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CHANGING VIEWS ON THE TREATMENT OF INGUINAL HERNIA.

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The subject of inguinal hernia is rather a played out one. It might be imagined that some degree of finality had been reached many years ago. Certainly conventional views had crystallised into moulds rigid enough.

As a student at Guys Hospital I was brought up in the unchallenged belief that the correct treatment for an inguinal hernia was Bassini's operation. And for many years I have practised and taught the operation as it was performed at Guys Hospital. Of recent years one's views have slowly changed and one no longer regards the old Bassini operation as giving the best results attainable.

For the purpose of this paper, by inguinal hernia is meant the ordinary indirect or oblique inguinal hernia in which the peritoneal protrusion lies lateral to the spermatic cord and the inferior epigastric artery and then traverses the whole length of the inguinal canal superficial or anterior to these structures. (Fig. I). The sac in these cases has always been present since the descent of the testis in the latter part of the foetal life, and so is present from birth, though abdominal contents may not enter till much later in life.

What were the results of the old Bassini operation? I remember being taught as a student that ten per cent. suppurated, though often slightly, five per cent. (chiefly amongst those that suppurated) recurred during the patient's lifetime. The immediate mortality was well under one per cent. (cases of strangu-

lated hernia were not included), I am aware that better statistics than this have been published, but few surgeons see their unsuccessful end results. Nearly all statistics are vitiated by the fact that they have been collected by the surgeon himself or his disciples, the former swayed by a subconscious bias and the latter by loyalty or even hero-worship or (subconsciously again) by a desire for promotion likely to be secured by the presentment of agreeable facts. We require an independant Board of Scientific Actuaries steeped in scientific scepticism and well trained in statistical methods. It is further needed that no surgical journal should publish statistics unless audited by such a body.

Finally, the only statistics which ever see the light of publication are those which make a good showing. So I believe that the figures of 10% sepsis and 5% recurrence is not an unfair estimate. These results are not good enough. We should have less than 1% of sepsis and less than 1% of recurrence.

Let us look very critically at the Bassini operation as it is usually performed. After the skin and external oblique aponeurosis have been freely incised, the lowest fibres of the internal oblique are divided near the inguinal ligament to expose freely the abdominal inguinal ring. The hernial sac is identified, opened, dissected clean, and cut and tied off high up. The cord is then raised from the canal by rough dissection. The lower fibres of the internal oblique and their continuation into the falx inguinalis (or conjoined tendon) are then secured by 4 sutures to the inguinal ligament. The divided superstructures are then sewn up. Chromicised catgut is used in the sewing of muscle and fascia.

The essence of the operation is the attempt to form a new musculo-aponeurotic posterior wall to the inguinal canal with the idea of restoring the valvular action of the inguinal canal.

Now what are the criticisms?

1.—The posterior wall has not given away. There is no need for a new posterior wall because this has not given way. The peritoneal protrusion has begun lateral to the spermatic cord and so lateral to the canal. In very large old standing hernias the posterior wall with all the surrounding tissues has been pushed away and special treatment may be required. But the majority of cases are early enough for the posterior wall not to have been materially encrouched upon (Fig. 1). There is therefore usually no need for a new posterior wall.

2.—The valvular idea requires a passive non-muscular posterior wall. The idea of a new posterior wall in order to restore or provide a valvular action is at first sight very taking. But let us

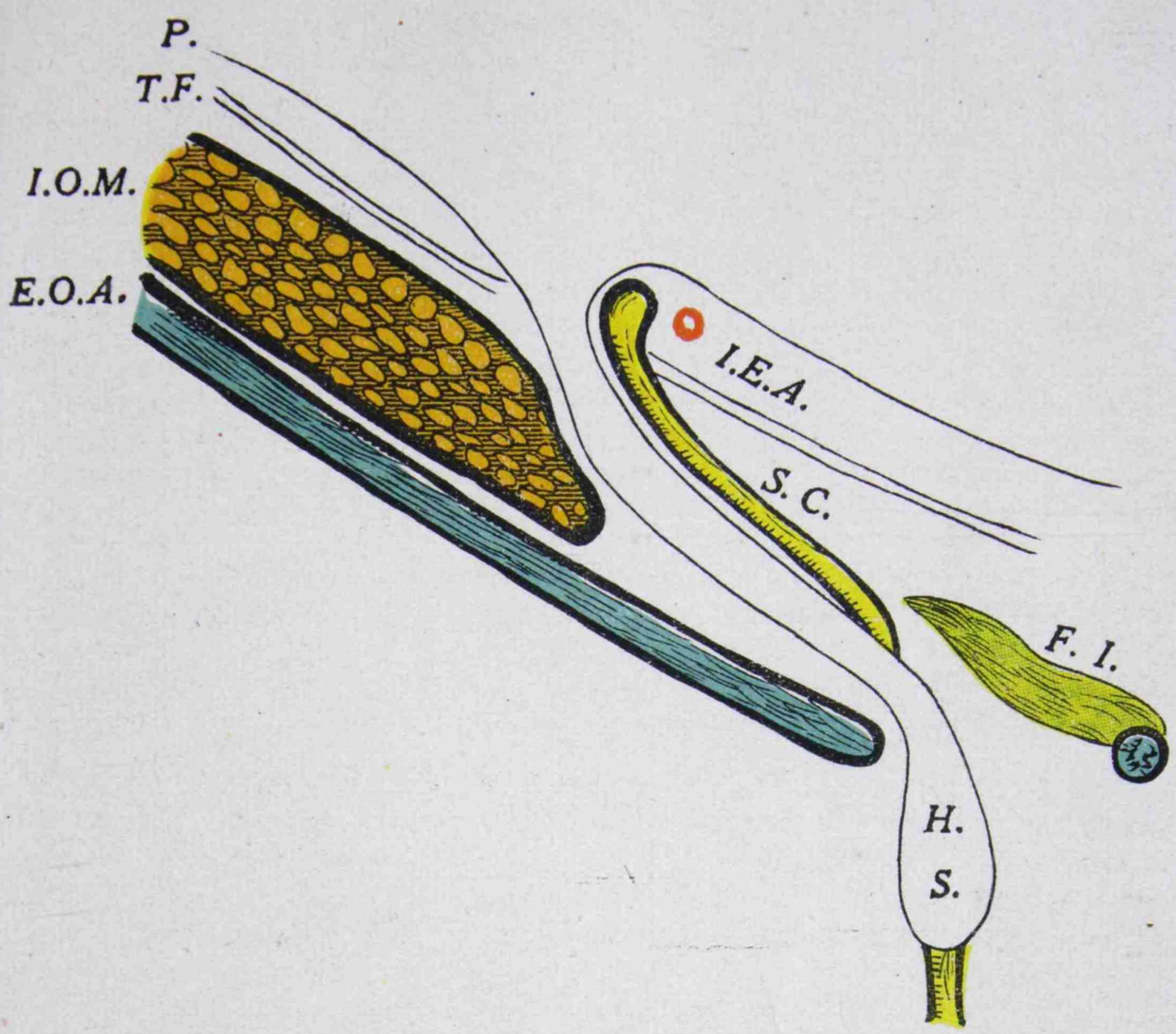

FIGURE 1

DIAGRAM OF INGUINAL HERNIA.

E.O.A. External oblique aponeurosis.
F.I. Falx inguinalis.
H.S. Hernial sac.
I.E.A. Inferior epigastric artery.
I.O.M. Internal oblique muscle.
P. Peritoneum.
T.F. Transversus fascia.
S.C. Spermatic Cord.

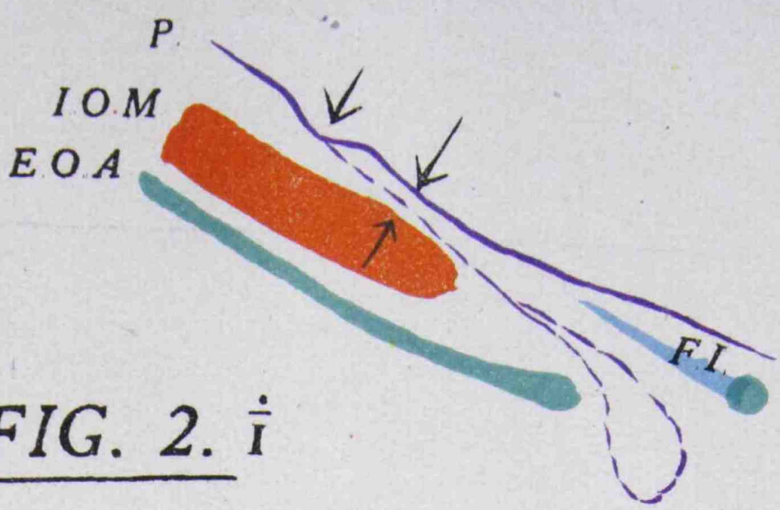

FIG. 2. i

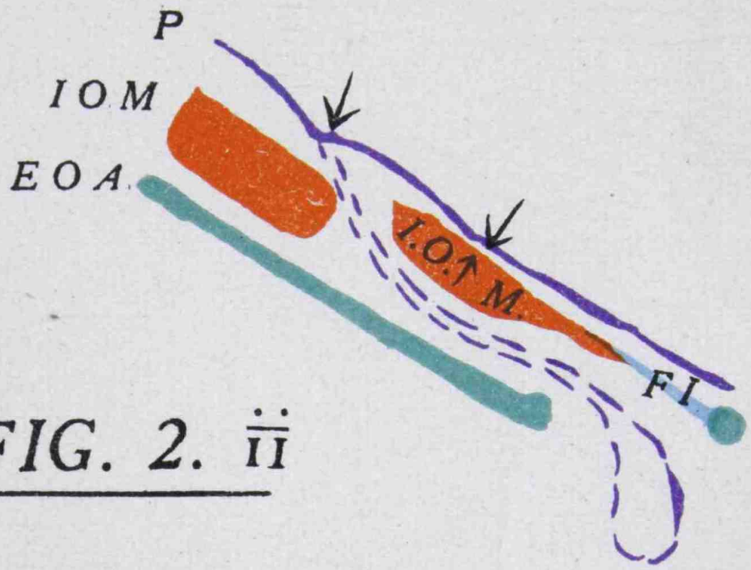

FIG. 2. ii

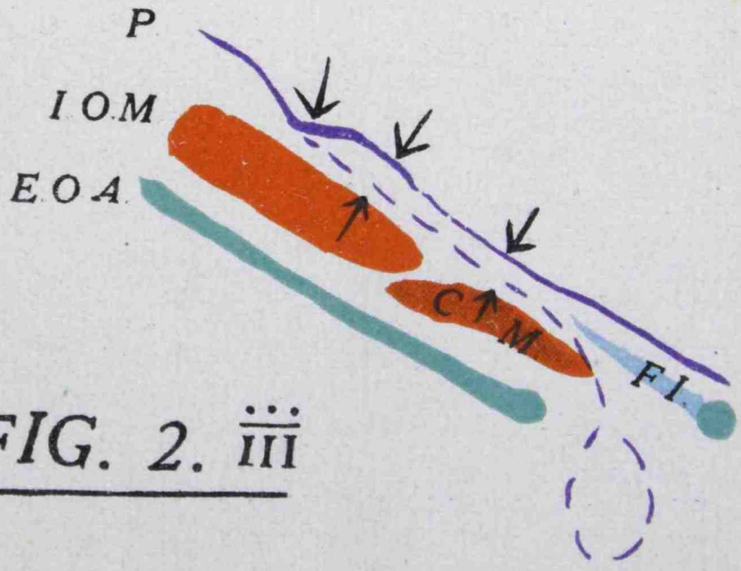

FIG. 2. iii

DIAGRAMS OF "VALVULAR" ACTION IN THE INGUINAL CANAL.

i. Normal inguinal canal.
ii. Inguinal Canal after Bassini's operation.
iii. Inguinal Canal after cremasteric operation.

C.M. Cremaster muscle.
E.O.A. External oblique aponeurous.
F.I. Falx inguinalis.
I.O.M. Internal oblique muscle.
P. Peritoneum.

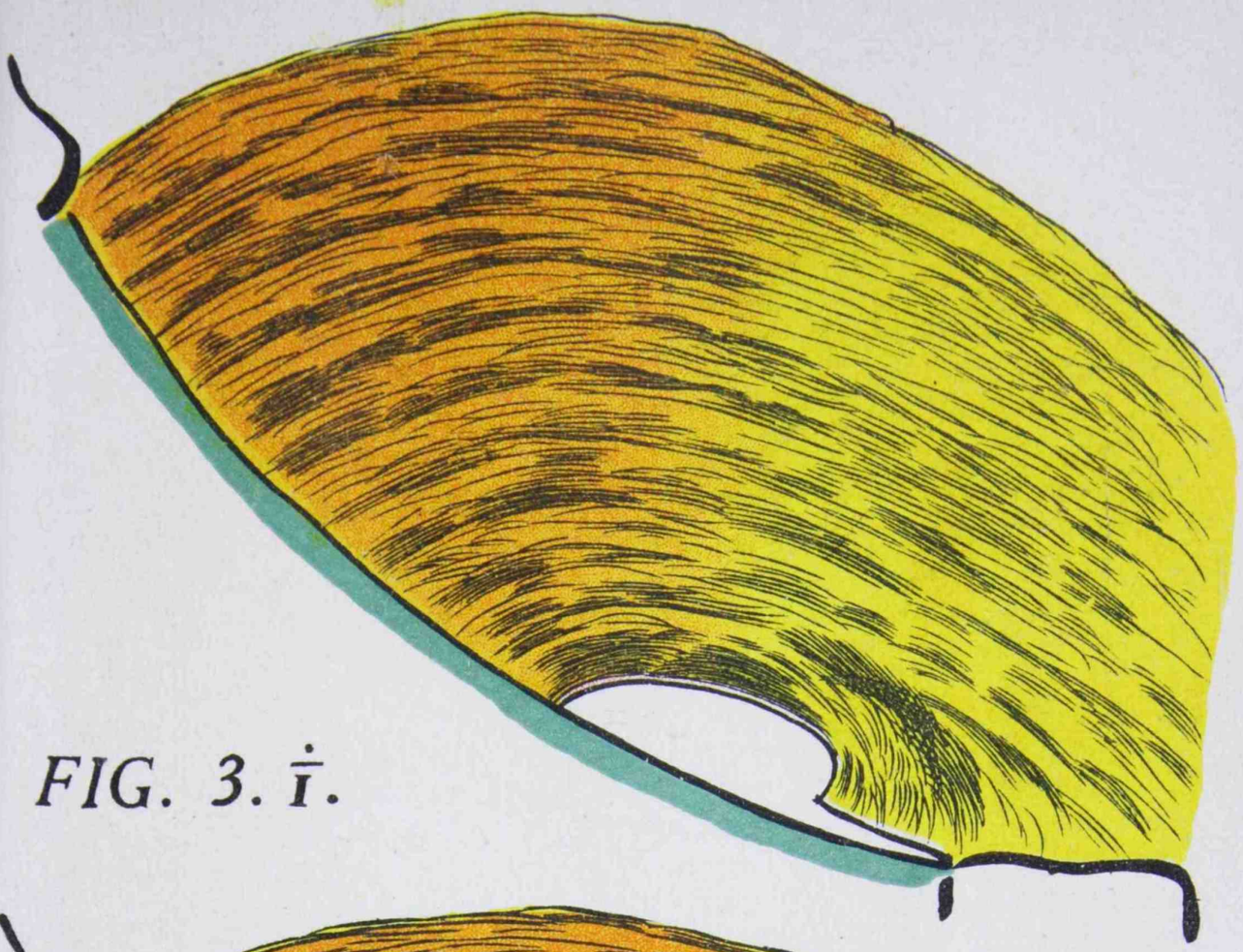

FIG. 3. $\dot{\text{I}}$.

