein may be troublesome. But, if a sharp pointed needle be used and prominent vein selected and some blood is allowed to rush inside the syringe to ensure that the needle is well inside the vein and the solution mixed with the blood is injected very, very slowly, injury to the vein and subsequent thrombosis need not be apprehended at all.

Though the immediate effect of the intravenous method is remarkable, yet, it should be borne in mind that it cannot be relied upon, by itself, for a "cure." It should be supplemented by oral dose.

Effect on relapses.—The same as the intra-muscular. No particular advantage over the oral in this respect.

To sum up.—The intravenous method should be reserved for the most urgent cases. It should be administered with due precautions.

Rectal injection.—Has been abandoned on account of the injury caused to the rectal mucous membrane and the absence of any advantage over the other methods.

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* SOME ASPECTS OF MEDICAL ETHICS

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I want to touch upon some aspects of *medical ethics* as met with in every day practice here and not considered by the code of medical ethics published by the Medical Council here. I follow here the teachings of my old revered teachers, Dr. F. J. Smith and T. Chearton. First of all, we must all realise that we belong to a noble profession and in all our dealings, we must keep up its tradition. Let us consider what separates a trade from a profession. It was in olden days comparatively easy to answer this question. Law, Medicine and Divinity were looked upon as three professions and the lawyer, the doctor and the parson were supposed to frame their views of life and conduct by rules that were somewhat different to those which regulated the dealings of other people engaged in making a living by trade. The increase in population and the consequent stress and struggle for existence, the marvellous evolution of the means of communications either by locomotion or by books, journals, newspapers, and letters, together with other rapid alterations in the condition of the social life, have very materially altered the conditions of living in the world. And the professions have not escaped these changes and there can be no doubt but that the struggle for existence has produced in our own profession an enormous difference in what we are pleased to call Medical Ethics.

We may regret this difference and even try to ignore it. But neither regrets nor indifference will alter the facts and we must make the best of circumstances. For all that, there are certain general principles and rules which still should guide us, some of them governed by instinct and training, others by more tangible and material considerations.

* Being the Presidential address delivered at the annual meeting of the Grant Medical College Society, Bombay.

There are many ethical questions arising every day in our practice and I shall take them under the following groups:—

1. Personal relations with your brother practitioners.
2. Relations with patients.
3. Consultations.

PERSONAL AND SOCIAL RELATIONS WITH BROTHER MEDICAL MEN.

After obtaining the qualification, the student at once merges into the practitioner and is beset with two peculiarly attractive and insidious temptations. One is a rather natural result of a successful examination and may be dubbed "cocksureness"; the other is a primeval fault of the human nature, never eradicated while life remains, but which may be kept from outward manifestation by the influences we have indicated—it is "jealousy". The two go hand in hand though apparently to be so opposed to the cocksureness of another is a sad blow to that quality in ourselves and rouses our jealousy or anger or both.

Thus, we come to the fundamental factor in practically all breaches of medical etiquette *viz.* jealousy. What is the treatment? It is no use applying the knife; the trouble cannot be eradicated, it is part and parcel of all of us, and the only treatment is repression. Prevent it from showing itself by any word or deed and it cannot do a great deal of harm; but the repression needs to be stern, severe and continuous. Remember that a shrug of shoulders, and inflection of voice, may be betrayed as palpably as a lie or a deliberately malicious sentence. It is in social functions, dinners, evenings at home, casual chats etc. that the demon appears in his most seductive form; the conversation turns on a brother practitioner; our opinion is asked upon something he has said or done. Be a little deaf, give yourself a moment to think, and then let your reply be cheerful in tone and guarded in words and, if possible, decline discussions, but do not decline reply; to decline to reply may be rude and may also betray you, but a cheerful "I do not care to discuss my colleagues" is easy enough and its tone should convey nothing at all and not "I could say a lot, but I won't".

One might enlarge on this side of my topic to any desired extent, but I do not think it would serve any very useful purpose, for if the general principle of "playing the game" has not entered a man's mind before qualification, there is little in that ordeal or even in his subsequent career, that

will facilitate its entrance at a later period. "Put yourself in the other man's place and see how you like it"; it is a good summary of the position.

It is here that a good medical club and association in my opinion have their special uses. A musical evening, or a game of chess, or a smoke and a chat may not be the highest and most intellectual of pursuits, but they do, at any rate, serve as a means of social intercourse, bringing men together and enabling them to know one another, and conversation can easily become so interesting that the game may be dropped.

RELATIONS WITH PATIENTS.

Etiquette with Patients:—It is no part of my business to teach you to night or to lay down rules for you as to how you should behave in the presence of a patient except perhaps to say that a cheerful countenance is always welcome in a sick-room and to suggest to you so to order your behaviour that the Doctor's visit shall be looked forward to by the patient and by his friends as a pleasant break in a weary day; never by word or suggestion in any shape show fear of the situation. Keep calm and cool, no matter what the emergency or the need for prompt interference. Patients may be frightened to death as well as killed by disease; at the same time, don't be too dogmatic, and remember above all the ordinary little courtesies to every one, not forgetting the nurse. The lot of a nurse is hard enough at all times, but a few kindly words of greeting and good-bye add greatly to the bright side of her life, and above all, if you have any occasion to find fault with her do NOT do it in front of the patient or of his friends, call her into a side-room and quietly show her where she is wrong; your duty to her is very much what a consultant's duty is to the general practitioner, and it is easy to put yourself in her place and think how you would like it.

GOSSIP ON OR WITH PATIENTS.

One rule I would strictly lay down for you as a golden one is never gossip to one patient or his friends about another patient; this is betraying professional secrecy in the worst manner, and yet it is a sin so easy to commit, it is unpardonable. At first you will be deliberately asked to betray confidence in this way, then you may fairly say to the tempter, would you like me to go about and talk of your illness and domestic

affairs? If he is reasonable he will see the force of your conduct, and if he is unreasonable, try and show him in the kindest possible manner where he is showing want of reason. By and by you will find you will not only not be tempted, but you will be trusted because you deserve it.

Whose patient is a given individual?—One of the most common queries is this: "Circumstances have arisen which have led one patient to consult or be treated by two medical men. Whose patient is he?"

Now, on this point, there are undoubtedly two or three actual rules, though they would not seem to be very well known, or else many of the cases would not appear in print.

Rule No. 1, and a fundamental rule of organised society, is that a doctor has no legal right to demand that a patient who has once consulted him shall always consult him, and go to nobody else. Such a claim is preposterous on the face of it and yet it is often made a basis for bitter complaint against a professional brother. There are a thousand reasons why a patient should always consult one doctor only, but if he does not you may be sure there is one reason on the other side and that is an all-powerful one, *viz.* the original doctor did not suit him, and that is quite enough, for no one can attempt to interfere with a man's choice of a doctor.

I need scarcely observe that such change of doctors should be made when another illness necessitates fresh professional attendance. During one illness a doctor has a moral right, not, be it understood, a legal one, to continue in attendance, and one might say he has both a moral and almost a legal right to expect not to be dismissed without a cause and without "reasonable courtesy and explanation," and one may add without having his account paid up-to-date.

Put yourself in his, the patient's place, and ask yourself would you like an unpunctual man, a man with a harsh grating voice, bad manners etc., or even a man to whom you took an unreasonable dislike, visiting you constantly, and should you get your dismissal. Look to your own conduct first.

A word on the other side. Suppose you are the new man called in. What are you to do? Here you are on a firmer ground; you must first ascertain for a fact that reasonable courtesy and explanation have been shown and given to the other man, and you must absolutely refuse to attend until

you are sure that the patient has made this clear. You may go and see the other practitioner and talk the matter with him in a friendly way; you may be absolutely sure that he is jealous of you—it cannot be otherwise—and it is your business to assuage that jealousy by tactful management of a very painful interview. You may accept the case but remember to keep the whole circumstance to yourself and avoid the gossip on it most strictly; the incident is bad enough and spreading tales upon it will only make it a thousand times worse.

Consultations:—Rule 2 is commonly laid down as follows:—

Whenever you are called by a brother practitioner into consultation over a case, it is your absolute and bounden duty not to undertake the treatment of that illness no matter what the circumstances may be. This rule is a salutary one, and it is certainly wiser to obey it in its strict letter, but it is very easy to imagine circumstances in which it is almost impossible to do so. Should such a contingency arise, put yourself in his place and “play the game”, remembering how difficult, if not impossible, it is for No. 1 to defend himself by arguments, and you may be sure that there can be no greater strain upon friendship than the occurrence of such an incident. The circumstances surrounding such incidents are so infinite in their variations that it is quite impossible to attempt even to suggest them, but this I can say that they can absolutely, never by any possibility, be such as to excuse your supplanting the other man without first having a private conversation with him (at this conversation no one but you two should be present) and a satisfactory decision should be arrived at.

I could offer you a great deal of discussion as to what attitude you should arrive at this private meeting, but I only propose to make one suggestion. Don't assume that your opponent (I must call him) has any lower ideas than your own; if your interview seems to show that he has a lower standard, don't assume airs of superiority but meet him on his own platform and show him that even here you can put yourself in his place; don't lose your temper whatever you do; this is at once to place yourself in a false position, and one in which jealousy becomes the dominating feature.

Let us presume this question of consultation a little further, for it is a subject upon which perhaps more quarrels arise than

upon any other, and let us dig to the bottom of it. How and why does the consultation arise? It may arise in at least three fundamental ways:—

1. From the patient's wish.
2. „ the wish of the patient's friends.
3. „ your own wish.

Taking Nos 1 & 2 first, you must not be surprised, and still less must you be offended, when a suggestion for “further advice” comes from these quarters.