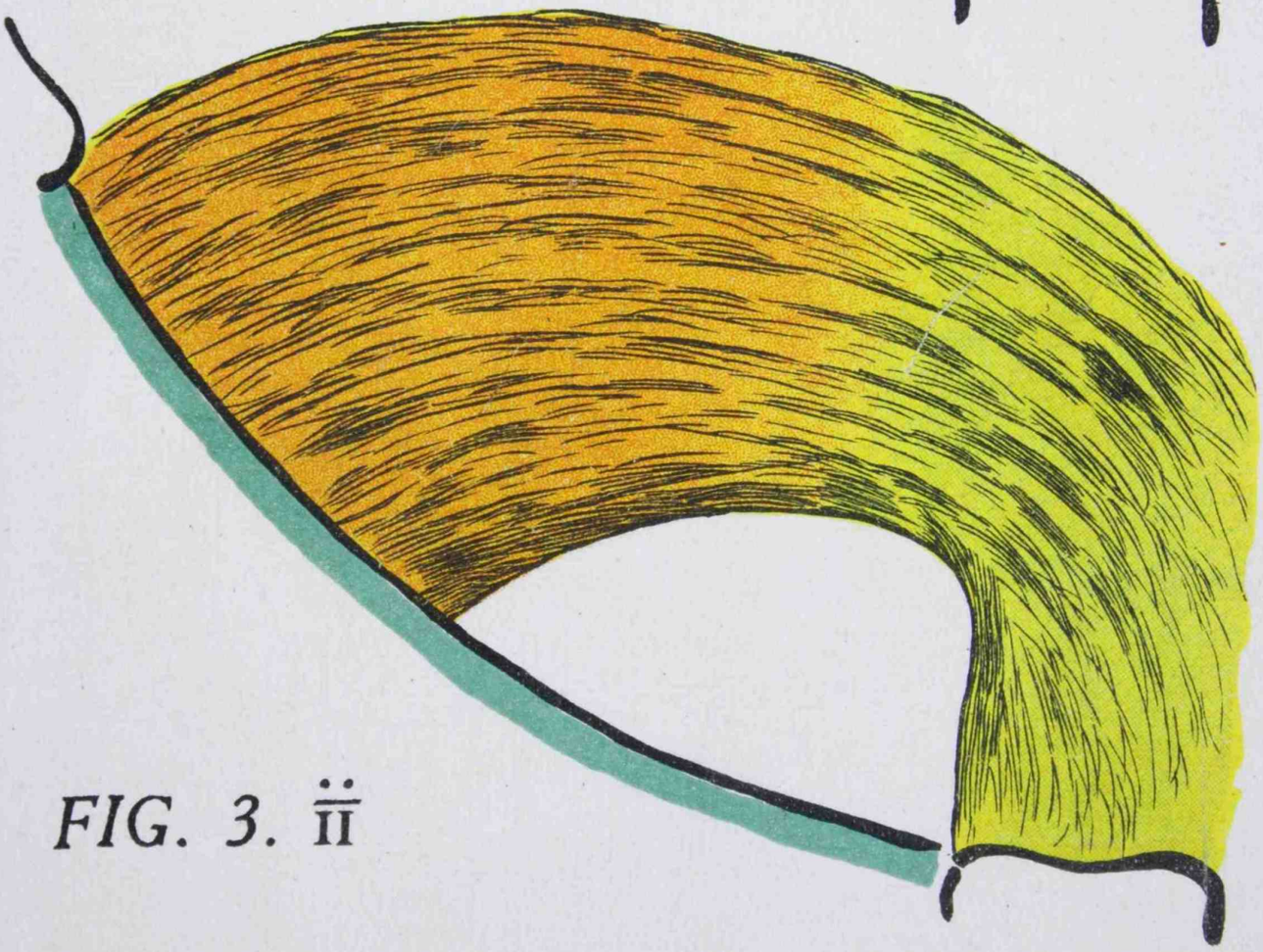

FIG. 3. $\ddot{\text{II}}$

VARYING INSERTION OF INTERNAL OBLIQUE AND TRANSVERSUS MUSCLES.

I. Lowest fibres inserted into pectineal line and crest of pubis forming the falx inguinalis.

II. Lowest fibres reach side of rectus sheath an inch or so above the crest of the pubis. The falx inguinalis is absent. This is frequent in the Chinese.

analyse it a little more closely. We require an oblique channel through the abdominal wall in order that when the patient strains the increased intra-abdominal pressure will press the inner or posterior wall of the channel against the outer or anterior wall and so prevent protrusion, (Fig. 2i). Now in the intact inguinal canal the inner wall is for the greater part formed of peritoneum and thin transversus fascia, and the outer wall of internal oblique muscle and the stiff external oblique aponeurosis. Here the vulvular idea is realised. Increased intra-abdominal pressure forces the passive thin inner wall against the outer one (Fig. 2.i).

But after a Bassini operation the inner wall is composed principally of muscular internal oblique, and when the patient strains this contracts resisting the action of the intra-abdominal pressure to press inner to outer wall (Fig. 3). Indeed the fibres being curved they flatten on contraction and may even tend to draw away from the external oblique producing a chink (Fig. 2.ii).

3.—Interference with spermatic cord sometimes causes atrophy of testicle and also hydrocele.

The raising of the spermatic cord, its separation from other parts, and its displacement are undesirable unless absolutely necessary and result, in a small percentage of cases, in atrophy of the testicle or in hydrocele.

4.—Interference with posterior wall predioposis to a new direct inguinal hernia.

Furthermore the raising of the cord, the cleaning of the lower border of the internal oblique and the lateral border of the falx inguinalis and the presence of sutures in this region especially in the event of the occurrence of sepsis even predisposes to a weakness of the posterior wall not previously present, and after operation for an oblique inguinal hernia the patient sometimes develops, not a recurrence of the old form, but a direct inguinal hernia.

5.—Red muscle will not unite with white fascia.

Major Seelig (1) has brought forward evidence to show that red muscle does not unite to white fascia. Hence the union of internal oblique fibres side to side with the white fibrous tissue of the inguinal ligament is not likely to have any stability.

6.—The falx inguinalis may be wanting and the internal oblique fibres may not be low enough.

The lower fibres of the internal oblique are not always low enough to be brought to the inguinal ligament and the part of the falx inguinalis (or conjoined tendon) to be used similarly is not uncommonly deficient (Fig. 3). This is very often the case in Chinese, as I have frequently demonstrated in the dissecting room.

7.—The tension on the sutures is undesirable. Even in the most favourable cases **some degree of tension is necessary** in the approximating sutures and when the patient strains the internal oblique fibres tend to tear themselves away. It is a good rule in plastic surgery that sound union can only take place when the apposing stitches are free from tension. Silk and silkworm gut have been used with the idea that they hold for ever. This is ridiculous; for, being subjected to strain, the tissue in front absorbs and the sutures cut themselves through within a couple of weeks.

It is true that fascial sutures help here. Gallie and Le Mesurier (2).....first put the use of fascial sutures on a sound basis and McEachern (3) has furthered the technique in application to hernia.

Nevertheless an operation like Bassini's which relies on sutures under tension cannot be really satisfactory.

8.—The well developed cremaster hinders apposition of intern-oblique to inguinal ligament. There is **another difficulty** in uniting the internal oblique fibres to the inguinal ligament namely, the **presence of the cremaster muscle.** Most of us remembering our dissecting room days will think of the cremaster as a few faint pink strands on the surface of the spermatic cord. But at most operations on cases of inguinal hernia if one looks properly one sees a strong well developed sheet of powerful muscle and tough fibrous tissue arising from the medial part of the inguinal ligament and spreading out over the hernial sac. The muscle appears to have hypertrophied greatly in cases of hernia and is especially prominent in cases with deficient internal oblique and falx inguinalis. My friend, Dr. G. H. Thomas, first drew my attention to the difficulty interposed by this cremaster when I was performing a Bassini. At a later operation I excised this part of the cremaster and was reminded of its excellent blood supply by cutting the external spermatic vessels close to their origin from the inferior epigastric themselves immediately arising from the external iliacs (Fig. 4), with resulting haemorrhage which was a little troublesome to stop.

Some time after this I saw Professor Adrian Taylor of Peking making use of the cremaster muscle to strengthen the canal by Halsted's method instead of the Bassini operation.

Now Halstead of Johns Hopkins in 1889 (4) described an operation for inguinal hernia in which the cord was displaced outside the external oblique and this operation was long known as Halstead's in English text books. But Halstead abandoned this operation many years ago and in 1903 (5) introduced a new

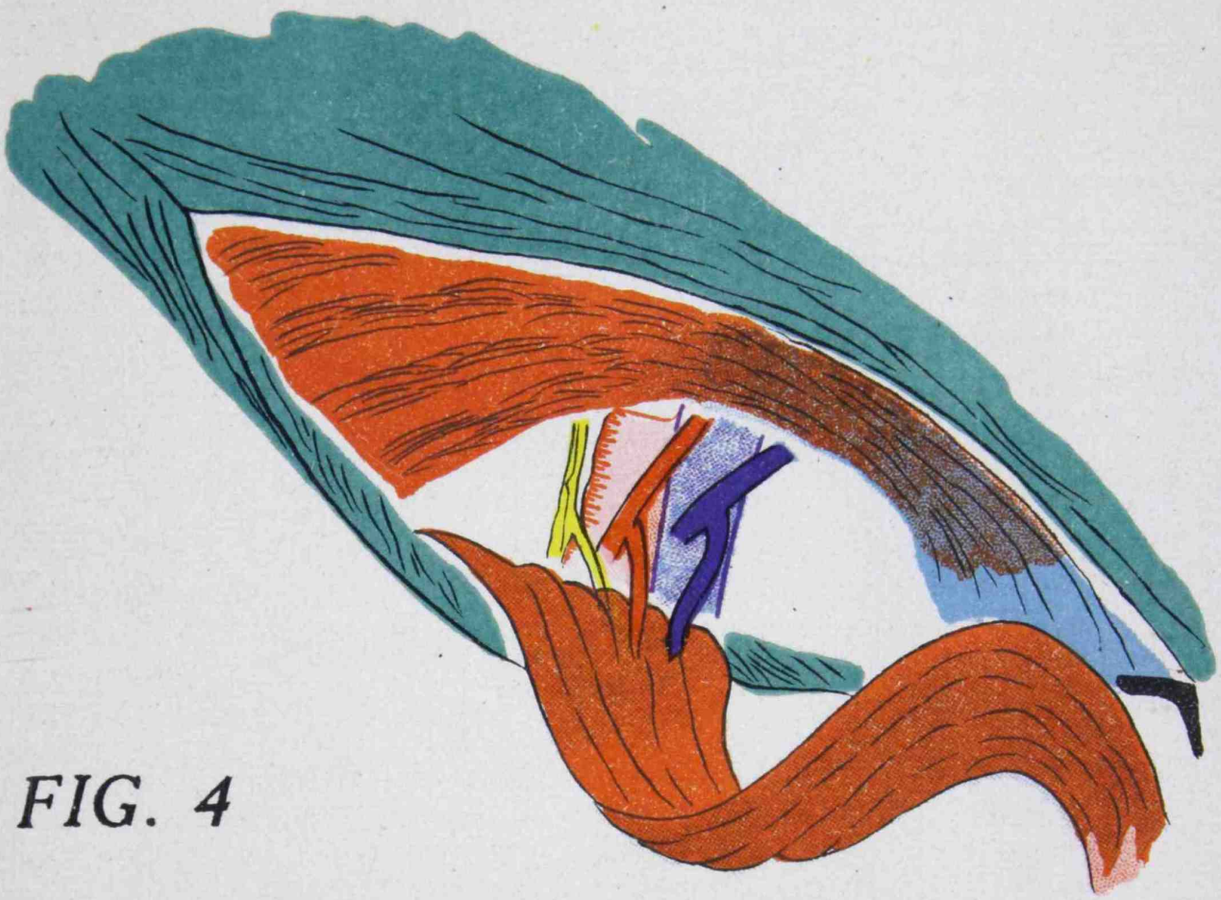

FIG. 4

VASCULAR AND NERVOUS SUPPLY OF THE CREMASTER MUSCLE.

The external spermatic branch of the genito-femoral nerve, and the external spermatic branches of the inferior epigastric vessels are seen entering the deep aspect of the cremaster muscle.

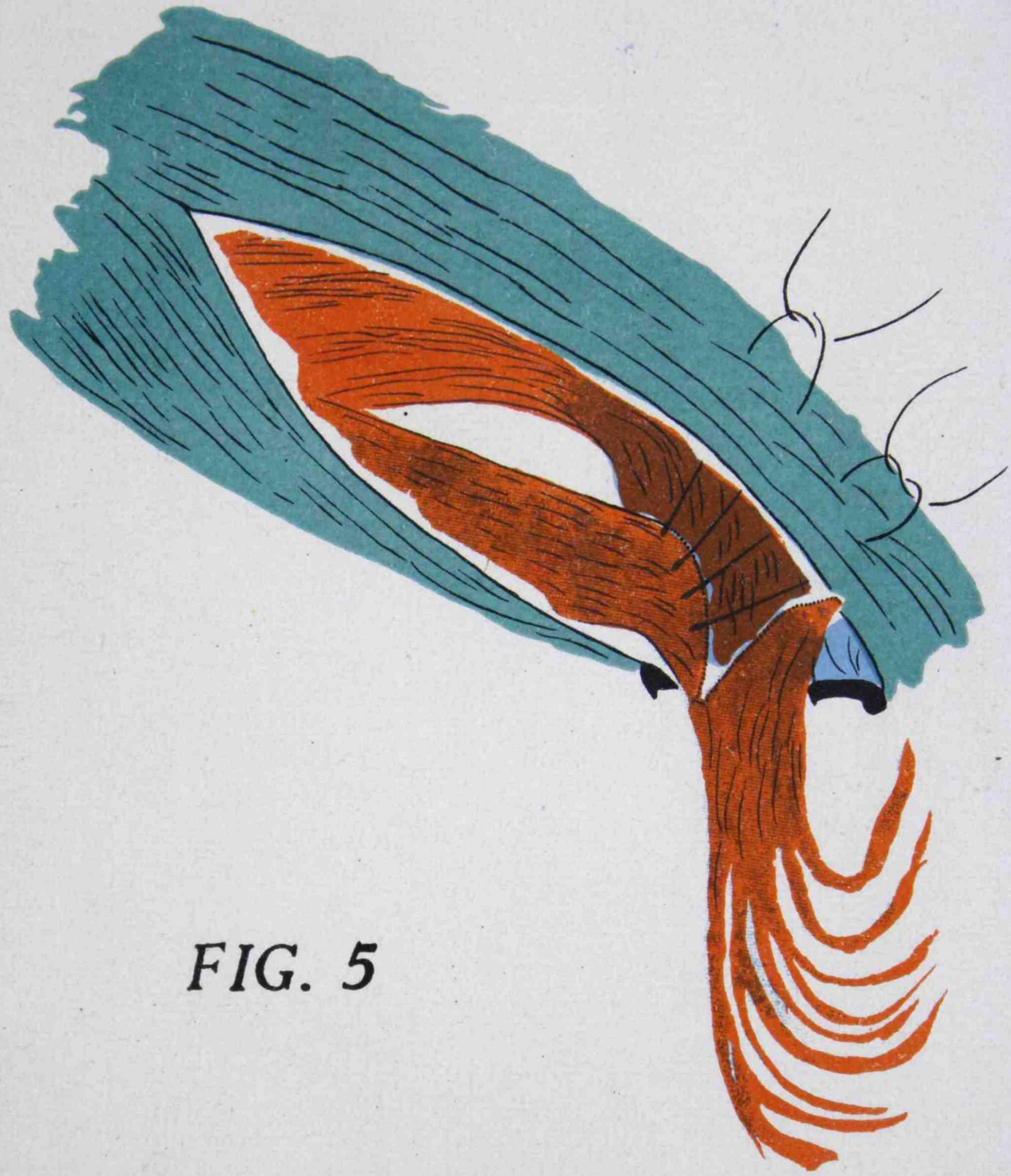

FIG. 5

THE CREMASTERIC OPERATION.

The cremaster muscle has been divided and is about to be drawn in between the external oblique aponeurosis and the falx inguinalis.

one in which the medial edge of the cremaster muscle was sewn beneath the internal oblique and falx inguinalis. This most excellent operation (though long described in Jacobson and Rowlands "Operations of Surgery") has never found much favour in England, most of us despising the cremaster muscle from our dissecting room memory of its apparent insignificance.

9.—The sepsis rate is too high. The **sepsis rate** of the ordinary hernia operations is much too high. **The 10% should be reduced to under 1%.**

10.—The recurrance rate is too high. The recurrance rate 5% is also much too high and **should be well under 1%.**

This is the indictment against the Bassini operation as usually performed.

How then are we to treat our cases of hernia? I would advocates the following rules:—

(1) No-hand-touch technique must be rigorously applied. Perhaps this should be called "strict-skin-segregation" for it includes the efficient protection of the wound from the patient's own skin as well as from possible punctures in the surgeon's gloves. It is almost as great an advance in diminishing sepsis as was the introduction of rubber gloves itself.

(2) The internal oblique fibres in front of the abdominal inguinal ring must on no account be divided. Strong retraction must be used instead.

(3) In average sixed hernias the spermatic cord must not be displaced, but after the sac has been dissected clear and tied off above the abdominal inguinal ring and drawn still more laterally with a stitch through the transversus and internal oblique muscles, the cremaster is cut obliquely to the required length and sewn into the crevice between the external oblique aponeurosis and the aponeurotic falx inguinalis, special clove hitch stitches being used (Fig. 5). The cremaster in hernia cases is a powerful musculo-aponeurotic sheet and the part used carries its own blood supply and nerve supply (Fig. 4). It contracts when the intra-abdominal pressure is increased, it can be sewn without tension and all knots are well away from the inguinal canal. This method is more or less like one of those described by Halstead in 1903 (4). It secures a true valvular action of the canal (Fig. 2.iii).