It may be that the case is straightforward and possibly trivial so far as you can tell, and may not have been of a long duration, yet even under any of these circumstances put yourself in their place and allow for the natural impatience of a sick person or of his friends; when the idea is mooted, don't at once ride the high horse and say “Oh, if you have no confidence in me, you had better call in some one else”. You are certainly at liberty in a quite and dignified way to explain to the persons concerned that you do not see any necessity for further advice, that you quite understand the case, or that it is going on in a quite normal manner; but while doing this keep your eyes as well as your ears open for the slightest sign, not of incredulity or distrust for such you will hardly get, but of want of satisfaction or of absence of confidence and yield gracefully the moment you perceive such a sign, however slighter, in whatever way expressed. Don't think your dignity or self-importance is at stake, or even your skill; what is at stake is your tact in managing a patient which is a very difficult thing, to your skill in managing or treating a disease, a point very apt to be overlooked by the modern young doctor who thinks that the disease is the thing, and has never thought of the patient who is the possessor (much against his will) of the disease.

If again the case is not straightforward, either in the diagnosis or in the treatment, if danger is present, or if the illness is prolonged there is absolutely no excuse whatever for you for objecting in any possible way to a consultation though in any of the circumstances there may be a good deal to be said as to who shall be consulted, and on this point etiquette demands that you shall say to the interested person, patient or friends, “whom would you like”? The reply may be very various; he may name a neighbouring practitioner, a quack, a specialist of any sort or a consultant from a distance with more or less of a reputation. Inasmuch as he may be entirely ignorant of the

nature of the case and of the consultant named, it is quite possible you may have to enlighten him in these matters, and one can give you a few hints as to what your conduct should be.

Take the easiest case first. If he names a quack *i.e.* an unqualified person of any sort, herbalist, bonesetter etc., you are bound to take up a very firm position, and say quietly, but very positively, that you decline to meet him, and you are at liberty to go further than this and argue with him as to the folly of his conduct, and moreover, to say if you do this I must retire from the case altogether, but be even here a little careful what you say and do, for there is such a thing as the law of libel. It is impossible for you to meet an unqualified man on a case of your own, because you and he will have no common ground to discuss the case or at least its treatment; you will each be talking a language foreign to the other and you are not likely to arrive at a conclusion of any use to the patient.

If it is at your suggestion and for your own satisfaction that a consultation is mooted, probably the choice will be left with you as to the man to be called in; if so, the case will present no difficulties. The patient or his friend may however still wish to choose the consultant in which case you had better yield gracefully, subject to the above considerations.

Suppose the nominated consultant is a neighbouring local practitioner; it is here quite open to you to suggest in a friendly way that you think you would prefer to meet some one with greater knowledge and experience than yourself, but if your patient or his friends wish you to meet him say you are willing. Don't put on an air of offended pride; it is here that your jealousy need to be severely cured, don't let it show, and when the consultation is held take it pleasantly and talk things over in a friendly way; if he, too, only follows my advice the interview must result in a better feeling between you, and in benefit to the patient, mentally at least; and, after all, this is the main, if not the sole, object of immediate importance in such a consultation.

If the suggested consultant is a man of repute from a distance, your only concern is to advise your patient as to whether he is the right man for the case in a general way. I mean it is no use of your permitting a gynaecologist to see a case of pneumonia or a surgeon a case of influenza, or a physician a case of strangulated hernia. It is then your duty to inform

the patient as to the size of the fee and to also tell him that the fee must be paid at once to the consultant.

CONSULTATIONS WITH QUALIFIED PERSONS.

A very wide field for discussion is here opened, and one that must be surveyed from a very broad point of view from every side, specially in this country when claims are made by persons practising so-called other systems of medicine to be qualified medical practitioners.

THE PATIENT'S POINT OF VIEW.

It is very unfortunate, but none the less true, that there is no law to prevent a man being or acting like a fool and consequently any man is at liberty to submit himself to the tender mercies of anybody when he is ill.

N.B.—The law does step in to some extent to prevent a man from submitting to unorthodox treatment the bodies of those for whom he is responsible; his children, for instance, must be given proper medical attendance. We must assume, then, in the first place, that the patient knows exactly what he has done, and who is the person who is treating him. This being so, the next point is what circumstance has arisen to lead the patient to suppose that your advice and assistance are, or may be, of use to him?

This may be one of the several causes, but probably is (a) acute danger to life; (b) dissatisfaction at progress.

(a) *Acute emergency.*—In this case, when life is definitely and urgently at stake, medical ethics must stand aside and it is your bounden duty, at any rate, to see the patient or his friends and ascertain the facts for yourself and if you are satisfied that the case is urgently one of life and death, you must let this fact dominate and guide your speech and action and this even to the extent, if possible, of taking sole charge; and dominate, too, your method of dealing with the person in charge. Your duty is clearly to try to save life but if the patient or his friends decline to be guided by you and decline to have life saved, your only resource is to inform the Coroner if death ensues.

(b) *Dissatisfaction at progress.*—Here we are in a totally different position and one of entire freedom of action. We must still assume that it is the patient or his friends who are asking you to meet the "irregular" attendant. Even here you need not at once put on an air of irritating superiority and

with a shrug of the shoulders say, "No I won't come; it serves you right". Put yourself in his place and see how you would like it. Your proper course at least in my opinion is to say frankly (it is immaterial whether he comes to you or you go to him; in the latter case you ought to insist however on seeing him alone), 'I will listen to what you have to say, I will examine your case, and tell you exactly what I think of it and of the treatment and then I will leave you to decide and I will not put myself in a false position by pretending to consult with and advise and be advised by a man who in my opinion has no *locus standi*; you will have to choose between his treatment and mine for we cannot work together.'

(c) *Curiosity to get your opinion.*—Here of course the knowledge that any one else is or has been in attendance will be sedulously kept away from you and the case will be to your knowledge a perfectly fresh one. You will of course have gone and during the discussion it will come to your knowledge that there has been previous treatment. Thereupon the above paragraphs become active but now it is open to you to show reasonable irritation at having been imposed upon but how far this irritation will or should carry you will somewhat depend on the nature of illness and upon the considerations already discussed.

THE ATTENDING PRACTITIONER'S POINT OF VIEW.

If this individual be a Christian Scientist, a bone-setter, a herbalist, a physical culturist, a Vaidya, a Hakeem or any other quack with absolutely no pretensions whatever to minimum general and medical training, I don't think he can be said to possess in your eyes a point of view at all. It is at once flatly and finally impossible for you to meet him over the case in any way.

There are, however, many other kinds of persons who with greater or less honesty, undertake the treatment of disease upon their own responsibility and who may invoke your assistance for purposes of their own, and obviously the first principle that underlies the discussion is the degree of honesty in the case and this, speaking broadly, means a degree of medical training which he or she has received and which will vary from the properly qualified person who has dabbled in unorthodoxy though the man possesses a reasonable qualification and the dentist who began the case while it is confined to tooth trouble but wishes for advice upon the spread of mischief, as he has got out of his

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ENGLISH LITERATURE:

Vad and Mohile, Ind. Med. Gaz. August, 1927.

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Sinton, Paper read on the VII Congr. of the F. E. A. T. M.
in Calcutta, December, 1927.

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depth and will descend to the unqualified assistant in temporary charge to chemists and others, with no qualifications and with no medical training whatever.

CONSULTATION WITH AN ATTENDING VAID OR HAKIM.

As I understand the position of those persons they are divided into two classes very sharply distinguished one from the other. Class I—Those who have obtained the ordinary Diploma or Degree but since obtaining it have chosen to practise other systems. Or, those who are trained in one of the schools called Anglo-Ayurvedic schools or Unani where a responsible training is given on the principles and practice of scientific medicine without much practical experience along with the other training. Class II—Those who possess no shadow of a claim to a reasonable Diploma or Degree and who are in fact mere herbalists and open quacks.

Class I has certainly an original right to courteous and considerate treatment—how far the individual may have forfeited this right by advertisement and by dubious practices is a question not to be decided by general rules, but by individual performances—and I cannot see that an allopathic practitioner has any legal or moral right to refuse offhand to meet such a man apart from the personal forfeiture of rights above indicated. At the consultations the attitude to be adopted should, in the first place, be that of meeting an equal and the case should be examined in precisely the same way; your troubles begin when you two retire to discuss the position together. Your position is quite plain and straightforward. You must quietly but firmly express your opinion on the nature of the case and the necessary treatment, whether this is of a medical or of a surgical nature; you must then insist upon these ideas being reasonably carried out. If he disagrees you must yourself explain fully to the friends the divergence of views and leave them to decide whose attendance they will accept, stating positively that you cannot meet him again and cannot work together.

In conclusion I should like to say that I hope I have made some of the points of contention clear and with reasonable goodwill and tolerance I don't see any reason for any practitioner to complain about his brother acting on the principles enunciated above.

The following cases are quoted from my personal experience where Hæmoptysis preceded the regular onset of tuberculosis:—

(1) Kuppammal, a young woman of twenty, resident of Madura, had an attack of severe Hæmoptysis on a particular day. She was treated for it by the local doctor. She then developed cough and fever according to her own report and she was being treated for T. P.

She came to me for consultation three months after the attack of Hæmoptysis her right apex showed evidences of tubercle. She had cough, expectoration and temperature she was again treated for T. P.

2. Thiruvengadammal, aged 22, teacher, of a Girl School near Conjeeveram, came to me with the complaint of dyspnoea and pain in the right side of the chest. When I enquired into the history of the case, she gave me a history of Hæmoptysis which was the beginning of all her trouble. She had pleurisy with effusion on the right side. Subsequently she developed tuberculous Broncho-Pneumonia and died in a pitiable condition.

(3) Krishnamachariar, aged twenty five, teacher of a Board School, came to me complaining of cough, extreme debility, and sweating at nights. When I enquired into the detailed history he said he had an attack of Hæmoptysis and from that time he had frequent attacks of cough, and was extremely debilitated.

I examined his lungs but I could not detect any positive signs of tubercle. But I suspected that he would develop signs in the near future and advised him to take rest, tonic and good nourishment. About two months after this, he came to me complaining of cough, expectoration, night sweats and extreme debility. I had to put him on Angier's Emulsion, and hypophosphites and recommended rest and good nutrition.

The patient was improving slowly but did not turn up to me afterwards.

A CASE OF INTEREST

BY

M. ASLAM OMAR, L. M. P., AGRA.

One A. K. was laid up with rigour and fever on the 19th February last. The fever was to 102° and was attended with severe pain in the back and limbs with mild headache. It

was normal on the close of the 5th day. The patient was all right for nine days (excepting a mild temperature in the evening.) He had four attacks of fever all similar in character except for the duration, as under:—

1st attack, Sunday	14-2-28,	5 days	duration
2nd „ „	4-3-28,	3 days	„
3rd „ „	11-3-28,	do	„
4th „ „	25-3-28,	do	„

There was nausea and vomiting with every attack and no food appealed to the sense of taste except 'Pala' soup.

With the first attack there was pain and heaviness at the end of the perineum which was supposed to be due to inflamed piles but it soon subsided. With every attack there was some discharge from the urethra. Preceding the first attack there was a development of a mild swelling of the left knee (subsequent to a few miles' walk on a very uneven land in the "mofussil") followed after about two weeks by a slight discharge from the anterior urethra. The fourth attack terminated on the 27th March, and was followed by a herpetic eruption on and near the lower lip which took some days to clear away.

The patient now began to recover and was steadily progressing when on the 30th April he took a cold (for the 1st time during convalescence) and within two hours had a rise of temperature to 101° with severe pain in the body, especially in all the small joints of the hands and feet, the *great toe* and the *forefinger* of the left side being the most affected. But he was all right the next morning when he again noticed a slight urethral discharge.

Over twelve years ago he suffered from gonorrhoeal urethritis followed by sciatica of the left side. During his recent illness a portion of the posterior urethra and the old focus in the anterior part were felt irritated. Some years ago he had acute myositis (indurative type) of the muscles on the right lips, which have remained chronically thickened (to become slightly painful for a short time whenever exposed to cold.) Sir Osler has observed that gonorrhoeal infection does not fall very far short of syphilis in importance.

In the first week of April i. e. after recovery from fever, I suggested a course of treatment with Gon. Phylacogen and each

dose firstly reacted except the last one of 2 cc from the third bulb which had produced very little reaction.

The following injection (25 cc) was done intravenously and this again produced a good reaction especially in the joints of the hands and feet and slightly also in the prostate (in the form of an occasional drop of its secretion). The 2nd dose (50 cc) had a mild reaction and the 3rd (80) is administered today. The patient now looks all right except for a feeling of pain in the knee joints on going up and down stairs.

INFANTILE AND ADULT ECZEMA

BY

C. VEERARAGHAVAYYA, L.M.P., DAMAL.

In a recent issue (March) of the Antiseptic there appeared an extract from the Journal of American, Med. Assoc. on Infantile Eczema.

Injections of Adrenalin was recommended as a cure and palliative for Eczema. The treatment is rather a costly one and cannot be adopted in hospitals and dispensaries for the general public, and the effect of the drug is not lasting.

In my experience I have tried the following and find it very effective both in adults and in children and it is very cheap. The affected part must be washed well with soap and boric lotion and dried well.

Then *margosa oil* should be smeared over the part with a sterile feather or a swab; or the following ointment may be prepared with the *margosa oil* as the basis and applied.

Zinc oxide 1 part

Boric acid 2 parts

Margosa oil oz. iv

Mix. Ft. Unguentum.

The addition of Zinc and Boric soothes the itching sensation and hastens the process of healing.

I shall take this opportunity of summing up the various medicinal uses of our Indian *Margosa tree*.

(1) The oil is used as external application for a number of skin diseases as a measure of success and soaps are being made with it.

(2) The oil is used internally for Asthma. It is a cure for Asthma if taken in graduated doses and tolerated by the system.

(3) In Ayurvedic system the oil is invariably an ingredient in the treatment of diseases of children such as infantile convulsions and acute affections of the lung.

(4) The wood is ground up into a paste and applied to boils and other affections of the skin.

(5) The bark is used in decoctions as an anthelmintic, carminative, and stomachic.

(6) Several preparations of the oil are in the market for use in cases of *filariasis*.

(7) The tender leaves are crushed and ground up into a paste with some carminatives and salt and given to children and adults as stomachic and anthelmintic.

(8) The leaves and small branches are boiled in water and the water is used to bathe sick people in the convalescent stage, specially in cases of puerperium, small pox and in several fevers.

(9) The leaves and branches are kept in the homes of Hindus with a sense of religious sanctity deriving its antiseptic properties quite unconsciously. In many infectious diseases, the leaves are kept in front of the house as a symbol, specially in cases of small pox and child birth.

The leaves are used by some people in chanting mantrams to drive away evil spirits.

A CASE OF ENTEROSPASM WITH SIGNS AND SYMPTOMS OF ACUTE INTESTINAL OBSTRUCTION

BY

CH KRISHNAMURTHY, L.M.P., CENTRAL JAIL, RAJAHMUNDRY.

A—showed typical signs and symptoms simulating acute intestinal obstruction twice during the period of three months; all the causes were carefully gone into viz., strangulation by bands; no history of Peritonitis, no Hernia; Volvulus, Intussusception, Chronic Constipation, Gall Stones, Round worms etc. The patient had shock, pain, vomiting, constipation absolute, no flatus or faeces having been passed. Facies hypocratica and rigid abdomen and reverse peristalsis, which was visible. The patient was crying out of pain. Copious

enemata were given, and Belladonna and hot fomentation to the abdomen. The pulse was steady and full and hence it was decided not to open the abdomen before trying the other methods. As enemata failed it was decided to try fractional doses of Calomel $\frac{1}{4}$ grain every hour until four doses were given. The enema was then repeated rather high this time and fomentations with Belladonna continued. The patient now had his bowels open and all the symptoms and signs cleared up slowly. The same man showed similar signs and symptoms two months later and it was nearly decided to perform a laparotomy when again the fractional dose of calomel treatment was tried with success.

AN INGUINAL HERNIA WITH TWO SACS

BY

CH KRISHNAMURTHY L.M.P. S.A. SURGEON, CENTRAL
JAIL, RAJAHMUNDRY

K. P. V. Admitted and operated upon by Doctor C. Rama Kamath, M. B. and C. M., Medical Officer, Central Jail, Rajahmundry, for an Inguinal Hernia of 5 years duration. The usual operation was done. There were two hernial sacs, one direct and the other indirect. The direct one was thin, small and appeared more recent. It was below the deep epigastric artery. The sac was opened and dealt with as usual. After this was done, another sac was seen which was thick and indirect, evidently longstanding, and contained the omentum. This was ligatured and excised and the sac transfixed as high up as possible and the distal end excised. The external oblique was stitched with a few intermittent thick silk stitches as a continuous silk suture began to break through the fibres. The patient made an uneventful recovery. The case was reported on account of the rarity of two sacs and my thanks are due to the Medical Officer for his kind permission for publishing this note.



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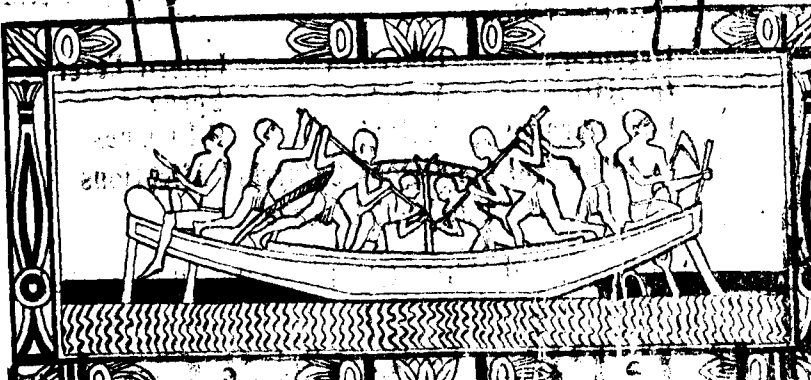
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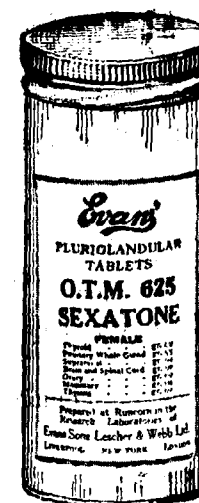
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JUNE, 1928.

THE MADRAS NURSES AND MIDWIVES COUNCIL.

After a long lapse of nearly two years, the Government of Madras have thought fit to declare by a notification in the Fort St. George Gazette that, on and from 14th February 1928, the Madras Nurses and Midwives Act of 1926 (Madras Act III of 1926) shall come into force within the Presidency of Madras. This piece of legislation is in our opinion ill-conceived and premature. In the first place, there is not a separate well-equipped institution in the whole Presidency to train pupils in the theory and practice of nursing and midwifery, the slipshod instruction given in the General and Women and Children Hospitals in Madras and in some of the mofussal Hospitals serving only to turn out third rate nurses and midwives, without aiming at efficiency and perfection. There are, in the whole of this Presidency consisting of a population of about 45 millions, only 391 nurses and 1802 midwives who have undergone the so-called training and obtained some sort of instruction to befit them for their profession. This number is quite inadequate and the prime move of the Government ought to be, therefore, to augment the quality and quantity of the nursing profession. Instead of providing for the training and manufacturing of nurses and midwives on a large scale, to legislate for the registration of the nurses and midwives is something like putting the cart before the horse. The provision in the Act for the registration of Dais is no doubt a wise step but when we consider the huge financial liability involved and the volume of ignorance and superstition to be overcome, it becomes a stupendous task for the already impoverished Local Boards to undertake their training. So long as these unqualified Dais are allowed to go on with their calling unhampered and

unrestricted, they will prove to be a source of positive danger to humanity and the training and registration of a few Dais under the Act will not help to obliterate it, in any appreciable degree.