(4) In very large or recurrent hernias a fascial weave after the method of Gallie and Robertson should be employed.

I am indebted to Dr. S. H. To from whose drawings these diagrams were taken, and also to Mr. R. Leong for assistance in preparing them for this article.

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(1) Seelig—Transactions, American Surgical Association, 1923.

(2) Gallie and Le Mesurier—Canad. Med. Ass. Journ., 1921. Journ. Bone and Joint Surg., 1922.

(3) McEachern—Annals of Surgery, XXIX 758.

(4) Halstead—Bull. Johns Hopkins Hospital, 1.12, 1889.

(5) Halstead—Bull. Johns Hopkins Hospital XIV, 208, 1903.

CLINICAL REPORT OF THE SCHOOL OF MIDWIFERY AND GYNÆCOLOGY.

Hong Kong University.

FOR THE YEAR ENDED APRIL 30th, 1926.

R. E. TOTTENHAM, B.A., M.D., D.P.H., F.R.C.P.I.

FOREWORD.

It is only to be expected that anyone who concerns himself with forming a school of midwifery will find that there are many difficulties to overcome before any real progress can be made.

In this colony much of the pioneer work has been done by Dr. Hickling, who has achieved wonderful results in the training of midwives, and in the raising of the standard of efficiency in the several hospitals with which she is concerned.

In forming my own department I have two very real difficulties to contend with.

1. Lack of space and accommodation; (we need a "labour ward" large enough for 4 beds, widely separated; some isolation wards, and more beds for patients who have been confined).

2. Shortage of nursing staff.

Up to the time of writing the hospital authorities have only been able to allot two small 5 bed wards to the University Clinic.

We have in addition the use of the "Labour Ward" in which space is so limited that it is unsatisfactory for teaching purposes, as it only accommodates one patient, the nursing staff, and medical attendant with comfort in the cool weather; while it may so happen that two, or even three patients have to be attended in their confinement at the same time in this ward.

It would be much more satisfactory and would permit of the more efficient treatment of such serious illnesses as eclampsia, and puerperal fever, if some small isolation wards were available.

In the two wards at our disposal some 463 patients were delivered during the past twelve months, an average of 38.6 per month, or approximately 9 per week.

If only patients sought admission with mathematical regularity at this rate of 9 per week, it would be possible (with our 10 beds) to keep almost all of them in hospital for a week after their babies were born; unfortunately however the number of patients seeking admission in any one week, or even month is extremely variable, and in addition it is sometimes necessary to keep a seriously ill patient as long as three weeks in hospital, with the result that even as things are the Bungalow is often overcrowded, and if I were able to persuade every patient to remain at least a week in the hospital, many cases now attended would have to be refused admission. As a matter of fact there is some little difficulty in persuading the average Chinese patient to remain in the Bungalow more than three or four days, a subject to which I will refer later.

I want to take this opportunity of thanking the nursing staff for their very kind help during the year, and for the cheerful way in which they have accepted the presence of the students, and performed the extra duties which the conversion of the Bungalow into a teaching school has imposed on them. One cannot, however, expect, miracles; a building admitting approximately 600 cases a year (say 100 Europeans; 40 second class Chinese; and 460 third class Chinese) would require a minimum nursing staff of two trained nurses and four probationers (on duty at the same time) to be efficient from a teaching point of view, and I do not see how adequate comfort can be ensured to the patients with any less.

In our present circumstances there is never more than one trained nursing sister on duty at a time; during the day she has the assistance of one and sometimes two probationers, but at night she is the only member of the nursing staff in the building.

It has been found necessary to fill in the gaps in the nursing service by amahs, or "Chinese handiwomen," and many of the duties which under ordinary circumstances would be performed by probationer nurses, are carried out by these. Apart from the fact that a "handiwoman" should have no place in a modern midwifery hospital, my principal objection to the amah is, that she, a woman of the uneducated classes, is in a position to exert considerable influence on the Chinese patients.

I have had the pleasure of doing a good deal of work in the Chinese Maternity hospital, (Tsan Yeuk), which is supervised by Dr. Hickling, where all the nursing duties are performed by trained Chinese nurses, and probationers, i.e. women of the more educated classes; and I attribute the satisfactory handling of the patients in the latter hospital entirely to their influence.

For instance it is not easy to persuade the average patient to remain more than three or four days in the Bungalow after the child is born, there does not appear to be the same difficulty in the Tsan Yeuk. Of the Maternity patients in the Bungalow 83.6% remained less than 6 days in hospital; 17.2% less than three days. 38 patients left hospital against advice, 4 patients actually left hospital with temperatures.

In the gynaecological wards of the Government Civil Hospital out of a total of 115 patients 25 refused treatment; 25 patients were admitted under me in the Tsan Yuk, there were 23 operations.

There is reason to think that the scheme of training Chinese girls is one that could be considerably developed, with very great benefit to the hospitals, and an ultimate saving to the Government in passage money. It would also in my opinion be worth while sending, say twelve girls to one of the big teaching hospitals in London, or elsewhere for their 3 years training and let them form the nucleus of a Chinese staff, on their return to the colony.

The staff of the University Clinic consists of the Professor, the Assistant to the Professor, and a House Obstetrician. The latter two being resident in the Government Civil Hospital.

Three students at a time are attached to the Clinic for a period of 3 months for a purpose of taking out their midwifery cases, and acting as Gynæcological Ward Clerks.

It is hoped when more accommodation is available they will be able to live in the hospital, at present there is only space for one to live there at a time. Every effort is made to give the student as much practical experience as possible, and a clinical examination in midwifery has been introduced.

I am indebted to Prof. Wang for kindly writing the Report on the Pathological specimens.

CLINICAL REPORT OF THE MATERNITY DEPARTMENT.

(University's Wards) Government Civil Hospital.

During the year ended April 20th 1926, 465 patients were admitted to the Maternity wards under our care. Of these 463

were delivered, one patient who was not in labour was discharged; and one patient suffering from malignant malaria, (being 8 months pregnant) was admitted for observation, she unfortunately died; as she was not in labour her name does not appear elsewhere in the report..

There were 5 deaths; 442 infants were born alive; 6 died before leaving hospital, and there were 5 miscarriages. According to the B.M.A. classification of morbidity (i.e. a temperature of 100 or over on any two occasions between the 2nd, and 8th day, all deaths included) there were 36 morbid cases.

Unfortunately it is difficult to persuade the average patient to remain a week in hospital (vide table XXIX).

38 patients left hospital definitely against advice, of these 18 had been morbid, 4 had a temparature on discharge.

All babies born in the Bungalow are vaccinated before leaving hospital.

As a Venereal Disease Clinic was opened recently in the Tsan Yuk hospital (conducted by our house obstetrician) we have adopted the policy of testing the blood of every patient for syphilis; since the clinic opened 84 patients' blood has been tested, 14 were positive. Contracted pelvis appears to be rare; internal pelvimetry was performed only once, the average external pelvic measurements of Chinese women appear in Table XXVI and the average diameter of the Chinese foetal skull in Table XXVII. Induction of labour was performed on two occasions, on both of which the method of introducing a stomach tube was adopted; the indications were perhaps somewhat unusual:—

C.S.—Pre-eclamptic toxaemia, albumin (nearly solid), oedema of limbs; patient was most anxious to go home, as I knew she intended to do so next day; labour was induced as a means of persuading her to remain under our care.

T.Y.—The patient was insane, and almost up to full term. Labour was induced with the object of getting her over her trouble as soon as possible.

Both of these patients were morbid. From our experience Chinese women appear to require operative measures infrequently, there was one case of Caesarean section, the indication being a dense fibrous stricture at the junction of the lower and middle 3rd of the vagina. I may mention here that we saw another case of stricture of the vagina where the patient required to be

delivered with forceps. On 10 occasions forceps were applied. There were 95 lacerations of the perinaeum. There were two cases of prolapse and presentation of the cord, both infants were born alive. Breech presentation occurred 13 times, 4 infants being born dead, of these 2 were macerated. There were two cases of twins; and 2 of hydramnios. Post partum haemorrhage (requiring treatment) occurred 4 times. There were 2 cases of placenta previa, one was treated by bi-polar version, the other delivered herself spontaneously. In the former—W.S.—the child was born dead and the mother died of post-partum haemorrhage. In the latter case the infant was born dead (vide Table IV). There was no case of accidental haemorrhage which required active treatment, but two patients delivered of dead infants had albumin in the urine, and the greater part of the maternal surface of the placenta was occupied by old blood clot.

In 69 patients albumin was present in the urine in slight, or moderate amount, in 15 others albumin was present in considerable amount. In all cases of pre-eclamptic toxaemia, and eclampsia we have endeavoured to follow the conservative treatment of Tweedy.

There were seven cases of eclampsia, 2 of the mothers died and 3 infants were stillborn, (see Table VI).

M.L.C.—Aged 26, was admitted from another hospital in a fit, pulse 60, temp. 102, abdomen tender, no foetal heart-sounds heard, perforation, post partum haemorrhage, removal of placenta; patient died on 10th day of sepsis.

M.L.—aged 26, history of 3 fits before admission, and another shortly after arrival, infant born on the next day patient collapsed some hours later. P.M. report showed cloudy swelling of heart, ber-beri?

There were 5 cases of occipito posterior; when this condition has been diagnosed before rupture of the membranes, we have treated the patient by applying pads to the abdomen, and found the method moderately successful.

The quinine and pituitrin method of inducing labour is being given a trial (vide Table XXV).

The placenta was removed manually at full term on 2 occasions, and in 4 cases of miscarriage.

There was one case of vesicular mole, 2 others were attended by my staff before I had taken over charge of the wards, and one case was attended by us at the Tsan Yuk hospital. In none, was haemorrhage a prominent symptom. In the absence of severe haemorrhage we insert sea tangle tents into cervix, and give pituitrin. If the patient comes into labour and expels the mole the uterus is subsequently explored; if not the mole is removed in the ordinary way. As in accidental haemorrhage albumin is commonly found in the urine, in our experience.

I am indebted to my assistant Dr. Pillai for having worked out Tables No. XXV to XXVIII.

(Acknowledgment: — Clinical Reports of the Rotunda Hospital).

TABLE NO. 1—STATISTICS OF MATERNITY DEPARTMENT.

Nature and number of cases treated.

Total admissions	465	
Total deliveries	463	
Multiparæ	341	inclusive
Primiparæ	122	

Presentations:—

Vertex, normal rotation	437
„ face to pubes	5
Breech	13
Transverse	2
Twins	2
Miscarriages	5
Vesicular mole	1
Hydramnois	2

Hæmorrhages:—

Placenta previa	2
Post partum	4
Battledore placenta	1

Abnormalities of cord:—

Velamentons insertion	1
Prolapse	2
Eclampsia	7
Albumin in the urine, slight to moderate	69
„ „ „ considerable	15

Insanity	1

Operations:—

Pelvimetry	1
Induction of labour and miscarriage	3
Episiotomy	1
Suture of perineal lacerations:—	
Complete	2
Incomplete	93
Suture of cervical lacerations	1
Forceps	10
Version, external	1
bi-polar	1
internal	1
Caesarean section	1
Craniotomy	1
Manual removal of placenta:—	
at full term	2
in cases of miscarriage	4

Accidental complications:—

Malaria	7
Tuberculosis of lungs	2
Pneumonia	2
Myocarditis	1
Bronchitis	1
Amœbic dysentery	2
Baccillary „	1
Dengue fever	1
Abscess on cheek	1
Beri-beri	1
Aortic stenosis	1
Fibroid of uterus	1
Cystitis	1

Morbidity, B.M.A. standard

average	1 in. 12.8
percentage	7.7%
Mortality, total	5
average	1 in. 92.6
percentage	1.08%
Left hospital against advice	38

TABLE NO. II—INFANT STATISTICS.

Total births	**459**
Alive	**442**

Dead:—

Premature	7
Full term	0
Recent	4
Macerated	6
Children born alive who died in hospital	6

Abnormalities:—

Cleft palate	1
Congenital syphilis	0
Supernumery finger	1

Complications:— .....

Cerebral hæmorrhage	2
Melæna	2
Convulsions	1

Table No. III.

Pelvic Presentations.

Para	Total	Dead Children	Remarks
Primiparæ	4	Recent 1 Macerated 0 Total 1	In one case of pre-eclamptic Toxaemia the infant was born dead, ($7\frac{1}{2}$ months.) One breech case was associated with prolapse of the cord, child alive.
Multiparæ	9	Recent 1 Macerated 2 Total 3	One case occurred in a Twin pregnancy. Two of the infants were premature, and lived only a short while.

Table No. IV.

Placenta Praevia

Name	Age	Para	Variety	Period of Pregnancy	Presentation	Result to Mother	Result to Child	Treatment and Remarks
W.H.M.	32	7	Marginal	7 months	Vertex II	Recovered	Dead	Spontaneous delivery.
W.S.	35	8	Lateral	Term	Vertex II	Dead	Dead	Bi-polar version. Post partum hæmorrhage. Manual removal of placenta death.

Table No. V.

Prolapse and Presentation of the Cord.

Name	Age	Para	Weight of Child	Presentation	Treatment	Result to Mother	Result to Child	Remarks
L H.Y.	37	7	6 lbs.	Vertex	Spontaneous	Recovery	Alive	On admission head not fixed, when membranes ruptured cord prolapsed, and child was born immediately afterwards
T.Y.T.	32	1	7.2 lbs.	Breech	Delivery	Recovery	Alive	No special treatment, breech delivered in the ordinary way.

Table No. VI.

Eclampsia

Name	Age	Para	Condition on Admission	No. of Fits			Albumin in urine	Treatment	Result to Mother	Result to Child	Remarks
				before labour	during labour	after labour					
L. S. C.	18	1	Conscious	—	1	1	††	Morphia, rectal lavage purgatives	Recovered	Alive	One fit 20 minutes before birth of child; 2nd fit 30 minutes after delivery. Water diet only, till bowels acted freely.
H. A. C.	36	1	Comatose	1	—	—	†††	Morphia, rectum & stomach washed out, purgatives, forceps	Recovered	Dead	Comatose on admission, history of 1 fit previously, oedema considerable. Forceps applied as soon as cervix fully dilated. Morbid, foetid lochia, left hospital on the 15th day.
W. H.	18	1	Conscious	2	—	—	††††	Morphia, rectum & stomach washed out. Soda bicarb subcutaneously	Recovered	Alive	History of severe headache 12 hours before admission, admitted at 7.10 p.m. had two fits before midnight, none later, labour began at 2 a.m. terminated spontaneously.
C. M.	36	4	Conscious	-	2	—	††††	Morphia, stomach & rectum washed out, forceps	Recovered	Alive	Before admission patient had 1 fit followed by coma, when consciousness returned she tried to resume work, but had to give up, forceps applied when cervix fully dilated.
M. L. C.	26	2	In a fit. pulse 160 temp 102	—	1 †	—	††††	Perforation, Morphia, rectal lavage, purgatives	Died	Dead	Patient admitted from an other hospital, with history of having been at least 26 hours in labour, abdomen tender no foetal heart sounds heard, no foetal movement felt for two days. Perforation, P. P. Haemorhage, removal of placenta. Morbid highest temperature 101.4 Died 10th day, Sepsis, sloughing of cervix.
H. L.	25	4	Conscious	5	—	—	†††	Morphia, stomach & rectum washed out	Died	Dead	History of 4 fits before admission, had a fit on arrival during which Chloroform was unfortunately given. Labour began 11.30 a.m. on the next day, infant stillborn at 3.15 p.m. Patient died at 11 p.m. Cloudy swelling of heart, Beri beri.
S. S.	18	1	Conscious	6	—	5	††† 4† Albumen boiling solid.	Morphia, stomach & rectum washed out, infusion of Soda bicarb under breasts. Croton oil Forceps	Recovered	Alive	Trace of albumin on admission (P.M. on 10/4/26). First fit 6 a.m. on the 11/4 26. Albumin ††† Forceps when cervix fully dilated. Later patient became very excitable,—½ m. croton oil.

Table No. VII.

Application of Forceps.

INDICATIONS	Number of Cases	Result to Mother		Result to Child		REMARKS
		Recovered	Dead	Alive	Dead	
Delay in 2nd Stage	5	5	—	5	—	1 high forceps 2 occipip to Posterior (Kielland's forceps applied once)
Eclampsia	3	3	—	2	1	
Cardiac distress	1	—	1	—	1	Patient cyanosed on admission, foetus macerated.
Stricture of Vagina	1	1	—	1	—	
Total..	10	9	1	8	2	

Table No. VIII.

Number of Pregancy of Patients in whom the Forceps were applied.

Para.	Number of Forcep Cases.
1	4
2	2
3	—
4 & over	4
	10

Table No. IX.

Ages of Patients in whom Forceps were applied.

Age.	Number of Forcep Cases.
17-25	2
26-30	4
31-35	1
35 & over	3
	10

Table No. X.

Caesarean Section.

Name	Age	Para	Date	Nature of Operation	Indication	When Performed	Result to Mothor	Result to Child	Remarks
C. C.	36	2	18.6.25	Conservative Classical.	Stricture of Vagina	Before Labour	Recovered	Alive	*History.* 1st labour difficult, child dead, followed by 13 yrs sterility. Stricture very dense. Internal pelvimetry could not be performed.

Table No. XI.

Destructive Operations on the Foetus.

Name	Age	Para	Indication	Operation	Remarks
M. L. C.	26	2	Pulse 160, Temp 102° No foetal heart sounds heard.	Perforation and Extraction	Patient sent in from another hospital with a history of having been at least 26 hours in labour. She was in a fit on arrival, child appeared to the dead. Post partum haemorrhage occurred, the placenta was removed manually. (See Table XX)

Table No. XII.

Morbidity. B. M. A. Standard.

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apl	Total
Total Deliveries.....	43	44	24	39	41	49	47	39	39	32	38	28	463
Cases Morbid.....	3	4	4	6	2	4	4	1	3	0	3	2	36

Total number of Morbid cases 36.

Total average Morbidity 1 in 12·8.

Total percentage Morbidity 7. 7%

Table No. XIII.

Comparative Morbidity in Primiparae and Multiparae

Primiparae	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apl	Total
Total Delivered.....	10	11	6	12	11	13	10	12	12	6	13	7	123
Cases Morbid.....	1	0	2	3	1	2	2	0	1	0	1	1	14

Total average Morbidity 1 in 8·7

Total percentage Morbidity 11·3%

Multiparae													
Total Deliveries.....	33	33	18	27	30	36	37	27	27	26	25	21	340
Cases Morbid.....	2	4	2	3	1	2	2	1	2	0	2	1	22

Total average Morbidity 1 in 15·4

Total percentage Morbidity 6·4%

Table No. XIV.

Extra-genital Causes of Morbidity.

Malaria	5
Tuberculosis of Lungs	1
Pneumonia	2
Myocarditis	1
Bronchitis	1
Amoebic Dysentery..	2
Baccillary ,, ...	—
Dengue fever	1
Abscess of Cheek	1

Table No. XV.

Operative Cases Showing Morbidity.

Nature of Operation	Number	Number Morbid	Percentage Morbid	Average Morbidity	Remarks
Forceps	10	2	20%	1 in 5	One case died of myocarditis soon after delivery
Internal Version ..	1	1	100%	1 in 1	
Suture of Perineal Lacerations ..	95	9	9·3%	1 in 10·5	
Destructive Operations on the Foetus..	1	1	100%	1 in 1	Patient died of sepsis following eclampsia perforation, manual removal of placenta.
Manual Removal of Placenta	6	3	50%	1 in 2	See under bi-polar version and destructive operations on the foetus
Caesarean Section	1	1	100%	1 in 1	
Extraction of Mole	1	1	100%	1 in 1	
Bi-Polar Version ..	1	1	100%	1 in 1	Placenta praevia, post partum haemorrhage, manual removal of placenta.
Induction of Labour	2	2	100%	1 in 1	

Table No. XVI.

Duration of stay in hospital of Morbid Cases.

Less than 10 days..	23 cases	including	4 deaths
10 to 19 days.....	13 ,,	,,	1 ,,
20 to 29 days.....	—	—	— —
Over 29 days.....	—		—
TOTAL.....	36		5

Out of these 36 cases, 18 left hospital against advice, 4 with temperatures.

Table No. XVII.

Duration of Temperature.

Under 5 days.....	22 cases	including	1 deaths
5 to 9 days.....	10 ,,	,,	1 ,,
10 to 19 days.....	1 ,,	,,	— ,,
Over 19 days.....	— ,,	,,	— ,,
TOTAL....	33		2

Table No. XVIII.

Highest Temperature Charted.

Below 100°.....	— cases	including	— deaths
100° to 100.9°.....	10 ,,	,,	— ,,
101° to 101.9°.....	8 ,,	,,	1 ,,
102° to 102.9°.....	10 ,,	,,	— ,,
103° to 103.9°.....	5 ,,	,,	1 ,,
104° and over.....	— ,,	,,	— ,,
TOTAL....	33		2

Table No. XIX.

Number of morbid patients who received intra uterine douche—6

Table No. XX.

Mortality.

Name	Age	Para	Admitted	Delivered	Died	Cause of death	Remarks
M. L. C.	26	2	6.6.25	6.6.25	10.6.25	Sepsis	Patient sent in from another hospital, 26 hours in labour, perforation, P.P.H. Manual removal of placenta, Eclampsia. See table No. VI.
C. C.	30	6	31.8.25	31.8.25	13.9.25	Sepsis Vegetations Mitral Valve T.B both lungs	Temperature rose to 101° on the 7th day. remaining up till 13th. Wassermann, Lochia Foetid, blood culture negative, P.M. Endometrium sloughing T.B. foci both lungs. Vegetations mitral valve. Foetus macerated.
W. A. C.	34	7	6.11.25	6.11.25	6.11.25	Myocarditis	Patient was pulseless and cyanosed, cervix fully dilated on admission forceps applied, foetus macerated, patient died 30 minutes after delivery. She was admitted from the medical wards.
H. L.	26	4	26.12.25	27.12.25	27.12.25	Eclampsia, Beri beri ?	See Table No. VI.
W. S.	35	8	20.3.26	20.3.26	20.3.26	Post partum Haemorrhage	Patient very collapsed on admission history of bleeding for 8½ hours lateral placenta praevia, bi-polar version P.P.H. Manual removal of placenta.

Table No. XXI.

Hydatid Mole.

Name	Age	Para	Period of Pregnancy	Urine	Amount of hoemorrhage during removal	Height of Uterus	Treatment	Remarks
			in months			in months		
H.M.	25	3	6	Albumin and Sugar	Slight	7	Tents Schultz spoon forceps blunt curette	Owing to size of uterus fundus could not be reached by finger, mole had to be removed piece meal. Morbid.
J.M.	25	5	3?	—	Moderate	4	Vagina plugged	Mole passed spontaneously after removal of plug.
W.C.	25	1	3?	Albumin	Slight	6	Tents blunt curette	Tents inserted at 11 a.m. mole expelled at 8 a.m. next day, after which uterus was curetted. Wassermann negative.
K.Y.	39	7	4	Albumin pus cells	Slight	6	Piece of rubber tube passed into uterus curetted.	Wassermann negative.

H. M. appears in the report, of the other 3 cases 2 were attended by my staff in April 1925 before we had properly taken over charge of the Bungalow. The 4th was attended at the Tsan Yuk Hospital by us.

Table No. XXII. *Duration of Labour in Chinese.*

Out of 103 Primiparæ and 312 Multiparæ

Less than 6 hours		6 to 12 hours		12 to 24 hours		More than 24 hours	
Prim :	Mult :	Prim :	Mult :	Prim :	Mult :	Prim :	Mult :
25·2%	41·6%	34%	33·9%	21·3%	17·6%	19·5%	6·9%

Table No. XXIII. *Duration of 2nd Stage of Labour in Chinese.*

Out of 112 Primiparæ and 276 Multiparæ

Less than ½ hour		½ to 1 hour		1 to 3 hours		More than 3 hours	
Prim :	Mult :	Prim :	Mult :	Prim :	Mult :	Prim :	Mult :
35%	78·6%	23%	9·1%	28%	7·9%	14%	4·4%

Table No. XXIV. *Duration of 3rd Stage of Labour in Chinese.*

Out of 118 Primiparæ and 329 Multiparæ

Less than 10 Minutes		10 to 20 Minutes		20 to 30 Minutes		More than 30 Minutes	
Prim :	Mult :	Prim :	Mult :	Prim :	Mult :	Prim :	Mult :
51·7%	58·7%	32·3%	28·6%	10·1%	9·4%	5·9%	3·3%

The cases chosen are those in which the history appeared accurate.

Table No. XXV.

Induction of labour.

(Castor oil, quinine and pituitrin method.)

Total number of cases	7
Number of cases method successful	4

Table No. XXVI.

Average external pelvic measurements	Interspinous	8.84	inches
	Intercristal	10.06	inches
	Ext. Conjug.	7.55	inches

Table No. XXVII.

Average diameters of the fœtal skull	Circumference	32.2	cm.
	Cervico-breg.	9.44	cm.
	Suboccip-breg...	9.32	cm.
	Oc.-frontal.	10.61	cm.
	Bi.-parietal.	8.68	cm.
	Bi.-temporal.	7.95	cm.

Table No. XXVIII.

Average weight of foetus at term	**lbs. 8 oz.**
Average length of foetus at term	**18 65 inches**

Table No. XXIX.

Duration of Stay in hospital. Total Cases 463.

Less than 3 days	17·2%
From 3 to 5 days	66·4%
,, 6 to 8 ,,	11·2%
9 or more days	5·2%

CLINICAL REPORT OF THE GYNÆCOLOGICAL DEPARTMENTS OF THE GOVERNMENT CIVIL, AND TSAN YEUK HOSPITALS.

During the year ended 30th April 1926, there were 115 admissions to the Government Civil Hospital ward, there were 55 operations and 25 patients refused treatment.

The principal event of the year was the opening of the Gynæcological wards at the Tsan Yeuk Hospital, in which Dr. Hickling was good enough to place beds at my disposal; 25 patients were admitted under us, there were 23 operations. I wish to take this opportunity of expressing my gratitude to Dr. Hickling for the very valuable help she has given me in the creation of a department; I regard the Tsan Yeuk Hospital as having very great possibilities, and I am glad to have the chance of sharing in its development. Chinese patients do not readily consent to operation, unless the condition from which they are suffering is of an obvious nature, such as a tumour. In cases of internal haemorrhage from ruptured extra uterine pregnancy, there is often considerable delay before the patient is brought to hospital; I had one patient in hospital, who withheld her consent for 10 hours, I am glad to say, however, that we did not operate too late to save her.

We seldom see cases of cancer at a sufficiently early stage to warrant an operation.

Prolapse of the Uterus is seen most frequently in boat women, presumably straining at an oar soon after pregnancy, (in a woman whose uterine supports have been damaged) must be the cause.

In these cases we have usually shortened Mackenrodth's ligaments, and sometimes performed vaginal suspension of the Uterus in addition, if the Uterus appeared otherwise likely to remain retroflexed; most of these women have been under 45 years of age.

Inflammation of the fallopian tubes is common amongst Chinese women, in addition to those seen in the dispensaries, 22 patients were admitted to the wards suffering from this condition, while the cause of the infection is often hard to prove, there is one common microbe which usually gets the blame. The wards at the Tsan Yeuk have only been open for a few months, and I am hoping that as our organisation improves, the Hospital will become more popular with the patients.

I wish to express my indebtedness to my assistant Dr. Pillai for having worked out the Gynaecological tables.

Table I.—Statistics of the Gynæcological Department.

Number of admissions to Govt. Civil Hospital	115
Number of operations; Govt. Civil Hospital	55
Number of admissions to Tsan Yeuk	25
Number of operations; Tsan Yeuk	23

Table No. II.—Nature and Number of Operations.

Epithelioma of Vulva	1
Fibroma of Vulva	1
Imperforate hymen	2
Laceration of perineum—	
complete	1
incomplete	2
Abscess of vulva	1
Urethra—	
Stricture of (dilatation)	1
Repair of sphincter	2
Bladder—	
Calculus	1
Vagina—	
Vesico-vaginal fistula ..	3
Anterior colporrhaphy	3
Posterior colpo-perineorrhaphy	6
Cervix—	
Trachelorraphy	
Amputation	
Schroeder	1
Carcinoma of	1
Uterus—	
Sarcoma of	1
Curettage 19	
Polypus (fibroid)	3
Myomectomy	1
Ventro-suspension .....12 (abdominal)	
Total hysterectomy	1
Sub-total hysterectomy	3
Tubes and Ovaries—	
Salpingo-oophrectomy (with other operations)	1
Resection of Ovary	6
Salpingectomy	3
Salpingo-oophrectomy ..	1
Tubal pregnancy	3
Para-ovarian cyst	1
Miscellaneous—	
Inguinal hernia	1
Appendix	1
Laparotomy (exploratory)	2
Breast Abscess	3

Table No. III.—Nature and Number of Cases Treated Without Operation.

No treatment indicated ...	5
Refused treatment 25	
Pregnancy	8
Operation contra-indicated by general health	3
Displacement treated by pessary	2
Salpingitis 13	
Pelvic cellulitis	1
Inoperable malignant disease	2
Syphilitic ulceration of vulva	2
Venereal non-syphilitic ...	3
Congenital absence of uterus	1

Table No. IV.

Abdominal Hysterectomy

No.	*Name*	*Date*		*Disease*	*Operation*	*Result*	*Remarks*
1	B.	15-10-25	50	Fibroid	Subtotal	Recovery	Size of foot-ball, done under local
2	S.L.	21-10-25	34	Fibroid	Subtotal	Recovery	Size of foetal head
3	O.S.	4-11-25	40	Fibroid	Subtotal	Recovery	Size of foetal head
4	N.Y.	13-3-26	42	Cancer of Cervix	Hysterectomy	Recovery	Previous amputation of cervix for diagnosis

Table No. V.

Myomectomy

No.	*Name*	*Date*	*ge*	*Disease*	*Operation*	*Result*	*Remarks*
1	C.S.	13-5-25	43	Fibroma and Broad Ligament Cyst	Myomectomy and Removal of cyst	Recovery	Fibroid Size of an orange Abdomen drained through Douglas's Pouch

Table No. VI.

Ovariotomy and Salpingectomy (Abdominal)

No.	*Name*	*Date*	*ge*	*Disease*	*Operation*	*Result*	*Remarks*
1	C.K.Y.	4-4-25	35	Tubal preg.	Left salpingectomy	Recovery	Married 15 yrs. Abortion 9 yrs. ago No children
2	T.M.N.	1-4-25	29	Left ovarian Cyst	Left ovariotomy	Recovery	Para 4 Abort 1 Ventro-Suspension performed
3	S.H.Y.	11-4-25	21	Double Salpingo-oophritis	R. salpingectomy L. salpingo-oophrectomy	Recovery	Abort 4 months ago Pain on micturition
4	P.A.Y.	20-5-25	53	L. ovarian cyst	L. salpingo-oophrectomy	Recovery	Size of football utrus ventro Suspension (modified gilliaume)

Ovariotomy and Salpingectomy (Abdominal)—Contd.

No.	*Name*	*Date*	*ge*	*Disease*	*Operation*	*Result*	*Remarks*
5	C.H.S.	1-6-25	25	R. ovarian cyst Ruptured	Rupture sewn	Recovery	Uterus ventro-Suspens'on by rd. ligs and fundus.
6	C.M.	31-3-26	27	R. cystic ovary	Ovariotomy	Recovery	Left cystic ovary removed
7	F.S.	23- 6-25	21	Pyosalpinx	L and R Salpingectomy	Recovery	Uterus ventro-suspension by rd. ligs and fundus
8	H.	29- 7-26	22	Salpingitis	Removal	Recovery	Ventro-suspension
9	C.H.	5- 9-25	37	Salpingitis and Broad Ligament Cyst	Resection of R. take Cyst removed	Recovery	
10	C.K.	7-10-25	44	Ovarian Cyst	Excision	Recovery	Hernia repaired
11	Y.T.M.	21-10-25	18	Salpingitis	Excision	Recovery	Ventro-suspension by rd. ligs and fundus
12	S.C.	31-10-25	34	Extra Uterine Lig.	Excision	Recovery	Ventro-suspension
13	L.K.Y.	26-11-25	26	Salpingitis	Excision	Recovery	Appendicectomy
14	C.K.	9-12-25	48	Salpingitis			Adhesions broken down through Douglar's pouch
15	T.N.	4- 1-26	50	Ovarian Cyst	Excision	Recovery	Ventro-suspension
16	N.N.K.	———	—	Extra Uterine	Excision	Death	History of rupture several hours before admission died 2 hours after operation
17	C.Z.	15- 3-26	34	Salpingitis	Excision	Recovery	Ventro-suspension by fundus and round lig.
18	C.M.	31- 3-26	27	R. Ovarian Cyst	Ovariotomy	Recovery	Left cystic ovary also removed
19	C.M.	4-12-25	27	Ovarian Cyst	Ovariotomy	Recovery	Uterus suspended
20	W.S.	13- 3-26	36	Old Salpingitis	Salpingectomy and ventro-suspension by lig and fundus	Recovery	T.B. peritonitis miliary spots

Table No. VII.

Miscellaneous Operations

(Only important major operations are included.)