Now coming to the constitution of the Council, we find it is official-ridden. The Council is composed of 12 members, of whom 5 are nominated by Government, 3 are ex-officio members and two are Matrons of Hospitals, to be elected by the registered nurses and midwives after one year and approved by the Surgeon-General who is the President of the Council, and out of the remaining two only one nurse and one midwife are to be elected by the registered nurses and midwives after a year and they are more likely to be employees in Government institutions than to belong to the independent nursing profession. Thus the nursing profession is sparsely represented in the Council, being only $\frac{1}{3}$ of the number while one-half consists of the medical profession. There are, besides, 2 non-officials not belonging to any of the above categories, nominated by the Local Government. We fail to see why these non-professional non-official members have been thrust in the Nurses Council, especially when there is no such analogous provision in the Madras Medical Registration Act. The composition of the Council is really reprehensible and no self-respecting nurse or midwife will care to enter the Council and sit with strangers, allowing them to interfere in their domestic affairs. Further, the recent nominations by the Local Government to the said Council discloses partiality to the ruling race. Not a single Indian either belonging to the independent Medical profession or to the non-official class has found a seat in the Council through Government nomination. It looks as if the Council is going to be a close preserve for Government medical officers and matrons, nurses and midwives employed in Government institutions—a caucus of the Government Medical and nursing staff, set up to strengthen their own position and safeguard their own interests and for which the blessing of a meek Legislature was sought and obtained. It is strange to find that the 'Dhai' class finds no representation at all in the Council. We think a separate representation is necessary for this army of untrained women, who are expected to qualify themselves and come to be registered in a separate register maintained for them by the Council. We wonder if the two non-official nominees of Government are meant to represent the Dais' interests in the Council and if so, the Government's choice is indeed ludicrous.

Lastly, let us examine the rules promulgated by the Local Government under the Act and published in the Fort St. George Gazette of 14th. February '28. There is, we are sorry to observe, suspicion and distrust lurking in every line of these rules. The following call for some comment viz., (1) to submit the nurses and midwives who have only practical knowledge and training, for an examination within three years from the date of their registration and to remove their names from the Register if they happened to fail in that examination. (2) to ask the nurses and midwives to name three persons willing to certify as to their moral character; (3) in the case of Dais, to compel them to undergo a 'refresher course' and appear for re-examination every second year; (4) to authorize certain institutions or persons to train nurses and grant diplomas; and (5) to appoint an inspecting agency to supervise the work of these institutions or agents. The first of the above rules is hard and unduly severe, though well-intentioned. The condition relating to production of a certificate as to the moral character of the applicant for registration contemplated in the 2nd rule is derogatory to the profession, and should be resented. While we wish for the purity of the profession we do not like that the very existence of the nurses etc., should be made to depend on the goodwill and good humour of three persons not related to them but whom they have served or known in life. The Council has got ample powers to deal with miscreants, if any, after registration, and a certificate of good conduct from their employers or teachers would suffice on first admission. It is indeed a harassing rule that asks for testimony from three persons and a dangerous weapon in the hands of the public or the medical or the nursing profession. Rule 3 is another handicap and though desirable in public interest, must be relaxed by lessening the frequency of such examinations and allowing more time for the Dais to gain sufficient knowledge and experience in their profession. Considering their general illiteracy and other disabilities they suffer from, they should not be frightened out of their wits by the imposition of such bothersome regulations and restrictions. The fourth item seems to us to be a matter reserved for distribution of patronage. As we have already pointed out, the Government must establish a separate school for the training of nurses and midwives and Dais with a full-timed staff, at suitable and convenient centres through-

out the Presidency. This haphazard method of training will lead to many evils and abuses and will not be conducive to the efficiency of the nursing profession. The system of training that is proposed to be given is faulty in the extreme and the sooner it is replaced by a more stable organization, the better for the profession. There will be no need for an inspecting agency then, as mentioned in item 5 supra and the establishment of a separate school or schools for nurses will be the best solution of the problem, viewed from all points.

We have discussed at some length some of the defects in the Nurses and Midwives Act and we hold that until the Government are able to turn out more nurses, midwives and Dais and put a stop to the practising of midwifery by unqualified persons, the existing evils will continue and the Act must remain practically a dead letter, taking its place among other dead statutes—to wit—the Madras Medical Registration Act of 1914.

CURRENT TOPICS.

SURGERY.

Commonly Confused Disabilities of the Hip-Joint in Children.—R. B. Dillchunt (Northern Medic., May, 1927) calls attention to four axiomatic principles often overlooked and of immeasurable importance: (1) If a joint cannot be moved in any direction whatsoever without severe pain, there is generalized pathology inside that joint. (2) If it cannot be moved in some one or more directions without pain but can be moved in some one or more other directions, painlessly, the pathology is not within the joint but outside it nearby. (3) When ever osteomyelitis occurs in a bone near a joint, there occurs in that joint a synovial effusion containing many leucocytes which looks like pus but on aspiration and culture is found to be sterile. To drain such a joint assures its destruction and neglects the real pathology, the osteomyelitis. The treatment was worse than none. (4) It is always safe to aspirate a joint under aseptic precautions and, if the fluid withdrawn is clear or slightly blood-tinged and culture reveals the streptococcus, immobilize with traction and do not drain. If the fluid is frank pus containing staphylococcus, the joint should be drained freely. No matter what the fluid looks like, if it is sterile, do

not drain. Finally, in nearly every form of hip disorder there is a tendency to the development of deformity. Treatment must be directed toward its prevention. No matter what measures are used, traction, plaster of Paris, splints or simple rest in bed, the extremity must be maintained in that position which offers the maximum degree of function even if bony ankylosis occurs, namely, abduction of 5°, external rotation of 5°, and flexion of 20°.

Incontinence of Urine of Renal Origin.—R. Campbell Begg (British Jour. Surg., October, 1927) summarizes thus: 1. There is a rare type of urinary incontinence caused by an aberrant ureter opening into the urethra on the vestibule of the vagina. 2. The cardinal symptom is incontinence side by side with normal urinary function. 3. The abnormality is explicable only by presupposing that the Wolffian ducts enter into the formation of the female urethra and vestibule. 4. Usually, the abnormal ureter is one component of a double ureter, so that cystoscopy reveals two normal ureters in the bladder. 5. The ureter is generally dilated and infected and belongs to a kidney which is diseased and has little function. 6. The usual treatment is nephrectomy or partial nephrectomy, but in clean cases ligature of the ureter may suffice. If the kidney is performing a large share of the renal function the aberrant ureter should be implanted into the bladder by high operation.

Chronic Otorrhoea.—N. Reese Guttman, in the Illinois Medical Journal, analyzes his results in treating chronic otorrhoea with Calot's solution. He gives Fotiade the credit of first using this solution which is composed as follows: Guaiacol, one mil; creosote, five grammes; ether, thirty cubic centimeters; iodoform, ten grammes; olive oil, seventy cubic centimeters. The pharmacodynamics of the mixture has been investigated. The iodine, guaiacol and creosote are found to exert a caustic action on granulations as well as being antiseptic. The ether dissolves secretions covering the diseased areas, thus allowing access of the other ingredients. Further, the solution causes active diapedesis of the poly-morpho-nuclear leucocytes, aiding bacteriolysis. The usual routine procedures, such as treating an unhealthy naso-pharynx, Eustachian obstruction, removal of granulations or polypi, etc., should first be carried

out. Fotiade in his series of sixty-four cases claimed 95 per cent of cures. Among the failures, one patient died of tuberculosis, one required a radical mastoid operation, and in one the result was unknown. The author's series of eighty-one cases was made up as follows: (i) Otorrhœa with no mastoid involvement shown by X-rays, thirty-one; (ii) otorrhœa with mastoid sclerosis shown by X-rays, thirty-eight; (iii) otorrhœa with cholesteatoma, twelve. All patients in Class (i) were cured. Thirty-five were cured in Class (ii), the other three requiring radical operations. None of Class (iii) responded to treatment, but the odor was noted to be less. Although Fotiade claimed cures in cases of cholesteatoma, the author thinks that radical mastoid operation is still the only treatment for this class of condition. The mode of treatment is as follows: The ear is first cleansed, mainly by the use of tubular suction; five to ten drops of the solution are then instilled into the auricular canal which is then closed by pushing the tragus against the canal wall and bringing alternate pressure to bear upon it. This has an effect of a pumping action upon the mixture, causing it to be forced into the *cavus*. If this maneuver is properly performed, the patient will taste the medicament in his throat. The treatment is carried out once a day for one week, when the secretion will be found to have changed from aropy to a thin serous discharge. Insufflations of boric powder are then used and the discharge will dry up within a few days.

Controlling Hæmorrhage in Tonsillectomy.—The public has a deeply rooted fear of hæmorrhage in tonsillectomy.

In *M. J. and Record* August 17, 1927, Dr. Walter A. Wells, of Washington, D. C., describes a method which he believes insures the control of this hæmorrhage.

The method consists briefly in the placing of suture-ligatures in designated points by means of a specially devised instrument.

In this suture-placing instrument, a slightly curved needle is fixed to the end of one of the blades and, on closing the instrument and then opening it, a double thread can be instantaneously placed at any point in the tonsillar fossa.

Four such points are selected: The most important is at the upper pole, under the angle of the juncture of the two pillars; the point of second importance is in the lower pole of the tonsil, often close to the base of the tongue; if there is the least indication of bleeding, a suture should also be placed in the

central area of the tonsil bed; the fourth point of importance is in the lower half of the posterior pillar. All these points correspond to places where vessels penetrate the fossa, or at least are most likely to be severed.

As the vessels in the tonsil area run in a vertical direction, it is most important that the sutures should be carried in a transverse direction; further, as the bleeding in the region of the upper pole comes from a descending vessel and all other bleeding points from ascending vessels the ligature in the first case should be placed above the bleeding point and in the second case below it.