No.	*Name*	*Date*	*Age*	*Disease*	*Operation*	*Result*	*Remarks*
1	S.Y.	14-5-25	47	Submucous fibroid	Removed with Schultz's forceps	Recovery	Size of orange Cervix split posteriorly and stitched
2	L.Y.	25-5-25	60	Stone in bladder	Supra-pubic removal	Recovery	Size of a small orange
3	T.M.K.	25-5-25	26	Adhesions	Adhesions removed	Recovery	Ventro-suspension by big and fundus
4	L.W.Y.	25-6-25	19	Sinestro-posed uterus	Ventro-suspension	Recovery	Vagina and perineal repair
5	N.	20-7-25	25	Retroversion	Ventro-suspension	Recovery	——
6	Y.L.S.	3-8-25	39	Caucer of cervix	Vaginal hysterectory	Death	Hb 60% Advanced Cachexia
7	L.S.	17-9-25	32	Complete prolopse	Vaginal Ventro-Suspension	Recovery	Vaginal and perineal repair
8	A.C.	21-9-25	17	Plastic peritonits	Laparotony	Recovery	On opening abdomen case found to be inoperable
9	L.K.	26-10-25	27	Sarcome of uterus	Removal of piece for Section	Discharged	
10	L.S.N.	13-1-26	27	Retroversion	Ventro-Suspension	Recovered	
11	C.H.	21-1-26	25	Procidenlia	Amputation of Cervix Ventro-suspension	Recovered	
12	W.H.H.	13-1-26	43	Polyp. of ut.	Removed with Schultz's forceps	Recovered	Ant and post Colporrhaphy
13	C.N.F.	4-4-26	27	Retroverted and dextro-posed uterus c adhesions	Ventro-Suspension	Recovery	——
14	C.M.C.	21-4-26	25	Old pelvic collulitis with retroversion	Ventro-Suspension	Recovery	
15	L.A.C.	23-3-26	24	Retroverted and fixed	Ventro-Suspension	Recovery	Bleeding ovary stitched

Table No. VIII—Table of Compound Operations.

Nature of Operations	Number of cases.
* Vaginal Repair	9
Vaginal Repair and shortening of Round lig.	2
Vaginal Repair and Vaginal Suspension	4

INTERIM REPORT ON GYNÆCOLOGICAL SPECIMENS.

(From the School of Pathology, University of Hongkong).

C. Y. WANG, M.D., B.Sc., D.P.H., D.T.M.&H., F.R.C.P., Edin.

The following is a brief survey of the work of the Reporting Department of the School of Pathology dealt with in connection with the Gynæocological Clinic of the University during the last 14 months, ending 31st May, 1926. In all 226 number of specimens have been received and examined, and these are tabulated below:—

Blood for Syphilitic Test	171
Blood for Widal Reaction	5
Blood for culture	1
Urine for microscopic examination	6
Swabs & smears for bacteriological examination ..	7
Tissue sections	36

Of the 171 blood specimens for syphilitic test, 138 were found negative, 31 positive and 2 doubtful. The test was conducted throughout by a modification of Sachs-Georgi reaction which involves the use of a turbid mixture of heart antigen and saline with the tested serum added in certain proportions (The Lancet, 1922, i274 and 1923, i262).

Of the 36 tissue specimens for microscopic diagnosis 16 were obtained from tumour growths, while the remaining 20 were taken from inflammatory lesions. In this connection it is interesting to note that among the 16 specimens of tumour examined 2 were hydatid mole.

* Under the heading of "vaginal repair" are included such operations as perineorrhaphy, trachelorrhaphy, amputation of cervix, colporrhaphy.

A summary of the total number of cases is embodied in the table given below:—

Blood for Syphilitic Reaction	171	
Positive		31
Negative		138
Doubtful		2
Tumours	16	
Carcinoma of Cervix		3
„ „ Uterus		1
„ „ Vulva		1
Myosarcoma of Cervix		1
Papilloma „ „		1
Cysts of Ovary		1
Fibromyoma of Uterus		6
Hydatid mole of Uterus		2
Inflammatory lesions	20	
Inflammation of Fallopian tubes		7
„ „ Uterus		6
„ „ Cervix		2
„ „ Urethra		2
„ „ Appendix		1
„ „ Omentum		1
„ „ Heart		1
Urine for Bacteriological examination	6	
Blood Culture	1	
Swabs and Smears	7	

DIABETES MELLITUS—THE SIGNIFICANCE OF BIO-CHEMICAL TESTS IN ITS DIAGNOSIS AND TREATMENT.

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Of late so much investigation has been done on diabetes that in recent text-books of medicine this subject has either been entirely rewritten or at least revised. The old view that diabetes is a disease of abnormal carbohydrate metabolism alone no longer holds, as it is now found that both protein and fat metabolism also share their part. The recent discovery of insulin by Banting of Toronto is not only an epoch-making event in medical history, but is also a tremendous help to the poor invalids whose outlook on life would otherwise be hopeless.

The enthusiasm with which this drug was hailed by both the profession and the public has its many drawbacks. It led to the indiscriminate use of this remedy by some people for cases that are obviously unsuitable with the result disastrous to the patient and discreditable to the physician. I have noticed one case at least in whom the insulin was administered by the attending physician who simply examined the patient's urine and diagnosed diabetes mellitus because he found a positive result. The consequence was that the patient developed alarming convulsions and unpleasant symptoms. The patient in fact had a very low blood-sugar and only little glycosuria. In a case of this type, insulin is not only worse than useless, but is a positive danger. One cannot be too strong in condemning people who are fond of using this new remedy without taking the trouble of doing the invaluable blood-sugar test which is a guide to the diagnosis and the treatment of the case.

With the modern advances in bio-chemical work and especially the simplified technique of blood-sugar estimations, one is not justified in diagnosing cases of true diabetes unless one has gone through the different bio-chemical tests for glycosuria. Although it is maintained by some that it is safe to treat every case of glycosuria as diabetes first until the contrary is proved, I venture to say that such a view may easily mislead one into making a wrong prognosis of a case. My reason for saying this is because a large proportion of glycosuric cases which were thought to be diabetes turned out to be cases of renal glycosuria or leaky kidney, a condition to which very little attention has

been paid before. Clinically this type of cases bears the greatest resemblance to diabetes and probably without a blood-sugar estimation, its real differentiation from true diabetes is hardly possible. But while true diabetes is to be looked upon as a serious condition, renal glycosuria is said to be practically harmless.

When we realise that such a condition exists, we shall soon find how few cases of true diabetes really occur in China. As far as I know very little has been published as regards this disease in China, and in a huge volume of over 700 pages like the Diseases of China, by Jefferys and Maxwell, no mention of it has been made whatsoever. It is interesting to note that whereas Chinese are largely carbohydrate consumers, yet this disease is comparatively uncommon.

Perhaps it will not be out of place if we be clear at the outset as to what we mean by true diabetes, as in some books the definition of this disease is somewhat misleading and confusing. Thus, in Tidy's Synopsis of Medicine, it is defined as a condition due to chronic abnormal carbohydrate metabolism and in Gould's Medical Dictionary, it is described as a nutritional disease characterised by the passage of a large quantity of urine containing sugar. Neither has it correctly explained. As such confusion prevails, I propose to discuss the subject under the following four headings:—

1. The Normal Blood-sugar.
2. Diabetes.
3. Renal Glycosuria.
4. Physiological Glycosuria, or Experimental Glycosuria.

1. The Normal Blood-sugar:—

In a healthy individual, the blood-sugar a few hours after food is about 0.1%, but if a certain amount of glucose or other carbohydrate food is ingested, the blood-sugar rises, reaching its maximum to about 0.18% within half to one hour, after which it returns to the original level or often below it. The reason for this is still debateable but in the present state of our knowledge it may be best accounted for by the rapid conversion of the glucose into glycogen in the liver. Within the normal limits of 0.18% of sugar in the blood, (the renal threshold for sugar), the urine should not reduce Benedict's solution, but where the limit is exceeded, there may be a transient glycosuria. Hence in an individual with a normal renal threshold and an unimpaired storage capacity of the liver, no glycosuria for any length of time should occur, however large the amount of glucose or other car-

bohydrate food ingested. It is maintained that the conversion of glucose into glycogen is in some way related to the pancreas.

2. Diabetes:—

In diabetes the islets of Langerhans of the pancreas are generally affected resulting in a diminished internal secretion of insulin and a consequent impairment of the storage capacity of the liver. The glucose is thus accumulated in the peripheral blood and excreted through the urine. Hence the blood-sugar of a diabetic is usually over 0.18%. It may reach as high as 0.3% or over. Glycosuria is present in nearly all cases. It will be seen from this that the sugar which is an essential factor for the bodily function is thus not utilised. It should be remembered that the glucose in the blood is not only derived from the carbohydrate part of the food but also from the protein and to a very slight extent from the fat. This can be proved by the fact that in severe diabetes, patients usually pass large quantities of sugar in their urine when on carbohydrate-free protein diet. Taking glucose as containing 100% of carbohydrate it will be found that 58% of the protein and 10% of the fat are convertible into carbohydrate. In a diabetic, as a result of the inefficient oxidation of the fat from lack of sugar, intermediate products of fat metabolism such as B oxybutyric acid, diacetic acid, and acetone are usually found in the urine. It is therefore clear that diabetes is a disease of general metabolism in which all the food stuffs are implicated rather than a disease of carbohydrate metabolism alone as it was usually thought to be.

3. Renal Glycosuria:—

The exact pathology of this condition is still under investigation, but the present view is that it is a condition due to the hypersensitiveness of the renal cells to glucose which allows the sugar to escape into the urine and not due to any excess of blood-sugar beyond the normal renal threshold. Some explain that this condition is due to an impairment of the glycogenic function or storage capacity of the liver. Whatever view may be held, the condition may be described as glycosuria in which there is normal or low blood-sugar. (e.g. as low as 0.5%).

4. Physiological or Experimental Glycosuria:—

I shall not go into detail of this group, but the glycosuria or rather lactosuria of a nursing or lactating mother is deserving our attention. Phloridzin glycosuria—a condition produced by the injection into an animal of phloridzin, a glucoside obtained from the roots of fruits like apple and pear is also worthy of note since it produces glycosuria with a hypoglycemia.

Apart from what I have described above, there are, however, some anomalous cases of glycosuria and one must not for-

get that there may be cases of diabetes with a lowered renal threshold as can be seen in some of my cases here recorded.

As regards the differential diagnosis of diabetes, I will not enter into here, as a full description of it can be found in any text books on that subject. But the bio-chemical aspect of the disease is what we are more concerned with here. For the examination of a glycosuric case the following steps are taken:—

I. The Urine Examination:—

1. Qualitative Examination.
2. Quantitative Examination.
3. Specific Gravity.
4. Test for Diacetic Acid.
5. Identification of Glucose.
6. Measurement of Urine.

II. The Blood-sugar Examination.

I. The Urine Examination:

When one suspects a case of diabetes the obvious thing to do is to get a sample of urine for examination. Here I would like to emphasise that one should always insist on having a twenty-four hours' sample as the specimen immediately after food will certainly differ from one long after it. It should be noted in this connection that some diabetics have sugar appearing in their urine at only one period of the day and so the absence of sugar in a specimen just voided in one's consultation room is by no means conclusive.

It should be remembered that in diabetes the mere test of the urine with Fehling's solution does not only provide us very little information, but is at times misleading. In fact, in some modern medical schools they have given up this for Benedict's method. Joslin, Foster and Cammidge, well-known workers on this line also favour the use of Benedict's test and this in itself speaks highly in favour of its present day use. The argument in favour of using Benedict's method is as follows:—

1. Fehling's test consists of two separate solutions which have to be freshly mixed up before use on each occasion, as the mixed reagent will deteriorate on standing. Benedict's test requires a single solution which can be kept indefinitely.

2. Fehling's test may be interfered with by the concentration of uric acid, creatinine, and glycuronic acid in the urine, while Benedict's reagent is not sensitive to these urinary ingredients or at least offers less chance for error in this way.

3. Benedict's reagent is more delicate and the result more definite, since less urine is required (e.g. 8-10 drops for 5 c.c. of the solution) and the result is indicated not by its colour of reduction, but by its opacity. According to Benedict he claimed that the test will detect glucose up to 0.01% provided the urine is of low dilution. Fehling's on the other hand only detects glucose up to 0.1%.

I have compared the two tests in a case of glycosuria. Whereas Benedict's test gave a good opacity, the result obtained by Fehling's was indefinite. The fact that it was glucose was subsequently proved by the osazone test.

So far we have only dealt with the qualitative examination of urine, but we should not forget that the quantitative estimation of glucose in urine has now become an important factor, for if we can estimate the amount of sugar lost by the patient on a suitable diet per day, it will be a good guide in helping us to guage the dosage of insulin to be administered since roughly one unit of insulin will be required to replace every two grams of sugar. The method we adopt in our clinic is that of Benedict also. It is not only very simple and time-saving but accurate. 25 c.c. of Benedict's Quantitative solution together with about 10 gms. of solid sodium carbonate are kept boiling in a beaker and the urine (diluted if the preliminary qualitative examination and its specific gravity indicate a high concentration) is then run off from a burette into the boiling solution until the last trace of blue colour has disappeared. The amount of urine used is noted. As 25 c.c. of Benedict's solution = 0.05 gm. of glucose, so if we represent the amount of urine used by X c.c. and the number of dilution by Y, the percentage of sugar in the sample of urine can be calculated as follows:—

$$\text{Percentage of glucose} = \frac{0{\cdot}05 \times 100 \times Y}{X}$$

The Specific Gravity of urine may give us a rough idea as to whether sugar is present, though this is not always reliable. Diabetic urine is generally of high specific gravity e.g. 1025-1040 and it is a rough assumption that for every increase of 4 degrees of S.G. there is a corresponding increase of 1% of sugar. But it should be noted that urine with a low S.G. does not mean that it is sugar-free.

The more important test than that of sugar in urine for a case of true diabetes is that of diacetic acid or acetone since its presence is always of grave import, as it indicates that the patient is approaching acidosis or coma which in the pre-insulin days usually terminates the case. For this, Rothera's test seems to be the most reliable. The test consists in saturating a two

inch test-tubeful of urine with powdered ammonium sulphate and adding a few drops of freshly prepared 10% sodium nitroprusside solution and then an equal volume of ammonium hydrate. A weak permanganate or violet colour develops if diacetic acid is present.

Unless one is quite convinced as to the nature of the reducing substance in the urine, a phenyl-hydrazine test or fermentation test should be tried for its determination.

The urine of a diabetic should be measured every twenty-four hours for two purposes, firstly to ensure if there is actual polyuria and secondly to determine the exact amount of sugar excreted during the twenty-four hours. The patient's word about his polyuria should not be too seriously taken, as some patients who wander from one doctor to another and are made acquainted with the leading symptoms of this malady are apt to mislead the physician. Again, to the lay mind, frequency of micturition is almost synonymous with polyuria so that a case with enlarged prostate and an irritable bladder may complain of excessive excretion of urine when such may not be the case. In measuring the urine there is another difficulty. Patients are apt to pass urine together with their faeces and the record charted is often inaccurate. However with sensible patients and reliable nurses this difficulty can be easily overcome.

Before I leave the question of urine examination, I should like to stress the fact that in some cases of diabetes there may be no sugar at all in the urine although there is a definite increase of sugar in the blood. Hence the importance of the next step in the bio-chemical investigation of the case.

II. The Blood-sugar Examination.

Various methods for blood-sugar estimation have been devised, notably those of Benedict-Lewis, Bang, MacLean, Folin-Wu, Shaffer and Hartman and Tervaert's modification and many others. Of all the methods, I find that of MacLean the simplest and cheapest available for ordinary purposes. Its advantage lies not only in the small amount of blood taken, but that no expensive apparatus such as a colorimeter or balance need be used. Its accuracy has been proved by various observers. As this test is seldom performed in this Colony, for those who are not yet familiar with the method, I endeavour to give a brief account as to how it is conducted. I shall deal with it under three headings:—

(A.) Apparatus:—

1. Special.

(a) MacLean's 0.2 c.c. pipette for blood.

(b) 23.8 c.c. pipette for the acid sodium sulphate solution.

(c) two conical flasks of about 100 c.c. capacity.

(d) Whatman's starch-free filter paper.

(e) two flasks one graduated to hold 200 c.c. and another to hold 100c.c.

(f) a heat-regulating bunsen burner.

(g) a small cylinder marked 20 c.c. to hold filtrate.

2. General.

(a) a 25 c.c. burette graduated in 1/10 c.c.

(b) a 1 c.c. pipette graduated in 1/100 c.c.

(c) an ordinary 1 c.c. pipette.

(d) two ordinary 2 c.c. pipettes.

(e) a 5 c.c. ordinary pipette.

(f) a 10 c.c. ordinary pipette.

(g) a small filtering funnel.

(h) triangular needles, tripod stand, wire gauze, and glass rods.

(B.) Reagents:—

(a) Acid Sodium Sulphate Solution.

This has to be freshly made by dissolving 15 grams of sodium sulphate in 100 c.c. of distilled water to which 0.1 c.c. of glacial acetic acid is added.