By using these sutures, not only is safety from hæmorrhage assured, but the operative time is shortened

Pre-operative Care of Prostatic Patients.—F. R. Wright writing in *Minnesota Medicine* (February, 1928) states that the danger of the operation for the relief of hypertrophy of the prostate lies not in the field of operation but in the effect the operation has on the function of the kidneys. The constitutional symptoms of hypertrophy of the prostate are those of chronic uremia. Prostatic patients come to us seeking relief from two conditions: 1. Difficulty of urination *i. e.*, obstruction; 2, obstruction plus chronic uræmia. The urine of the man who complains only of obstruction will be normal in amount and specific gravity. The preparation of this patient for operation is a simple matter. He should be catheterized once a day four or five times, then twice a day for the same length of time and should wear a retained catheter for about a week. The man with chronic uræmia presents a more serious problem involving the judicious use of the catheter.

The elements which bring success are time and caution. The bladder should be only partially emptied daily, enough urine withdrawn to relieve but not remove the back pressure in the pelvis of the kidney. The amount of urine withdrawn is gradually increased until the bladder can be completely emptied. This allows the compressed kidney tissue to expand slowly. The urinary tubules not only retain but increase their function.

Under this treatment the uræmia slowly disappears. The amount of urine excreted is reduced and its specific gravity increases. How near the urine will return to normal amount

and specific gravity depends on the amount of permanent damage the kidney tissue has sustained.

The length of time required to decompress the kidney depends on the physical condition of the patient and the judgment of the surgeon. After it has been proven that it is safe to empty the bladder daily, the patient should be catheterized twice a day. Later, depending on the judgment of the surgeon, a permanent catheter should be inserted.

As far as the danger of uræmia is concerned any patient whose bladder has been drained by a permanent catheter for ten days without increasing his uremic symptoms can be safely operated.

In our opinion it is wise to let the uræmic patient make a long pre-operative convalescence. It is better to use the catheter a month too long than to operate five minutes too early.

Treatment of Osteo-articular Tuberculosis.—C. Clavelin and A. Sicard (Presse Med., February 22nd, 1928, p. 227) have combined intravenous injections of calcium chloride with ultra-violet irradiation in a large number of severe cases of osteo-articular tuberculosis. They always use freshly prepared weak solutions (never more than 1.5 per cent. CaCl_2) of the chemically pure salt in distilled water. The solution is repeatedly filtered, then sterilized in an autoclave. They give two series, each of ten injections administered on alternate days. An interval of twenty days' rest is permitted before the second series of injections is commenced. In the first series five injections of a 1 per cent. solution are given in progressive doses of 50 to 250 c. cm., and then five injections of a 1.25 per cent. solution in similar dosage. After the twenty days' interval, five injections of a 1.25 per cent. solution in doses gradually increasing from 50 to 250 c. cm. are followed by five more injections of a 1.5 per cent. solution in similar dosage. In two months the patient receives a total quantity of 30.5 grams of the salt, of which 50 per cent. is absorbed (Delore). The flask of solution is first heated in a water-bath to 40° C.; its contents are then poured into a graduated funnel with a rubber tube, to which the needle is attached. If the vein is not entered a blister will be seen and the injection is stopped at once. When an intravenous injection is given the patient feels a sensation of heat in the head, sometimes through the whole body; occasionally there is a "chalky taste."

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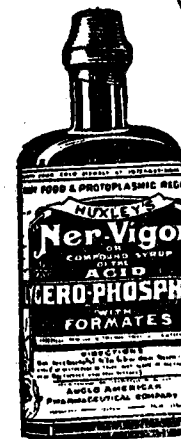


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the mouth, or even slight nausea, when it is better to stop the injection lest vomiting should occur though this seldom happens if the solution is injected very slowly. At least five minutes should be allowed for the injection of 100 c. cm., and immediately afterwards the ultra-violet treatment is given. Irradiations are repeated every second day during the injections and the interval between the series. The patient receives in all thirty general irradiations. The first irradiation lasts for one minute with the lamp at a distance of one metre. Every subsequent irradiation is increased by one minute, and the patient is brought nearer the lamp. The final irradiation lasts for thirty minutes with the lamp at a distance of 0.5 metre. Usually the injections are well borne; the pulse is not changed nor does the temperature rise. The injections should not be given immediately after food, and the tolerance of the patient should be observed closely. Only one case of intolerance was seen; the patient fainted, but was restored quickly by an injection of adrenaline. In some advanced cases with pulmonary tuberculosis, rigors and profuse sweating followed the injections; in such cases it is advised that the dosage should be increased more gradually. The results have been generally satisfactory. Of 29 patients, 4 lost weight slightly, but 17 others gained from 5 to 10 lbs. Many fistulæ grew smaller and then healed. The authors consider that the combined treatment enables the patient to fight better against the disease.

The Leucocyte Picture in Surgical Diseases.—M. Siebner (Deut. Zeit f. Chir., February, 1928, p. 318) states that examination of the blood picture may yield valuable information, especially in the following groups of diseases. (1) Acute osteomyelitis and acute abdominal disease, such as appendicitis, pancreatitis, cholecystitis, and cholangitis, which show leucocytosis, neutrophilia, eosinophilia, and a displacement to the left. (2) Localized suppuration, such as cerebral, diaphragmatic, or perinephritic abscesses, and especially circumscribed peritoneal abscesses, after diseases of the stomach, gall-bladder, and appendix, infected wounds, fractures, and hæmatomata. Such cases show hyperleucocytosis, absence of eosinophilia, and neutrophilia at the expense of the lymphocytes. Chronic suppuration, as a rule, shows only moderate or slight leucocytosis, and a characteristic feature in such cases is the

presence of degenerated neutrophils. (3) Simple catarrhal inflammation of the appendix, chronic cholecystitis, chronic peritonitis or pleurisy, extensive thrombophlebitis, recent fractures, and hæmatomata. In such cases there is only a slight leucocytosis with a normal or only slightly diminished number of lymphocytes.

OBSTETRICS AND GYNAECOLOGY.

On Carelessness in Obstetrics.—In an editorial in *The Compend of Medicine and Surgery* (January, 1928) Rawlins Cadwallader expresses surprise and regret that so many men fail to follow the exact technic laid down by the advance of medicine, or that they even slide backward. He thinks this is often the case in obstetrics, and mentions a case where a pupil of his asked him to perform a Cæsarean after repeated examination of the patient with the bare hands. He stresses a few things that are not but should be regularly done in labour cases.

1. The use of the pelvimeter and thereby a certainty that the pelvis is of normal size. The measurements are easily memorized: interspinous, 25 cm.; intercrystal, 28; intertrochanteric, 31; right oblique, 22; left oblique, 22; external conjugate, 19; and transverse at the outlet, 11. Note that starting with 25, it is subtracting three each time.

2. The presentation of the child—presentation in the sense of its polarity—is it head or breech? This is not hard to determine. Even in the very fat the head can be palpated in the lower crease. If determined any time during the last few months it will not change before labour starts and rarely then.

3. The position of the head—whether LOA or not. This requires a little more skill which is easily gained. The head at the pelvis can always be felt and the position of the hard occiput determined. Palpation of the back will tell to which side the occiput lies. The placenta always lies to the ventral side of the baby.

4. Locate the placenta by sound which is very much easier than locating the foetal heart. It is synchronous with the maternal pulse while that of the heart is more rapid, about one hundred and fifty. If it is low there is a possibility of hæmorrhage from the uterus failing to contract and one is thereby prepared for trouble.

5. The foetal heart is heard through the back and upper shoulder. If it is low the head is downward; if high, one may suspect a breech presentation. It also tells one that the baby is alive.

6. The relative size of the head with reference to the pelvis. There has never been devised any satisfactory way of measuring this. The experienced and skilful hand will become a good guide. One can also learn to estimate the flexion, degree of hardness, and ability to pass the superior straight.

The size of the breast, the amount of water present, the fact of twins, the height of the fundus, as well as what has been mentioned can be told by palpation of the abdomen. These six points, however, cover the essentials. Unless these are known, what form or type of dystocia may not confront one when it is too late to get help. Instead of being prepared for these they become emergencies. These six points cover nearly all the pathologic conditions incident to labour except lacerations.

The Use of Alcohol in Puerperal Sepsis.—J. Brock (*Monats. f. Geburt. und Gynak.*, August, 1927, p. 3) recommends uterine irrigation with alcohol as soon as symptoms of puerperal sepsis appear. He uses for this purpose about 1 litre of a table brandy containing about 40 per cent. of alcohol. He claims to have obtained very good results in this way, which he attributes partly to the local action of the alcohol and partly to its absorption into the system. Brock recalls Kustner's advocacy in cases of puerperal sepsis, of alcohol given by the mouth in quantities sufficiently large to bring about a condition of deep intoxication at the time of the expected rigor; no bad results were noticed. It was suggested by Kustner that alcohol might produce its good effects by slowing the rate of metabolism and so conserving the strength of patients with lowered nutrition, but he believed rather that the inhibitory action of the alcohol on the bacteria was the prime factor.

THERAPEUTICS

The Liver Treatment of Pernicious Anæmia.—H. F. Brewer, A. Q. Wells and F.R. Fraser (*Brit. Med. Journ.*, p. 165) confirm the reports of Minot and Murphy (see "Review", 1927, p. 265) that if treatment is commenced in the first attack, or in the stage of relapse, the reticulated red cells increase in a few

days and a steady rise in the total red cell count and in the hæmoglobin follows. This characteristic response does not occur in secondary anæmia or leukæmia. It is too early to form any conclusions on the value of this treatment in maintaining this improved state or in preventing relapses, but results obtained in America are encouraging.

Peabody showed that in relapses the bone marrow is packed with megaloblasts, and that when the red blood cells increase in the circulating blood during remission the number of megaloblasts in the marrow decreases, and the marrow approaches the usual normoblastic type. The reticulated red cells that appear temporarily in the circulation after commencing liver treatment are young cells and are mainly larger than the normal erythrocyte. Peabody suggests that liver acts by stimulating the immature megaloblastic cells that pack the marrow to develop to maturity. The approach to the normoblastic type of blood cell formation occurs later.