(b) N/400 Sodium Thio-sulphate Solution.

This again has to be freshly prepared by taking 5 c.c. of N/10 sodium thio-sulphate solution and adding distilled water to make it up to 200 c.c.

(c) Alkaline Copper Solution.

This consists of the following:—

Potassium Bicarbonate	12	gms.
Potassium Carbonate (anhydrous)	8	„
Copper Sulphate (crystals)	0.35	„
Potassium Iodate	0.05	„
Potassium Iodide	0.50	„
Distilled Water up to	100	c.c.

(d) 25% Sulphuric Acid.

(e) 1% Solution of Soluble Starch.

This is roughly made by boiling about 1 grain of soluble starch in about 6 c.c. of distilled water.

(f) Dialysed Iron Solution.

(C.) Technique:—

This consists of two steps:

(A.) Preliminary Test:

This is performed at the beginning of a blood-sugar test to find out the quantity of thio-sulphate solution required to titrate 2 c.c. of alkaline copper solution, and also to check the accuracy of the reagents just made up. Where several examinations are to be done in the same day and with the same batch of reagents, this test need not be repeated for subsequent occasions.

10 c.c. of acid sodium sulphate solution are taken to which exactly 2 c.c. of alkaline copper solution are added and the mixture is warmed over the bunsen for a short time after which it is cooled down again and made strongly acid by the addition of 2 c.c. of 25% sulphuric acid. After the complete effervescence has disappeared and the mixture has been thoroughly shaken, it is titrated with thio-sulphate solution which is run down from the burette until the yellow colour of the mixture almost disappears. Two drops of soluble starch solution are then added as an indicator and a blue colour at once appears. The thio-sulphate solution is continued running into the mixture until the blue colour disappears. The number of c.c. thio-sulphate solution used is then noted. Generally 11 c.c. are used.

(B.) Actual Test:

1. Measure 23.8 c.c. acid sodium sulphate solution into a 100 c.c. conical flask.
2. With the special pipette, take 0.2 c.c. of blood from the patient's ear and add it to the solution in the flask by alternately sucking in and blowing out the mixture so as to wash out all the contents of the pipette.
3. Cork this flask and heat it over the bunsen until a few bubbles appear, i.e. approaching the boiling-point.
4. Remove it from flame, allow it to stand for 1 minute, just raise stopper sufficiently to introduced 1 c.c. dialysed iron solution and replace stopper. Cool the solution well under the tap and have it well shaken.
5. Filter the contents through Whatman's filter-paper.
6. Take 20 c.c. of filtrate in another conical flask and add to it 2 c.c. alkaline copper solution.
7. Heat the mixture in open flask over the standard flame for 6 minutes after brisk boiling commences.
8. Remove it from flame, and cool it well under the tap.

9. Add 2 c.c. 25% sulphuric acid slowly into this cooled solution and shake with a circular motion after all effervescence has passed. Allow it to stand for about a minute.

10. Run in N/400 thio-sulphate solution as before in the preliminary test and the number of c.c. thio-sulphate solution used is noted. The difference between this number and that obtained in the preliminary test is then found. From the table below, the corresponding number is looked up and the percentage of blood-sugar is then read off.

Table giving Percentage of Glucose equivalent to N/400 Sodium Thio-sulphate Solution when 20 c.c. Blood filtrate are used.

N/400 Thio-sulphate. in c. c.	Percentage of Sugar.	N/400 Thio-sulphate. in c. c.	Percentage of Sugar.
0.12	0.018	3.24	0.168
0.25	0.025	3.36	0.175
0.38	0.031	3.49	0.181
0.50	0.037	3.61	0.187
0.62	0.043	3.74	0.193
0.73	0.050	3.87	0.200
0.86	0.056	3.99	0.206
0.99	0.062	4.12	0.212
1.13	0.068	4.24	0.218
1.26	0.075	4.37	0.225
1.39	0.081	4.49	0.231
1.53	0.086	4.62	0.237
1.67	0.093	4.74	0.243
1.80	0.100	4.87	0.250
1.94	0.106	4.99	0.256
2.07	0.112	5.12	0.262
2.22	0.118	5.24	0.268
2.35	0.125	5.37	0.275
2.44	0.131	5.49	0.281
2.61	0.137	5.62	0.287
2.74	0.143	5.74	0.293
2.86	0.150	5.87	0.300
2.99	0.156	5.99	0.306
3.11	0.162	6.12	0.312

Example:

Amount of thio-sulphate required in preliminary test ..... = 11 c.c.

Amount of thio-sulphate required in actual test ..... = 7 c.c.

Difference ..... = 4 c.c.

From table, 4 c.c. = 0.206% of blood-sugar.

The only difficulty in this test lies in preventing the blood from coagulating in the pipette. This can be done by rubbing over the ear with finely powdered potassium oxalate, but if a deep puncture is made with a sharp needle and the blood is squeezed out rapidly enough, coagulation does not take place even without the oxalate. The 0.2 c.c. pipette must be kept clean and free from grease by immersing it in a solution of sulphuric acid and potassium bichromate. When used it should be washed in distilled water, absolute alcohol, and ether, and then dried over the flame.

So much for the blood-sugar estimation, but the real differentiation between true diabetes and renal glycosuria is best explained by the character of the curve from a sugar tolerance test. If a patient be made to ingest a certain amount of glucose and his blood-sugar examined at stated intervals, the subsequent changes of his blood-sugar concentration will give us an idea of his sugar tolerance. To obtain this test, the procedure is as follows:—

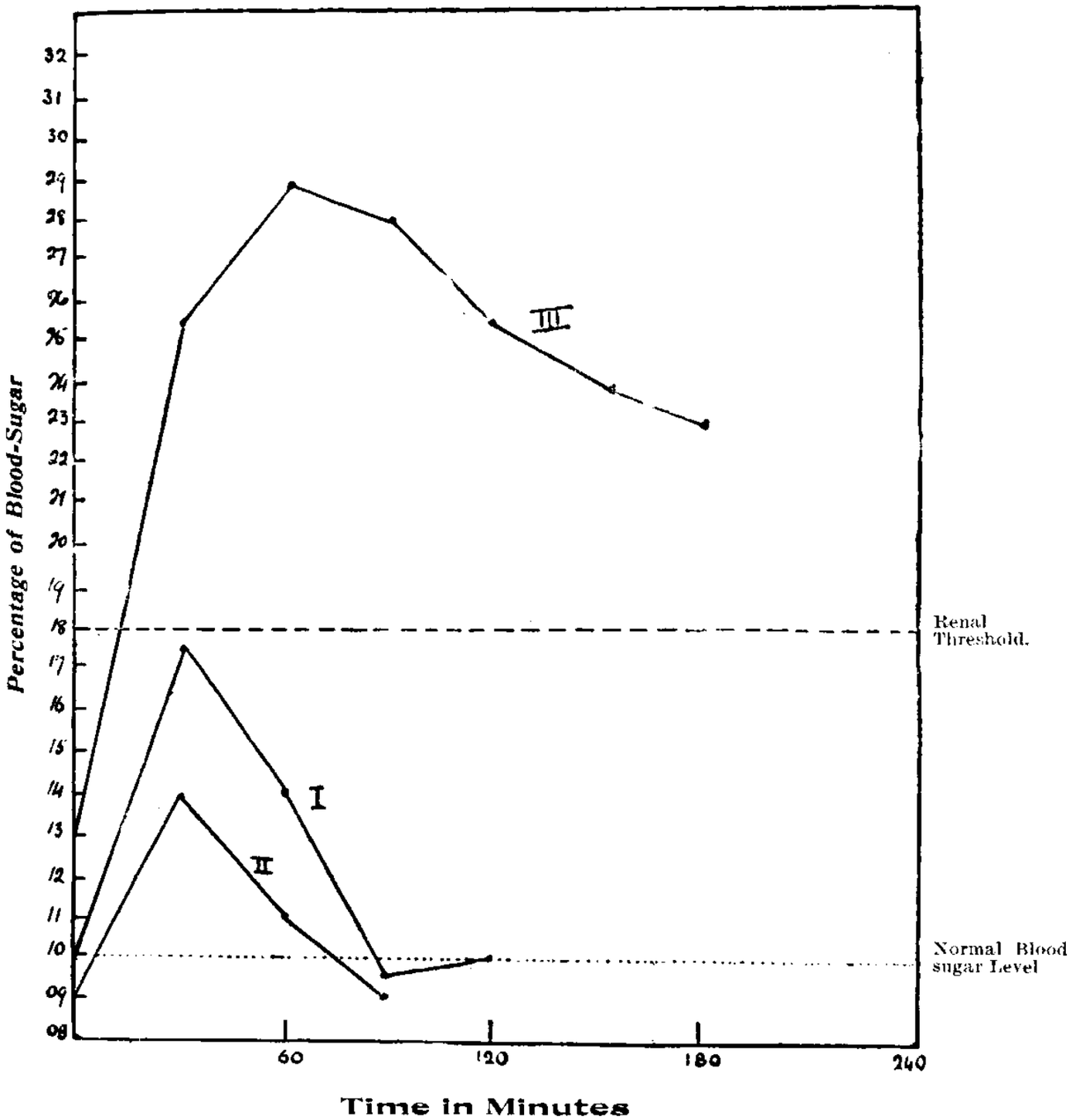
> The patient should come for examination in the morning with no starchy food for his breakfast. He should be told to bring along his twenty-four hours' sample of urine. A blood sample is then taken for examination. He is then given 50 gms of glucose dissolved in about 6 ozs. of water. The time for this meal is noted. His blood samples should be taken at about half-hourly intervals for two hours, and any urine that is passed during the period under observation is collected, and examined quantitatively.

With the findings of these several blood-sugar examinations, one can interpret the actual condition of the patient without much difficulty. Thus a glance at the graphs in the accompanying page will render these points clear.

I.—Normal.

The blood-sugar reaches its highest point within 1/2-1 hour but never exceeds the threshold value (0.18%) and re-

TABLE ILLUSTRATING RESULTS
OF SUGAR TOLERANCE TESTS.

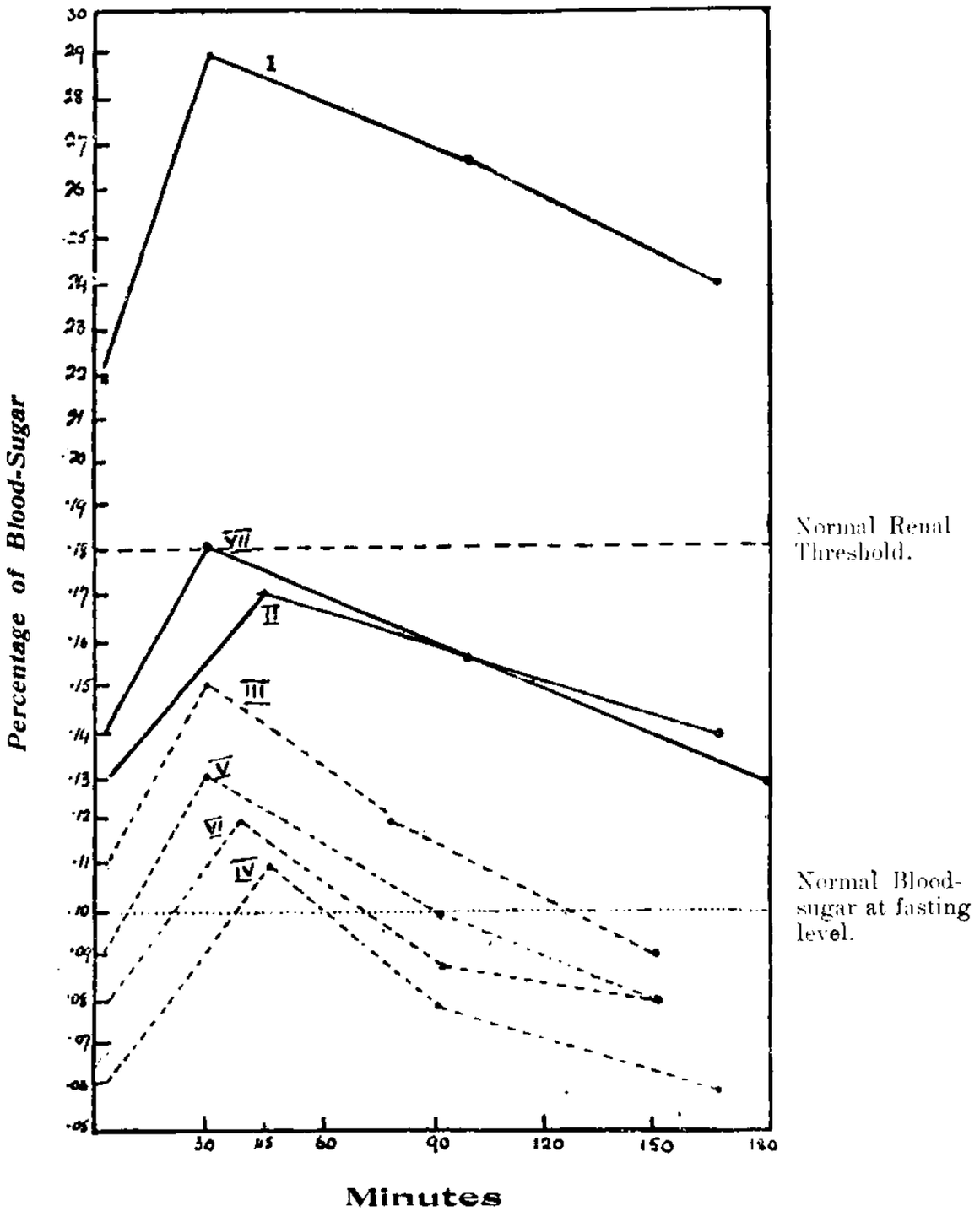


I. —Normal Curve

II. —Renal Glycosuric Curve

III.—Diabetic Curve

TABLE OF GRAPHS SHOWING
SUGAR TOLERANCE CURVE.



Note:—

Graph I.—Typical case of Diabetes Mellitus.—

„ II.—Diabetes with Lowered Renal Threshold.—

„ III.—Renal Glycosuria
„ IV.— „
„ V.— „
„ VI.— „

„ VII.—Diabetes with Lowered Renal Threshold.—

turns to its original level (0.1%) within (1½ to 2 hours). Sugar is absent in the urine throughout the test.

II.—Renal Glycosuria.

The curve resembles that of the normal one, or usually the rise is very much less than normal, and the blood-sugar may return to its original level earlier than normal. Sugar is present in the urine.

III.—Diabetes.

The blood-sugar rises much higher and far exceeds the threshold value giving rise to glycosuria. It takes a much longer time (e.g. 3-5 hours) to return to its original level. So that the curve is high and long drawn out.

All these points are exemplified in the cases here presented. In these cases for lack of space I have merely confined myself to the bio-chemical aspects and only such clinical aspects as are of interest.

CASE 1.

C.S., Female, Chinese, aet 57 years, was admitted to the University Medical Clinic for excessive thirst and sugar in the urine of about two years' duration with an insiduous onset; and pain in the bones of about 20 years' duration.

She knew that there was sugar in her urine because she tasted it. Her thirst which was said to be most severe two hours after meal, became progressively worse, and she had to take a very large quantity of water to quench it. Her micturition was so frequent (e.g. 13 times in the day and 9 times at night) that she had not enough sleep. She also had a voracious appetite, but in spite of this she found that she was greatly losing weight (83 lbs on admission).

She was married and had two miscarriages, and on the antero-medial surface of her left tibia, there was a hard palpable tumour. The Wassermann Reaction was found strongly positive.

She was weak, and anaemic. Her skin was dry and somewhat scaly. Her knee-jerk was absent on both sides. She had a cataract in her left eye.

URINE EXAMINATION:—

Colour—pale.

Reaction—Acid.

Specific Gravity—1032.

Albumen—absent.

Sugar—4% found in given 24 hours' sample.

Diacetic Acid—absent.

Quantity in 24 hours—48ozs.

BLOOD-SUGAR EXAMINATION:—

On admission her blood-sugar was 0.23%.

SUGAR TOLERANCE TEST:—

(A.) Before ingestion of glucose—

1. Urine=4.5% of sugar.
2. Blood=0.22% of sugar.

(B.) After ingestion of glucose (50 gms. glucose were given at 9 a.m.)

1. At 9.30 a.m. Blood-sugar = 0.29%
   At 10.30 a.m. „ = 0.27%
   At 11.45 a.m. „ = 0.24%
2. Urine = 5.8% of sugar

The curve was high and prolonged. suggestive of a diabetic condition (vide Graph showing Sugar Tolerance Curve I).

REMARKS:—

This is no doubt a text-book case of diabetes mellitus. Her age, glycosuria, hyperglycaemia, excessive thirst, polyuria, voracious appetite, general weakness and wasting are points highly in favour of this disease.

With regard to her symptoms the following are worthy of comment:—

(a). She complained of thirst especially two hours after food. This is explicable on the ground that as she had an impaired storage capacity of the liver, the carbohydrate part of the food ingested was not readily converted into glycogen and in consequence a high concentration of the blood-sugar existed, and for the dilution of this, more fluid was withdrawn from her bodily tissues and therefore the thirst resulted.

(b). Her weakness and anaemia may be due to a variety of factors which act in a vicious circle. Her venereal history, her impaired metabolism, her lack of sleep from frequency of micturition, etc., may easily account for these.

(c). Her skin condition and her cataract are also in favour of diabetes, although syphilis is not an improbable factor as a cause of her cataract.

A series of urine and blood sugar examinations were made every other day.

She was put under dietetic treatment, but no insulin was administered. Her response to this line of treatment was striking as the following table shows:—

	Before Treatment	After Treatment when patient was discharged
A. Sugar in Urine	4·5%	0·8%
B. Sugar in Blood	0·23%	0·11%

14 days after admission her urine only contained 0.8% of sugar and her blood 0.11%. On her discharge from the hospital she felt very much improved.

CASE 2.

Patient D., Male, Indian, aet 36 years, salesman, was admitted to the University Medical Clinic for constant feeling of thirst, frequency of micturition, wasting and weakness of lower limbs of about 4 months' duration. He also complained that he had a voracious appetite.

On admission patient was thin and anaemic. His weight was 92 lbs. His knee-jerk was absent on both sides. His pupils reacted both to light and accommodation. He had patches of psoriasis in the arms and legs.

URINE EXAMINATION:—

Colour—pale.

Reaction—acid.

Specific Gravity—1030.

Albumen—present, a slight trace.

Casts—not detected.

Diacetic Acid—absent.

Quantity in 24 hours—130 ozs.

BLOOD-SUGAR EXAMINATION:—

0.15% i.e. below renal threshold.

SUGAR TOLERANCE TEST:—

(A.) Before ingestion of glucose.

1. Urine=4.5% of sugar.
2. Blood=0.13% of sugar.

(B.) After ingestion of glucose (50 gms. of glucose were given at 9 a.m.)

1. At 9.45 a.m. Blood-sugar = 0.17%
   At 10.30 a.m. „ = 0.16%
   At 11.45 a.m. „ = 0.14%
2. Urine = 5.4% of sugar

The sugar tolerance curve showed a delay in its return to the original level, although it was not very high (vide Graph showing Sugar Tolerance Curve, II).

His urine and blood were examined daily for the first nine days and then on alternate days for another twenty-two occasions, but on no occasion did his blood-sugar rise beyond 0.18% although sugar was always present in his urine. The blood-sugar fluctuated between 0.08 and 0.17%. He was given a diet of about 850 calories for about 4 days but in spite of this low diet, his glycosuria did not diminish, so that 4 units of insulin were given to him at 11.45 a.m., just about ½ hour before his tiffin and to his diet were added some bread, butter and cabbage making his diet to about 1600 calories. His blood-sugar then dropped to 0.09%, but went

up again to 0.13% the next day. He was given 10 units of insulin and his blood-sugar was 0.1%. His urine was then 96ozs. and contained 1.2% of sugar. As patient was not having enough food, ½ lb. of bread and 1oz. of butter were added making an extra 767 calories for the next 8 days and he was having concurrently 20 units of insulin injections daily. His blood-sugar was more or less on the level between 0.09 and 0.12%, until the last dose of insulin brought his blood-sugar down to 0.075%. Although there were no hypoglycaemic symptoms, we then stopped the insulin. His blood-sugar rose up to 0.09% and the following day to 0.12%. It remained more or less on that level until the 12th day when diacetic acid was found in the urine and we again started him 20 units of insulin daily for 4 days after which no diacetic acid was detected. He was then living on the modified diet for the rest of his stay in the hospital. His thirst was diminished, and his urine was less, but his glycosuria persisted although the percentage was markedly lower.

REMARKS:—

From his signs and symptoms and his blood-sugar curve i.e. the delay in its return to normal, the case seems to belong to one of diabetes with a lowered renal threshold. The absent knee-jerk seems to be a common sign in my series of cases and the psoriasis is according to some books a not unknown accompaniment of this condition. It is interesting to note that in spite of the diet and insulin, his glycosuria still persisted. His signs were too severe for renal glycosuria, and the sugar tolerance curve did not resemble that of a renal type, although his blood-sugar was not very high; but this can be accounted for by his low renal threshold.

According to MacLean, this is a very rare type of diabetes mellitus.

CASE 3.

Patient S.Y.C., Male, Chinese, aet 35, came under my observation for sugar in his urine. He was refused to be insured because the attending physician found sugar in his urine.

He was then treated as diabetes mellitus for about one year and was subjected to a series of severe dietetic treatment and injections the exact nature of which he did not know, but in spite of this, he found very little improvement.

On examination patient seemed to be a healthy and robust looking man. He had no polyuria nor did he experience much thirst. He confessed that he had a venereal history about 10 years ago, but this was then treated. He also complained that he had a bad appetite.

Knee-jerk was absent on both sides. Eyes were normal, his tongue was slightly furred and his Wassermann Reaction was weakly positive.

URINE EXAMINATION:—

Colour—yellow.
Reaction—acid.
Specific Gravity—1020.
Albumen—absent.
Sugar—present; 1.5% in given 24 hrs' sample.
Diacetic acid—absent.

BLOOD SUGAR EXAMINATION:—

Blood sugar at 10 a.m.=0.1%.

SUGAR TOLERANCE TEST:—

(A.) **Before ingestion of glucose.**

1. Urine= 1% of sugar.
2. Blood=0.11% of sugar.

(B.) **After ingestion of glucose (50 gms. of glucose were given at 9.15 a.m.)**

1. At 9.45 a.m. Blood-sugar = 0.15%
   At 10.30 a.m. „ = 0.12%
   At 11.45 a.m. „ = 0.09%
2. Urine = 1.9% of sugar

This curve showed no delay in its return to the normal level, and this is very suggestive of renal glycosuria (vide Graph III).

He was given a stomachic mixture and was on ordinary diet. A week later his blood-sugar was examined again 2 hours after food which turned out to be 0.11%.

From the character of the sugar tolerance curve, the small percentage of sugar in his urine together with the mildness of his signs and symptoms and the absence of a few of the typical signs of diabetes mellitus, I regard this case as one of renal glycosuria.

REMARKS:—

This case is of much interest because it illustrates a great many points I mentioned at the commencement of my paper.

(1). The readiness with which the attending physician diagnosed diabetes mellitus on the strength of a positive urine examination of sugar misled him into subjecting the patient to an unnecessary restriction of diet and medication.

(2). It also misled him into concluding a wrong prognosis whereby the patient was refused insurance.

(3). There was no response to dietetic treatment as indeed one would expect it to have.

(4). Biochemical findings are:—

(a) Low percentage of blood-sugar (on no occasion did this rise beyond 0.15%.)

(b) No delay in the return of blood-sugar as shown in Graph (III).

(5). The absence of typical symptoms of diabetes mellitus such as thirst, polyuria, wasting, etc., the lack of response to dietetic treatment and the biochemical results clearly indicate that this case had very little resemblance to diabetes mellitus. The only feature which is common to both conditions is the glycosuria.

CASE 4.

T.S.S., Male, Chinese, aet. 59, was admitted to the University Medical Clinic complaining of thirst and dryness of mouth of 8 years' duration.

Condition started 8 years ago when patient was in Vancouver, and inordinate thirst first attracted his attention. He consulted a western doctor who found sugar in his urine and advised him to go into hospital for treatment. Patient took his advice and was under starvation diet for 5 days, at the end of which he felt so weak and exhausted that he refused further starvation. He was then discharged from the hospital and his thirst was diminished. Under dietetic treatment for three years, he found very little improvement. He then returned to China when he found his condition little better. For about 2 years he had received no treatment. The third year after his return to China, he began to experience that his thirst became worse again and he also had frequency of micturition especially at night. He consulted various herbalists but the result was uneventful; and for the last 24 hours before admission his thirst was so bad that he had to drink tea nearly every quarter of an hour.

On Admission patient was healthy looking and not thin.

His knee-jerk was absent on both sides.

His weight was 108 lbs.

His eyes were normal.

URINE EXAMINATION:—

Colour—light yellow.

Reaction—acid.

Specific Gravity—1024.

Albumen—absent.

Sugar—1.9% in given 24 hours' sample.

Diacetic Acid—absent.

Quantity in 24 hours—52ozs.

BLOOD-SUGAR EXAMINATION:—

On admission his blood-sugar was 0.56%.

SUGAR TOLERANCE TEST—

(A.) Before ingestion of glucose.

1. Urine=0.8% of sugar.
2. Blood=0.06% of sugar.

(B.) After ingestion of glucose (50 gms. of glucose were given at 9 a.m.)

1. At 9.45 a.m. Blood-sugar = 0.11%
   At 10.30 a.m. „ = 0.08%
   At 11.45 a.m. „ = 0.06%
2. Urine = 1.8% of sugar

His blood was examined on alternate days for 4 occasions, but on no occasion did it rise beyond 0.11%.

At first he was given a low diet containing 3 pints of milk, some chicken soup, beef-tea and barley water and his urine was free from sugar. Two days later he was put on the ordinary full diet and next morning only 0.3% of sugar was found in his urine. His urine was examined daily for the rest of his stay in the hospital, but was found to be sugar-free.

He stayed in the hospital for 2 weeks and was discharged from the hospital when he felt very much improved.

REMARKS:—

This is a case of renal glycosuria. His sugar tolerance test (vide Graph IV) together with his constantly low blood-sugar are all in favour of it. Further his urine only contained a small percentage of sugar and the fact that he was enjoying quite good health in spite of his 8 years' longstanding glycosuria would add an extra vote in favour of renal glycosuria which is practically harmless.

It is interesting to note that he was able to stand the full diet without any trace of sugar in his urine during the later part of his stay in the hospital. His blood-sugar was 0.09% when he was discharged.

CASE 5.

Patient, L.S., Female, Chinese, aet 26 years, came under my observation for thirst, and weakness of lower limbs of two years' duration.

She came to Hong Kong recently from her village near Heung Shan. She was treated by native herbalists in the village, but found no improvement. She never consulted any Western trained doctors before.

Her general condition was satisfactory. There was no wasting, and she was not very anaemic. Knee-jerk was absent on both sides, but sensations were not impaired.

URINE EXAMINATION:—

Colour—light yellow.

Reaction—acid.

Specific Gravity—1018.

Sugar—present, 0.7% in given 24 hours' sample.

Diacetic Acid—absent.

Quantity in 24 hours could not be measured accurately as the patient was not co-operating.

BLOOD-SUGAR EXAMINATION:—

Blood-sugar 2 hours after food was 0.1%.

SUGAR TOLERANCE TEST:—

(A.) Before ingestion of glucose.

1. Urine=1.2% of sugar.
2. Blood=0.09% of sugar.

(B.) After ingestion of glucose (50 gms. of glucose were given at 8.30 a.m.)

1. At 9 a.m. Blood-sugar = 0.13%
   At 10 a.m. „ = 0.10%
   At 11 a.m. „ = 0.08%
2. Urine = 2.1% of sugar

The sugar tolerance curve is obviously non-diabetic in character (vide Graph V). It is very suggestive of renal glycosuria.

She was given a tonic, and was on an ordinary mixed diet. Two days later her urine was again examined and found to contain 0.5% of sugar. She was asked to come and have her blood-sugar examined again, but unfortunately, she left my care before I could carry on further investigations.

REMARKS:—

This case, I should think belongs to the type of renal glycosuria.

Its main interest lies in the clinical picture and the bio-chemical findings. The one showed marked resemblance (though in a mild form) to diabetes mellitus, the other clearly indicated the true diagnosis of the case.

There was no delay in the return of blood-sugar to the original level; the percentage of blood-sugar was within normal limits (0.1%); and the symptoms were mild.

From these observations I am inclined to regard this as a case of renal glycosuria of the type that clinically is extremely difficult to be differentiated from true diabetes.

CASE 6.

W.Y.T., Male, Chinese, aet 59, came under my observation with a history of glycosuria for the last 10 years, and weakness of lower limbs for 4 years.

He had consulted various doctors who advised restriction of his diet. For a whole year he was totally abstinent from farinaceous food and he only took plenty of meat and diabetic flour, but in spite of this, his glycosuria did not disappear. He then returned to his ordinary diet containing rice, and his condition did not seem to become worse. Occasionally he felt thirsty, but the thirst was not persistent.

He was quite healthy-looking weighing 125 lbs. (on day of examination). Eyes were normal, Knee-jerk was absent on both sides but sensations were not impaired; his tongue was coated with a white fur.

URINE EXAMINATION:—

Colour—yellow.

Reaction—acid.

Specific Gravity—1030.

Albumen—absent.

Sugar—present; 1.2% in given 24 hours' sample.

Diacetic Acid—absent.

Quantity in 24 hours=68ozs.

BLOOD-SUGAR EXAMINATION:—

Blood-sugar taken at 8 a.m. before breakfast=0.08%.

SUGAR TOLERANCE TEST:—

(A.) **Before ingestion of glucose.**

1. Urine=2% of sugar.
2. Blood=0.08% of sugar.

(B.) **After ingestion of glucose (50 gms. of glucose were given at 8.20 a.m.)**

1. At 9 a.m. Blood-sugar = 0.12%
   At 9.50 a.m. „ = 0.09%
   At 10.50 a.m. „ = 0.08%
2. Urine = 3 % of sugar

He was given a nerve tonic and took ordinary diet. One week later his blood and urine were re-examined with the following results.

Blood sugar 2 hours after food=0.093%.

Sugar in Urine=1%.

REMARKS:—

From what I have obtained in the history and the bio-chemical examination, the case seemed to be one of renal glycosuria.

There was no delay in the return of the blood-sugar to its fasting level (vide Graph VI) and his blood-sugar was never up to the renal threshold. The fact that restriction of diet did not give him any improvement is also in favour of renal glycosuria. His general condition was too good for a case of true diabetes. He had no wasting although he had this cond.tion for the last 10 years.

CASE 7.

L.W., Male, Chinese, aet 50 years, merchant, consulted me for excessive thirst, polyuria and glycosuria. He noticed ants collecting round his urine for the last 10 years. He had consulted various doctors who prescribed him some pills which seemed to relieve him of his thirst to a certain extent. He continued taking these pills for about 4 years together with a restricted diet free from high carbohydrate contents and felt improved. He then began to take ordinary food and after about 3 months he felt thirsty again. He then had a trip to Singapore for a change, where he was advised by a physician to take freshly minced cow's pancreas. With this he said he found the greatest relief for his thirst and polyuria. On returning to Hong Kong he found his condition recurred. According to his statement, he found that his condition was worse during the Summer but on his going away from the Colony, he would feel better. However his urine was never sugar-free. (Patient was instructed to test for sugar in his urine which he performed daily). He gave up treatment for about one year and was living on ordinary diet until May 1926 when he felt his thirst was so bad that he came under my care.

When I first saw him, he was not wasted, although he was anaemic. His weight was 120 lbs. His eyes were normal. Knee-jerk was absent on both sides. Tongue—dry and cracked like raw-beef.

URINE EXAMINATION:—

Colour—pale.
Reaction—acid.
Specific Gravity—1030.
Albumen—a trace.
Casts—not detected.
Sugar—2.1% in given 24 hours' sample.
Diacetic Acid—present.
Quantity in 24 hours—140ozs.

BLOOD-SUGAR EXAMINATION:—

Blood-sugar at 10 a.m. (2 hours after food) = 0.153%.

SUGAR TOLERANCE TST:—

(A.) Before ingestion of glucose.

1. Urine = 2.5% of sugar.
2. Blood = 0.14% of sugar.

(B.) After ingestion of glucose (50 gms. of glucose were given at 8 a.m.)

1. At 8.30 a.m. Blood-sugar = 0.18%
   At 9.30 a.m. „ = 0.16%
   At 11 a.m. „ = 0.143%
2. Urine = 4.9% of sugar

The curve (vide Graph VII) is rather high and prolonged, suggestive of a diabetic condition although the blood-sugar was just at the renal threshold value.

Owing to the presence of diacetic acid in his urine, 10 units of insulin together with a suitable diet containing a certain amount of carbohydrate were given. The first injection did not give him much improvement. He was given a second dose of 20 units the next morning and with this he passed less urine (e.g. 100ozs.) and felt less thirsty. For the next 4 days he was given 20 units daily when the blood and urine contained 0.13% and 0.9% of sugar respectively. The quantity of urine was then 78ozs. Two doses of insulin 20 units each were given daily and after these his urine was free from sugar and his blood-sugar was 0.1%. For the next 4 days his urine was negative for sugar. He was then kept at that diet and insulin was stopped.

REMARKS:—

From the history and the bio-chemical results the case seems to be one of diabetes mellitus with a lowered renal threshold.