It is still uncertain what effect liver treatment has on the changes in the nervous system. It is not to be expected that signs of degenerative changes should disappear, and though the writers found evidence of progressive degeneration during liver treatment, it is possible that the process ceases after the treatment has been continued for some time. There is no evidence that the achlorhydria which is constantly present disappears, and there is evidence that it persists in spite of liver treatment, and that it is present long before the development of the anæmia. It appears, therefore, that liver treatment exerts a specific influence on the faulty development of the red cells, but there is no evidence that it affects the underlying abnormality that is present in those patients who develop pernicious anæmia, and of which the achlorhydria is a manifestation.

Considerable difficulty has been experienced in producing an active extract on a commercial scale, and until an efficient extract can be put on the market treatment by whole liver must be continued. Most of the writer's patients have taken large quantities of liver ($\frac{1}{2}$ lb. daily) without difficulty, and have, as a rule, preferred it stewed, though fried liver and liver soup are agreeable variations. The raw juice mixed with orange juice has proved useful, especially in the more seriously ill patients. "Cooked liver," as Minot and Murphy state, "may be served in any way that pleases the patient, but prolonged boiling is to be avoided." There is evidence that a

smaller quantity of liver is sufficient to maintain the improved condition, and that the dose should be reduced when the blood picture approaches the normal.

Nineteen patients with pernicious anæmia were treated with whole liver or a liver extract at St. Bartholomew's Hospital. Nine were in the first attack or in a relapse, and 7 of these showed a prompt response to treatment, with a temporary rise in the percentage of reticulated red cells in the circulating blood and a steady increase in the total red cells and the hæmoglobin. The reason for the failure of the treatment in the other 2 is not clear.

Ten patients commenced treatment during the remission stage or received other forms of treatment in addition, so that observations on the immediate effects of the treatment were not possible. The condition of these patients at the end of varying periods of treatment (up to 6 months) confirms the value of this treatment.—*Med. Rev.*

Nasal Disease and Asthma.—Sir James Dundas-Grant (*Practitioner*, p. 341).—The essential feature in asthma is a narrowing of the bronchioles produced by contraction of the bronchial muscle. This can be produced by stimulation of the peripheral end of a cut vagus nerve. *Per contra*, if the thoracic end of a cut cervical sympathetic is excited, "immediate and profound dilatation occurs." This bronchodilator action of the sympathetic explains the remarkable effect of adrenaline in arresting attacks of asthma, it being a powerful stimulant to the sympathetic. Dixon found that in the decerebrate animal contraction of the bronchial muscle could be produced by irritation of the nasal mucous membrane, especially on the upper and posterior part of the septum. This part is supplied by the nasopalatine branch of the sphenopalatine ganglion, and the connection of the sensory division of the fifth with the vago-accessory nerve is effected in the medulla oblongata where their respective nuclei are closely associated. In the light of these results the writer studied in all cases of asthma referred to him the condition of the middle turbinated body and neighbouring structures in their relation to the upper and posterior part of the nasal septum.

In a consecutive series of 15 cases he obtained from nasal treatment recovery in 8, great improvement in 4 (treatment

incomplete), considerable relief in 1 (treatment incomplete), result unknown in 2.

The following are the main features of some;

Middle-aged man; violent asthmatic attacks; extensive nasal disease; gradual clearance; complete recovery.

Middle-aged neurasthenic; constant wheezing; not definite spasmodic asthma; unfit for work; turbinals in contact with septum; great relief and return to work after use of ointment of anæsthesin and adrenaline.

Elderly man; bronchitis and emphysema with long attacks of asthma; multiple nasal polypi; partial clearance followed by considerable relief; complete treatment not carried out.

Young man; asthma on and off since infancy; exacerbations several times a year; hypertrophy of middle turbinals; several operations; then freer from asthma than he had been for a year.

School boy with asthma and inability to run; attacks intensified by presence of cat; marked hypertrophy of right middle turbinal and adenoids; removed, ultimate complete recovery from asthma even in presence of cat; able to win races.

Middle-aged lady; asthma every night (sometimes at hourly intervals) for fourteen months; deflection of septum and bilateral polypi; removal of polypi and a septal spur; complete recovery from asthma with return of sense of smell.

It would seem, therefore, that we are justified, in view of the experimental results brought forward, in accepting that the upper and back part of the nasal septum is, as Dixon advances, the best area from which the reflex can be produced, and that the middle turbinated body is the structure best adapted to excite it. A lady had multiple nasal polypi and extremely severe asthma. Whenever the writer pressed on a spot on the upper and back part of the septum where the stump of the middle turbinal came in contact with it, the patient wheezed in the typical asthmatic manner, ceasing to do so on removal of the pressure. Some cases of asthma in children afforded valuable evidence. Occasionally, when a child with asthma and adenoids was referred for removal of the adenoids in the hope that this might be followed by a cure, the asthma disappeared; but as a rule it was as bad as ever. Only when enlarged middle turbinals were detected and removed was cure brought about.

It is not sufficient to remove any piece of middle turbinal, even a large piece, if we leave behind the very portion which

touches and irritates the sensitive part of the septum. This has been exemplified by cases in which, in spite of removal of even a considerable portion of the bone, the asthma persisted, but on removing a remnant which still came in contact with the upper and back part of the septum (often a polypoid outgrowth), so as to leave a free passage between the septum and the remains of the turbinal, the asthma disappeared. However, in such removals as little should be taken at a time as possible. We can take away, but we cannot replace.

If patients had always returned for the finishing touches the number of the successful cases would have been higher. Re-development of polypoid outgrowths is not infrequent.

If the contact with the turbinal is due to a deflection of the septum, this may be resected by the submucous operation but if the rectification is ideally perfect there is apt to be a fresh contact with the middle turbinal of the opposite side, involving removal of a portion of the latter.

Instead of a deflection there may be a turgescence of an erectile tissue on the side of the septum. This is recognizable by its boggy nature when touched with the probe, and by its subsidence under the local application of adrenaline. It may be pinned down by a few punctures with the galvano-cautery point.

A palliative and informative procedure of considerable value is the application of an innocuous local anæsthetic such as anæsthesin combined with adrenaline in the form of an ointment. The relief produced by the sedative and deturgescent effect is often considerable and suggests that operative treatment will succeed.

Sluder quotes cases in which the asthma has been stopped by the application of a local anæsthetic to the mucous membrane covering the sphenopalatine ganglion, just behind and above the posterior extremity of the middle turbinal, as can be seen in a macerated skull. This would be very difficult if the turbinal were much enlarged, as it often is in asthmatic cases.

Francis advises light cauterization across what is probably the line of the nasopalatine nerve, especially in cases in which there is no material nasal disease. In the few cases in which, in the absence of obvious nasal disease, the writer, with considerable scepticism, employed this method the results

have sometimes been good. It may be a form of counter-irritation, though a mild one, applied to a part of the nerve peripheral to and rather remote from the most sensitive part.

Should we expect every one whose middle turbinal comes in contact with the septum, or whose nose is more or less crowded with polypi, to have asthma. No. There must be some special sensitiveness, possibly an allergic factor, which can or cannot be unearthed, or what Samuel West described as a hypersensitive asthmatic centre. This centre can be stirred up by stimuli of various kinds—psychic, toxic, chemical and others—and, as Dixon and Brodie's experiments have proved, by stimulation of the nasal mucous membrane, especially on the upper and back part of the septum.—*Medical Review*.

Treatment of Epilepsy.—James Collier (*Lancet*, p. 69).—When possible, education, occupation, and recreation should continue without restriction. Mental activity and physical activity are powerful repellants of epileptic attacks. Hence the habitual epileptic seldom, or never, has an attack when at work. On the other hand, discouragement of hopes, abrogation of play, and the despondency wrought of inanition and the feeling of being different from others produces an effect upon the incipient epileptic that medicinal treatment will scarcely remedy. Even excitement, which is well known as a cause of fits, need not be interfered with. It is better to fortify the patient with a preventive dose before any excitement is to happen and let him go through with it.

The value of the malonyl-urea compounds of which luminal may be taken as a type, have gained universal acceptance and luminal has largely supplanted the bromides. It has much the same effect and does not cause acne or dyspeptic symptoms, but there seem still to be some cases which do better on bromides. Whichever drug is used there seems to be no advantage in administering it more than twice a day, nor in using any but moderate doses—up to gr. 1½ of luminal and gr. 20 of sodium bromide. The whole purpose seems to be to anticipate and prevent a fit. Therefore it seems useless to give these drugs for nocturnal epilepsy except in a single dose at night, or for diurnal epilepsy except in a single dose in the morning, and for epilepsy that occurs both by day and by night, both night

and morning. In so much as the attacks occur at regular times and can be anticipated one hour by a dose of the remedy, the epilepsy can be the more successfully treated. The only other remedies which influence epilepsy are zinc salts and belladonna. There are a few rare cases in which one of these are of signal benefit—generally cases in which both luminal and the bromides have failed.

Status epilepticus is rebellious to the remedies mentioned. It is necessary to preserve nutrition by careful watering and feeding and by the use of stimulants, and this administration should be from the first by the nasal tube. Any remedy which has any depressant effect, such as luminal, bromides, morphia, or chloroform, does more harm than good. One remedy first used at the National Hospital by Carmichael is of signal value—paraldehyde. This is a stimulant and also checks convulsions. It can be given in large doses, up to 8 drachms without ill-effect. And it is readily absorbable from the rectum when mixed with an equal quantity of olive oil. With this remedy the writer has saved many patients in status epilepticus whose condition was so desperate as to make him believe that otherwise they would have perished. The writer further recommends paraldehyde in any epilepsy whatsoever in which convulsive attacks are frequent.

The medicinal treatment here described is applicable to every form of epilepsy, idiopathic, organic, and symptomatic, and also to the closely related maladies, migraine, vaso-vagal and syncopal attacks.—*Medical Review*.

Treatment of Hiccough.—Lichtenstein (*Klin. Woch.*, p. 552) recommends the following in severe attacks. Two pieces of wadding are placed one in each nostril and soaked in a solution of:—

Hydrochlorate of cocain.

Suprarenin (1/1000), aa 1.0.

Carbolic acid m. I.

Distilled water to 50.0.

In three cases of men, collapsed, or on the point of collapse from excessive hiccough which nothing would allay, the hiccough ceased directly after using this application.—*Med. Rev.*

Protein Therapy in Leprosy.—N. A. Dyce Sharp (Trans. Roy. Soc. Trop. Med. and Hyg., January, 1928, p. 305) believes that the essential feature in the treatment of advanced cases of leprosy is the degree of initial reaction. Any substance, therefore, which will result in a smart reaction in a leprosy individual will probably achieve a beneficial result apart from any specific action. The most suitable protein body to produce a shock is tinned milk prepared under the most hygienic circumstances and free from preservatives of any sort. The technique is as follows. The top of the tin is cleaned and a small hole made in it by a sterile nail; 2 or 3 c.cm. of milk are then slowly drawn up into a 10 c.cm. syringe and diluted with distilled water in a test tube, so that the strength of the dilution is 1 in 10. The standard dose of 0.5 c.cm. of tinned milk is therefore contained in 5 c.cm. of diluted milk. The reaction consists in a feeling of giddiness, which comes on within half a minute, followed in three or four minutes by marked respiratory distress and more or less severe precordial pain. Within five minutes, of the injection there was always sharp pain in all the joints with severe frontal headache. General improvement followed in another five minutes, and usually within half an hour the patient was able to go home. A secondary reaction, shown by a rise of temperature to 103° to 104° F., would set in at night, and might recur for several nights. In every case complete relief from pains in the joints and bones and from formication occurred within twenty-four hours. At the end of forty-eight hours the temperature was usually normal, and there was almost complete freedom from pain, except in the septic ulcers. In the course of a week the skin lesions, including the perforating ulcers in the soles, showed a marked improvement. Relapses are apt to occur, when benefit may be derived from a second injection. In two of the twelve cases treated the injection was given into the buttocks. There was little, if any, immediate reaction, but when there was a smart febrile reaction a few hours later the end-results seemed to be the same. The author concludes that the treatment, though admittedly drastic and undoubtedly dangerous, seems to be specially applicable to the late and less hopeful forms of the disease.

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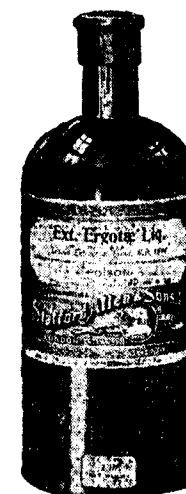
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One of the cheated chemists with the connivance of the police set up a temporary export bureau and gave an order to the suspected persons. They duly delivered the falsified goods only to find themselves on arrival in the hands of the police.—British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

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The Treatment of Sciatica.—In the course of an address to the Hunterian Society on "Sciatica: its Varieties and Treatment," Dr. Anthony Feiling said that the treatment of the secondary forms of the malady was clearly that of the casual factor. In cases of neuritis or perineuritis rest in bed was nearly always essential, but splinting could seldom be tolerated. Heat was undoubtedly the best local palliative, whether achieved by poultice, fomentation, radiant heat or diathermy. He had been little impressed by electricity. Milder cases might benefit from counter-irritants such as liniments, ointments, or blisters, or by painting with strong hydrochloric acid. In the early stages of an acute neuritis, massage was definitely contra-indicated. Innumerable drugs had been used, either as "cures" or to relieve pain. Any amenable condition, such as constipation or urinary infection, which might be a factor in causation, must be promptly treated. Salicylates and iodides had direct effect, but the intravenous injection of sodium iodide had no advantage over oral administration. Of analgesics dia-lacetin and allonal were of value, and particularly useful was a cachet of aspirin grs. V., pyramidon or amidopyrin, grs. V., and heroin, gr. $\frac{1}{4}$ or $\frac{1}{2}$. In really bad cases the temporary use of morphia was almost imperative. Cases of sciatic neuritis which did not yield in two or three weeks might be treated with saline injection in the nerve trunk; about 100 cc should be used and the temporary pain controlled by a quarter of a grain of morphia. Injection of oxygen was also of value. Great temporary relief in central sciatica might be obtained from epidural injection through the sacro-coccygeal foramen. Normal saline, novocaine, or 10-20 cc. of a 40 per cent. solution of antipyrine might be used. This procedure, coupled with the local application of heat, usually relieved most cases.

Thallium Acetate in Ringworm.—B. F. Felden (Arch. Derm. and Syph., February, 1928, p. 182) records his experience of treating forty-seven children with ringworm of the scalp by oral administrations of thallium acetate; of these, thirty-six were cured by one dose. The dose was 8 mg. of the drug for each kilogram of body weight; it was dissolved in half a glass of water sweetened with sugar, and given on an empty stomach in the morning. Epilation usually occurred on the eighteenth day, but was only entirely complete in approximately 50 per

cent. of the cases, the remaining loose hairs being painlessly extracted by strips of adhesive plaster; in some cases only partially successful results were obtained. In from three to four weeks the hair began to grow again and during the whole period daily local treatment with 5 per cent. tincture of iodine and 10 per cent. sulphur ointment was continued; it was found that this did not cause irritation, thus constituting an advantage as compared with x-ray treatment. Patients with a marked discrepancy between weight and age are said to be unsuitable for pure thallium treatment, but a modification consisting of one half or two-thirds of the doses of both x rays and thallium combined gives good results. On account of its toxicity full dosage must be avoided in adults and adolescents; repetition of the dose in less than two months is dangerous, and acute infections and kidney diseases are contraindications for its use. Symptoms of poisoning are: muscle and joint pains, choreiform convulsions, albuminuria, gastro-intestinal disturbances, achlorhydria, secondary anæmia, and tachycardia. Felden regards the drug as of value in producing epilation in children, but warns against its indiscriminate use by those who are not familiar with its grave toxic qualities and contraindications.

Treatment of Infantile paralysis by X-Rays and Diathermy.—Inspired by the work of Bardier, A. G. Lanovsky and G.M. Freydowitch (Medicynskaya Mysl Usbekistana [Russian], October, 1927, p. 37) report the treatment by X-rays and diathermy of 39 cases of infantile paralysis during the first six months of the disease. A complete cure was achieved in 21 per cent., excellent results were obtained in 50 per cent., and in the remainder, with the exception of two cases of diffuse poliomyelitis, the therapeutic results were good. The treatment began with irradiation of the spine. When the lower limbs were affected, the rays were directed to the ninth, tenth, eleventh, and twelfth dorsal vertebrae; in paralysis affecting the upper limbs the fifth, sixth, and seventh cervical and the first dorsal vertebrae were irradiated. In cases of combined paralysis both the upper and lower segments of the spine were treated. Each field was irradiated with 30 to 50 per cent. of the skin erythema dose with a filter of 0.3 mm. zinc and 1 mm. aluminium. The treatment was repeated at intervals of two

to three weeks, and twice or three times altogether. Diathermy was employed every second or third day in the intervals between the X-ray treatments. A small electrode was applied to the affected segment of the spine, a large indifferent electrode opposite in front, and a current of 500 to 1000 milliamperes was passed for ten to fifteen minutes. The course of treatment usually lasted from one to two months.

Quinidine in Coronary Thrombosis.—S. A. Levine and W. B. Stevens (Amer. Heart Journ., February, 1928, p. 153, describe the use of quinidine sulphate in coronary thrombosis complicated by ventricular tachycardia. This abnormal rhythm is not uncommon, and is in most cases the sequel of coronary occlusion. In many cases the tachycardia is transient, but, if it persists, the condition of the patient soon becomes extremely grave, as in a case reported. A man, aged 53, was admitted to hospital suffering from typical coronary thrombosis with persistent retrosternal pain, gallop rhythm, pyrexia, leucocytosis and falling blood pressure. He continued to have some cardiac failure, but no other complication, until the fifteenth day in hospital, when the pulse rate was found to be 198, and an electro-cardiogram proved the presence of ventricular tachycardia. An intravenous injection of 5 grains of quinidine sulphate was given without effect. Four hours later 6 grains was given by the mouth, and on the next day 8 grains. Since the condition of the patient was deteriorating these daily doses were increased progressively to 18 grains, and then, four days from the inception of abnormal rhythm, it was shown by electro-cardiography that occasional normal cardiac cycles were appearing. After two more doses of quinidine, each of 23 grains, the rhythm had become normal, apart from occasional ventricular extrasystoles. For the next six days doses of 15 grains were given four or five times a day, and then on withdrawal of the drug the pulse was slow and no irregularity recurred. Great improvement in the general condition of the patient coincided with the restoration of normal rhythm. The authors concur with the general hesitancy to use quinidine, but believe that its use is justified where the continuance of ventricular tachycardia is hastening a fatal issue. They comment also on the

very large doses which were required in this case to produce the desired effect.

CORRESPONDENCE.

THE VALUE OF CREOSOTAL IN RESPIRATORY DISEASES.

TO THE EDITOR, "*The Antiseptic*," MADRAS.

Sir,

I have been using Creosotal for over twenty years in my practice with immense benefit in all cases of respiratory affections: e.g. simple catarrh of the naso-pharynx, bronchitis, influenza, pneumonia and tuberculosis bronchial. The dose for adults is usually ten minims in milk or with any mixture prescribed; five mms. to children and infants, two to three mms. thrice or four times daily. The dose recommended by the manufacturers is rather large for the Indians, occasionally causing diarrhoea.

In Influenza I generally recommend the drug as a household remedy in ounce phials (as it is conveniently marketed by the manufacturers) for use as a first aid at the very onset of indisposition both as a prophylactic and curative. I could confidently say that many of my patients happily escaped the flu season by the mere use of this drug in this period of the year.

In cases of Pulmonary Tuberculosis with varying temperature, hard, difficult and purulent expectoration, I have found this drug to be of capital benefit as an antiseptic.

My experience of the drug for the last twenty years has led me to give publicity to the above lines so that my co-practitioners might also give a trial to this cheap but effective drug in respiratory affections and compare their experiences with my observations.

Yours sincerely,
V. ABBOY NAIDU
Civil Surgeon (Retd.)

"A CASE FOR DIAGNOSIS".

TO THE EDITOR, "*The Antiseptic*," MADRAS.

DEAR SIR,

All these months I was carefully reading the correspondence in your well-esteemed Journal as I wanted to have the views of your correspondents regarding my letter "A case for Diagnosis," which you so kindly published in October 1927. Till now three doctors have given their different views about the case and the last, Dr. Basant Singh, seems to agree with me that it was a case of "Snake-bite," and I am thankful to him for the line of treatment that may be adopted at that critical moment.

I may assure Dr. D. S. Doctor that as I had treated that girl on some occasions for ordinary ailments of life during three years before her death, I never had any history from her that she ever passed any worms. After reading Dr. Dinshaw S. Doctor's opinion I inquired from her parents and I was given to understand that she had never passed any worms during her life time. Similarly I may inform Dr. Y.S. Row that I had never detected any symptoms of tuberculosis in her, nor did she ever complain of fever and cough during those three years.

The readers of your Journal will be much interested when I tell them that in that very house, a few months ago, I was called early in the morning to see the elder sister of the deceased, who had in a similar manner cried in the lavatory and fainted. She was at once brought to her bed and luckily she revived very soon. When I reached there I found she was conscious, but she looked rather weak, pale, had slow pulse and perspiration. A few doses of Spt. Ammonia Aromaticum made her perfectly alright, so much so that she could attend a tea-party that evening. This kind of faintness I thought might be due to fright, constipation, smell from the gutter of the lavatory, improper ventilation or a hysterical fit. After thorough investigation I came to the conclusion that it was due to severe constipation as she had not passed stools for two or three days. "Is the house haunted, doctor?" asked the frightened parents. "No," said I, "be at ease."

Yours faithfully,
AWAT T. SHAHANI

Karachi.

BLEEDING FROM GUMS AFTER QUININE

TO THE EDITOR, "The Antiseptic" MADRAS.

DEAR SIR,

I was called upon to see Mrs. A aged 28 years bleeding profusely from gums. On examination it was found that both the surfaces of each gum were involved. There was no rash on the body and there was no bleeding from any other place. Mouth-wash of iced water, alum, and hydrogen peroxide were tried in succession with very little effect. Calcium lactate 15 grs. dissolved in water was given by mouth every two hours. Tinct Ferri Perchlor applied locally had some temporary effect. Stypticin was applied locally and 2 tablets were given to swallow every 3 hours. The bleeding stopped after 18 hours.

Present History.—The patient delivered a healthy living child 4 days ago. After 24 hours she got fever with chill, temperature being 101° F. Next day the temperature was 101° F. in the morning and 103° F. in the evening. There was no tenderness of the uterus, no rigidity of abdomen. Lochial discharge was normal. Next day it was 100° F. 5 grs. Quinine were given and repeated after 3 hours. The bleeding began soon after the second dose.

Past history.—The patient got similar attack of bleeding from gums on taking quinine one year ago. There was no delivery at that time and quinine was not given during fever. It was given to check an anticipated attack of malaria. Bleeding was checked within 12 hours.

Yours truly,

JAGDISH RAI, M.B.B.S.,

MANDI ROHTAK, THE PUNJAB.

A QUERY.

TO THE EDITOR, "The Antiseptic," MADRAS.

DEAR SIR,

Can you or any of your readers enlighten me on the effects of lime juice, (1) on healthy individual, (2) on acute rheumatics, and (3) on chronic Rheumatics.

I tried giving lime squash in a few persons and some have complained of vague or definite pains in joints. I cannot yet say, it is due to lime-juice.

Yours sincerely,

M. E. NAIDOO

MALAYAN MEDICAL SERVICE.

TO THE EDITOR, "The Antiseptic", MADRAS.

DEAR SIR,

Herewith enclosing a true copy of the unanimous decision of the British Medical Council, Malaya which appeared in the "Malaya Mail" of 7th instant. They have made that L. M. P. diploma and the L. M. S. Certificate as being equal to that of their dresser's certificate which is no more than the certificate of our nurses.

We, who have ventured here mostly to look after our own countrymen employed as Labourers on Estates, consider it improper to be addressed as dressers but for a recognised association to compare our certificates to those of the dressers' is no justification.

I remain,

Yours truly,

"MEDICO"

EXTRACT FROM "MALAYA MAIL" OF 7th APRIL, 1928.

Amongst other questions, the vital one of recruitment to the Malayan Medical Service received deep and comprehensive consideration, the ultimate sense of the discussion being that the conditions of the service merited the whole-hearted support of the local branch. The Council also deliberated on the standing as dressers, in the Federated Malay States, of Indians with the qualifications of L. M. & S. and L. M. P. Madras, and the unanimous finding of the Council was that the L. M. P. certificate should be regarded as the equivalent of the Grade II Dressers' certificate, and the L. M. & S. Madras as the equivalent of the Grade I Dresser certificate.

DRUG REVIEW.

HEWLETT'S ANTISEPTIC CREAM.
(CREMOR ANTISEPTICUS, HEWLETT'S)

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A Pure Antiseptic Preparation containing Zinc, Boric Acid, &c., and free from Animal Fats. An emollient healing cream for cuts, burns, wounds, abrasions and eruptions of the skin. Instantly relieves the itching and burning sensation of the skin in cutaneous diseases. In all cases of roughness and irritation of the skin, its healing and soothing properties are widely recognised. It is delightfully scented and is considered the most effective ointment extant. Price in England in enamelled collapsible tubes, 18 per doz. Bulk, 5/6 per lb.

NOTICE

I

INTERNATIONAL MEDICAL CONGRESS

From July 23rd to the 27th (Both days inclusive) an International Congress for Radiological Therapy will be held in Stockholm.

From August 2nd to 4th, a Congress for Physical Training and Sports will be held in Amsterdam.

In honour of the Centenary celebrations of the Medical Faculty, University of Cairo, an International Congress for Tropical Medicine and Hygiene will be held from December 15th to 22nd.

II

FROM THE MEDICAL PROFESSION IN GERMANY.

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Age Profession	Illness	Duration of cure	Weight of Body		Amount Hæ- moglobine		No. of red Corpuscles		Pressure of the Blood	
			on ente- ring	on leaving	on ente- ring	on leaving	on ente- ring	on leaving	on ente- ring	on leaving
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P. I., 19 years, Sempstress	Chlorosis	7 wks.	42	46	20%	45o/o	4060000	5,140000	110 "	120 "
P. L. 34 years, Smith	Anæmia Ulcus ventric	4 wks.	61	64	30%	45o/o	2400000	3240000	90 "	90 "
H. E., 21 years, Servant girl	Anæmia Perimetritis	5 wks.	53	62½	20o/o	40o/o	1800000	3280000		
V. M., 24 years, Accountant's wife	Chlorosis	5 wks.	36	43	20o/o	60o/o				
S. E., 23 years Saleswoman	Chlorosis	4 wks.	49	51½	35o/o	60o/o				
E. M., 16 years Servant	Chlorosis	7 wks.	43	47	50o/o	80o/o				

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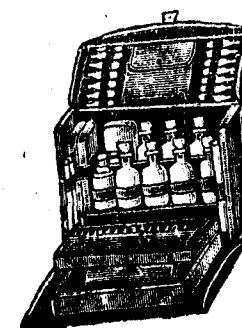
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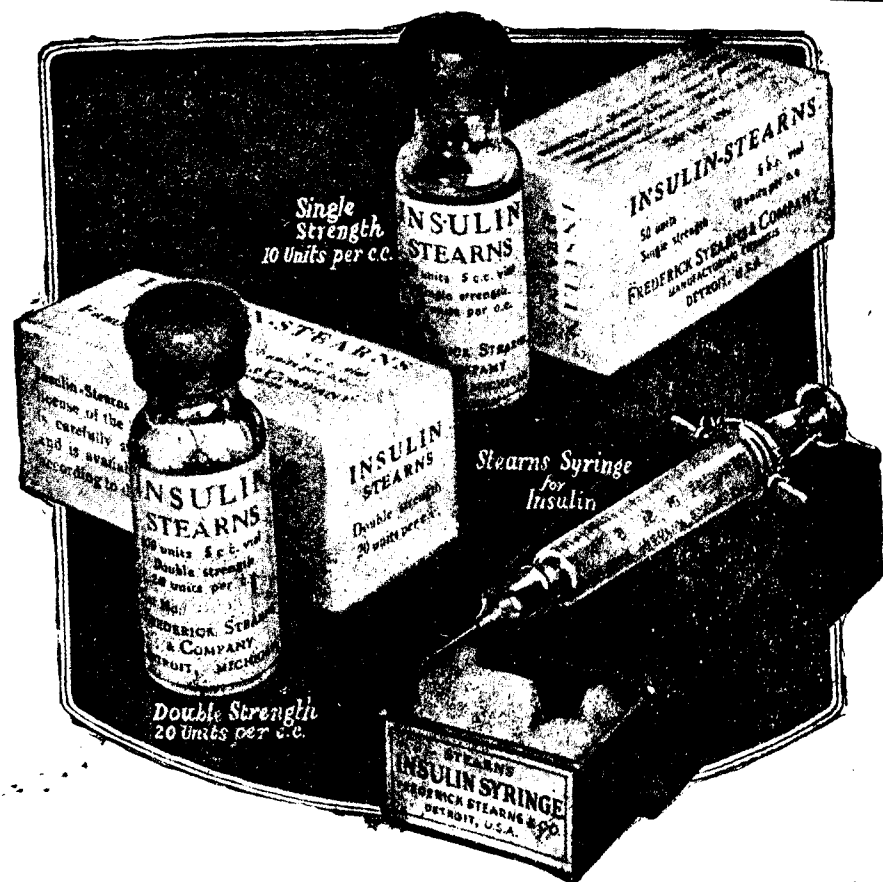
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