The curve from the sugar tolerance test showed a definite prolongation in favour of diabetes, and as the blood-sugar was not beyond 0.18%, it suggests that the patient must have a low renal threshold.

The effect of insulin administration in this case is worthy of note.

CONCLUSIONS.

From the above series of cases, although they are by no means sufficient for statistical purposes, still they may give us a rough idea as to the relative frequency of renal glycosuria and diabetes mellitus in China. Thus, in the 7 cases recorded, there were 4 cases of renal glycosuria, i.e., 57% and 3 cases of diabetes, i.e. 43%, two of which had a lowered renal threshold. There was only one case in which the blood sugar was beyond the renal threshold. A comparison with text-book cases which are presumably European seems to show that the percentage of blood-sugar in our Chinese patients is much lower even though they are diabetics. The question arises as to whether there may not be a difference in racial physiology and pathology. One also wonders if the Chinese diet may not contain a substance in the nature of Phloridzin which may account for this low blood-sugar, but all these require further investigation.

SUMMARY.

I. The presence of sugar in the urine does not imply diabetes mellitus. Hence the importance of biochemical tests which are essential as a means of diagnosis and as a guide to the administration of insulin. These tests consist of urine and blood-sugar examinations.

II. Urine examination should be conducted for the detection of sugar, diacetic acid, etc. Qualitative and Quantitative tests should be performed for sugar, and Benedict's method should be used in preference to Fehling's.

III. Blood-sugar examination gives—

(a) direct information of the percentage of sugar in the blood—a guide to insulin therapy.

(b) concentration of blood-sugar following the ingestion of a given amount of glucose, i.e., sugar tolerance test. This is useful in differentiating true diabetes from renal glycosuria.

IV. Report of cases to illustrate some of the above points.

I am indebted to Professor J. Anderson, my Chief, for his kind permission to publish some of these cases and to the courtesy of my colleagues, especially Dr. S. W. Phoon for assistance in various directions.

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MALARIA, AND MALARIA PROPHYLAXIS IN FORMOSA.

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Students of tropical medicine in Hong Kong will find much that is of interest and worthy of study in our near neighbour the Island of Formosa. A variety of tropical diseases are endemic or epidemic, but the Japanese Health Authorities, with their customary thoroughness and flair for research, are meeting the various problems with energy and ability.

Malaria is endemic in Formosa, and has long been regarded as a serious menace to the health of the inhabitants.

It is known among the Formosans as **'Kannetsusho,'** and to the aborigines as **'Susorisan.'**

The etiology of the disease was unknown at the time of the Japanese occupation, but when this became better understood, the Formosan Government in 1909 framed measures for combating this disease which were put into force in the year 1910.

I visited Formosa in December, 1925, at the invitation of the Japanese Government, on my way home from Japan, at the conclusion of the Interchange of Health Officers of the Far East, organised by the League of Nations.

One week was spent on the island of Formosa, the greater part of the time being devoted to a first-hand study of the malaria problem as it is presented there.

Anopheline mosquitoes are found throughout the island, they are said to breed largely in ditches and streams in the areas devoted to rice cultivation; in canals, rivulets and nullahs, and in pools on uncultivated land.

Formosa is mountainous, and its climate resembles in many ways that of Hong Kong. One may consider that the malaria problem of Formosa is very similar to that of Hong Kong, except that it is on a much larger scale.

Malaria is said to occur but rarely in the larger towns, where comparatively modern sanitary arrangements exist; it is more prevalent in the rural districts, particularly in the southern part of the island,—this is what one would expect.

Although malaria is prevalent throughout Formosa, it has been noted that labourers recruited from the less infected districts are particularly susceptible to infection when transferred to the 'malarial-stricken' districts.

Similarly in Hong Kong, the Chinese police imported from Wei-hai-wei have shown a relative susceptibility to malaria compared with the Cantonese police employed in this Colony. Reference is made to this subject in the Annual Report of the P.C.M.O., Hong Kong, for 1924.

Heito, in the south of Formosa, may be regarded as the most malarial infected area. The predominant industry in this district is the cultivation of the sugar cane, and the production of raw sugar. I visited this small town and the neighbourhood in the course of my tour, and the local anti-malarial measures were demonstrated by the Public Health officials of this town.

In the high mountain districts malaria is not found, and the aborigines are well aware of the risk of infection should they visit the lowlands.

The three recognised types of malaria are found in Formosa, viz., sub-tertian, benign-tertian and quartan; the last variety is rare, and its distribution irregular. Benign-tertian fever is most prevalent in the lowlands, and sub-tertian malaria is said to occur most commonly in the neighbourhood of the foot-hills. This follows somewhat closely the observed distribution of the different types of malaria-carrying mosquitoes.

Ten species of Anopheline mosquitoes occur in Formosa, as follows:—

Anopheles hyrcanus, Pall., sinensis, Weid.
" minimus, Theo.
" maculatus, Theo.
" tessellatus, Theo.
" fuliginosus, Giles.
" hatorii, Koidz.
" splendidus, Koidz.
" rossi, Giles.
" pleccaw, Koidz.
" candidiensis, Koidz.

At least five of the above species of Anopheles are known to occur in Hong Kong, and it is interesting to note that the three commonest anopheline mosquitoes of Formosa, viz., A. hyrcanus, A. minimus and A. maculatus, are also those most frequently

found in Hong Kong. Of these three the A. minimus and A. maculatus are said, in Formosa, to be proven carriers of sub-tertian malaria, while A. hyrcanus is a vector of benign-tertian and quartan malaria only.

The Anopheles hyrcanus or sinensis is stated to be by far the most numerous and widely distributed species, it is especially abundant in the plains. This probably accounts for the observation that benign-tertian fever is most common in the lowlands, the A. sinensis having been demonstrated to be a carrier of this disease in Formosa.

In other Eastern countries the A. sinensis is suspected to be a vector of sub-tertian fever, but this has not been proved by the Japanese to occur in Formosa.

The A. minimus, Theo., breeds freely in the hill districts, and is extensively distributed throughout the island. This mosquito has been proved experimentally to carry the parasite of sub-tertian malaria in Formosa, and it is looked upon as one of the most malignant species.

The A. maculatus, Theo., is distributed in the hill districts, but also breeds in the plains of the Central, Southern and Eastern parts of Formosa. It is recognised as a carrier of sub-tertian malaria.

I was informed that the other locally occurring species of anopheles are generally rare, but that they are all known to be potential carriers of sub-tertian malaria, with the exception of A. candidiensis whose malignancy is not yet determined.

The following is a comparative table giving the number of patients, suffering from all diseases, treated in the Government Hospitals and by Government medical officers, together with the number of those treated for malaria during a series of years.

Year	Total number of cases treated.	Number of cases of malaria.	Per thousand.
1897	217,807	47,342	217.3
1902	135,892	31,039	228.3
1907	227,363	49,129	216.5
1912	2,076,005	45,975	22.2
1913	2,249,190	47,789	21.2
1914	2,479,380	59,192	23.9
1915	2,663,824	85,952	32.2
1916	2,664,208	84,094	31.6
1917	2,909,330	81,739	28.0
1918	3,400,311	69,910	20.6
1919	3,591,614	80,791	22.5
1920	3,324,273	62,226	18.4
1921	2,688,120	63,382	23.5

This table shows a progressive increase of malaria cases after the Japanese occupation, but a decrease during recent years, attributed to a better appreciation of 'modern medical science' on the part of the public

The death rate from malaria amongst the Japanese shows a marked decrease, but amongst the Formosans there is little change.

The following table shows the malaria death-rate for the period 1917-1923 in three national groups.

	1917	1918	1919	1920	1921	1922	1923
Japanese	164	121	132	161	173	187	133
Formosans	8,763	8,067	7,966	7,134	7,902	8,685	7,005
Foreign nationality ..	13	9	16	18	41	44	26

(Above table shows number of deaths from malaria).

	1917	1918	1919	1920	1921	1922	1923
Japanese	1.4	0.8	0.9	1.0	1.0	1.1	0.7
Formosans	2.6	2.4	2.3	2.0	2.2	2.4	1.9
Foreign nationality	1.1	0.4	0.7	0.7	1.4	1.5	0.8

(Above table shows death-rate from malaria per thousand of population).

The death-rate from malaria in 1923 according to race and district is as follows:—

RACE.	NORTH.		CENTRAL.		SOUTH.		EAST.	
	Number.	*Rate.*	*Number.*	*Rate.*	*Number.*	*Rate.*	*Number.*	*Rate.*
Japanese.....	**26**	**0.3**	**18**	**0.8**	**33**	**1.3**	**56**	**3.7**
Formosans...	**1,146**	**0.9**	**1,347**	**1.7**	**4,245**	**2.8**	**257**	**3.4**

(Above table shows number of deaths from Malaria and death-rate from Malaria per thousand of specified population.)

Blackwater fever is stated to occur in Formosa only in fixed localities. This is an interesting observation which has been made in other parts of the world.

Cases of blackwater fever are relatively more common amongst the Japanese than amongst the Formosans.

The excessive taking of quinine by chronic malaria patients is thought by the Japanese to be the chief factor.

The following table gives the total cases and deaths from Blackwater fever from 1920 to 1924.

Year.	Total cases.	Deaths.
1920	236	108
1921	451	132
1922	342	99
1923	325	92
1924	340	106

With regard to the prophylaxis of malaria in Formosa, the following measures have been adopted since the year 1911.

(A) General preventive measures.

1. Construction of sewerage systems, with efficient repair and upkeep.
2. Drainage of standing-water, swamps, and pools.
3. Pruning of bamboos in the vicinity of houses, and the frequent cutting of undergrowth..
4. Re-construction and control of cess-pools.
5. Use of quinine, under medical advice, for prophylaxis and curative purposes.
6. Public health education in the form of lectures, demonstrations and distribution of pamphlets.

(B) Special preventive measures.

1. Enforcement of the preventive plan against malaria within a fixed locality.
2. Compulsory use of quinine by the carriers of parasites until blood-smears are negative.
3. Free supply of quinine and its preparations, and free medical examination of carriers.

Duties of the authorities concerned within their own district where malaria prevention work is being carried out.

1. Construction, repair and cleansing of public sewerage system.
2. Drainage of standing-water, and the filling-in of pools or any other potential breeding places.
3. Compulsory notification by medical practitioners to the Public Health authorities of malaria patients in their practice.

4. Delivery of lectures on malaria, and propaganda by means of moving-picture shows; thus educating the general public as to the sanitary requirements.

Duties of permanent and transient residents within the districts where the malaria prevention campaign is being conducted.

1. They should submit to regular or special blood-examinations.
2. Those who are recognised as parasite carriers, and who are not under medical treatment, should take the official medicines.
2. Those who are recognised as parasite carriers, and who are not under medical treatment, should take the official medicines.
3. The head of a family should notify the police authorities if any member of his family or household is suspected to have malaria, or objects to medical treatment.
4. Mosquito-nets should be used in all sleeping apartments.
5. Construction, repair and cleansing of house-drains.
6. House-cleansing should be conducted inside and outside the house at least once a week.
7. Cess-pools should, if possible, not be constructed.
8. Unnecessary drains and pools should be filled-in.
9. Quinine should be used in accordance with the physician's advice:—it should not be misused.

The text of the above preventive measures has been freely quoted from a handbook of the Sanitary Bureau, Government-General of Formosa.

I would add a few observations of my own. The Japanese people are generally extremely amenable to authority, and the difficulties of the Health officers are lessened thereby. Much of this preventive work is done through the local Police Authorities, and the Japanese are accustomed to accept the direction of the Police without much question.

Mosquito-nets and smudge-sticks are sold to the public at near cost price, and their use is insisted upon.

Regular oiling of pools and swamps is not done, probably owing to the expense involved, but experiments along these lines are being made.

The problem of the 'paddy-fields' seems just as far from solution in Formosa as it is in this Colony, or indeed in the East generally; some suggestions for mitigating the danger were made but they did not appear to me to be practicable. One proposed scheme was to impound at higher levels the water to be supplied to the rice fields, then to add an effective quantity of some chemical larvaecide, which at the same time would not render the water poisonous to men or animal life, or harmful to the rice crops. The treated water would then be released for irrigation purposes. Such an ideal larvaecide has probably yet to be discovered,and one may well be sceptical of any immediate success. However further research and experiment in this direction may attain good results, and the certain prevention of mosquito-breeding in paddy fields would be of enormous value to the inhabitants throughout the rice producing countries of the East.

Mosquito-eating fish, a variety of "top-minnow," originally imported from Hawaii, are widely used for destroying larvae in lakes, swamps and the larger areas of standing-water. They seem to have adapted themselves well to the new conditions, and the Public Health authorities are very satisfied with the results achieved. I saw several large breeding-tanks stocked with these fish at Tainan.

In the Heito district, in South Formosa, I was told that blood-smears of the inhabitants are examined once a month, and if found positive a course of quinine is given. There is a free issue of quinine, at the discretion of the Authorities,—about thirty grains per week being given to carriers. An almost tasteless salt of quinine, the ethyl carbonate, in powder form, is prescribed for children. The cases are followed up until cure.

Physicians visit the country districts and give lectures on malaria and its prevention, in the native dialects.

Propaganda is conducted by means of posters, showing in a simple and diagrammatic form, the life history of the mosquito, the malaria parasite, and the effects of chronic malaria on nutrition and health..

The surface drainage in urban districts appears to be effected by means of deep open cement-lined channels, by the roadsides. These are easily cleared, and tend to prevent small accumulations of standing water.

In Formosa the Public Health Offices and Laboratories had the appearance of being exceptionally well staffed, and there was no complaint of shortage of efficient medical officers or other workers. The valuable research which is being conducted in Formosa may doubtless be attributed to this enlightened policy.

In conclusion I would thank the Health Authorities of Formosa for the facilities which were freely afforded me in the course of my short tour.

One might add that it would be a pleasant task to write a paper on the subject of malaria and its prophylaxis in Hong Kong, but owing to the paucity of local research very few reliable or original data have been accumulated, beyond a somewhat formidable table of deaths from this disease. It is to be hoped that this defect may be remedied in the near future; perhaps even the Government may at some distant date wake up to its responsibilities and lend its support.

"AN IMPERIAL POLICY IN EDUCATION," WITH SPECIAL REFERENCE TO THE UNIVERSITY OF HONG KONG. *

H. G. EARLE, M.A., M.B.

The Colony of Hong Kong is the commercial gateway through which trade passes between China and the West, for its cession to Great Britain in the early forties of the last century marked the end of a series of ventures which had as their purpose the opening of China to Western trade.

Japan, seeing at that time what was happening to China, decided after 200 years' seclusion, not only to open her doors to the West, but also to assimilate as far as possible the knowledge which had led to Western progress. So successfully has this policy been carried out that to-day Japan ranks as one of the "big four," and in the realm of education has already built her universities and sent forth her graduates to compete successfully with those of Western nations.

China, on the contrary, has been reluctant to abandon her oriental isolation and traditional methods of education, and it was not until the beginning of the present century, following the Boxer Rising, that the Chinese nation paid any serious attention to Western culture.

In a paper entitled " The Chinese Renaissance," Dr. Hu Shih of the National University, Peking, writes:—

> " The wounds of 1900 had hardly ceased to smart when the Russo-Japanese War broke out in 1904. In the complete victory of Japan over Russia was writ large the lesson that, by thorough modernisation, a small oriental nation could resist and even defeat the aggressive forces of a great empire of Europe—the absolute efficacy of modernisation was proved beyond any doubt, and thousands of Chinese students flocked to the schools of Japan to seek the light that was hoped to work similar miracles in China."

But he goes on to relate how this led to a movement of " modernisation which extended only to externals and non-essentials and brought the nation no nearer its salvation."

* A paper read before the Third Congress of the Universities of the British Empire, Cambridge, July, 1926, with Sir Frederick Lugard, P.C., G.C.M.G., in the Chair.

"Three things, however, conspired to make possible a new period of Chinese Renaissance. The first was the Chinese Revolution of 1911, the second was the return of the American portion of the Boxer Indemnity and its exclusive use for educating Chinese students in the United States, and the third was the Great War, 1914-1918. The success of the revolution gave the Chinese people a sense of self-confidence, while its failures in the political aspects forced a number of leaders to turn attention to social and intellectual problems. The return of the American indemnity made it possible to bring a large number of young Chinese into direct contact with the scientific, social, and historical background of modern civilisation. The Great War furnished China with a period of breathing space during which native industries were gradually developed, relative prosperity was restored in spite of political disturbances, and many social and intellectual problems hitherto untouched were one by one brought to the front."

In the period following the Boxer Rising the British were also giving attention to the educational problems of China, and in 1909 there were no less than three schemes receiving serious consideration.

1. A scheme known as the Emergency Committee Scheme, for raising £100,000 for the support of existing centres of medical and literary education.

2. Lord William Cecil's scheme for establishing a university in China, the proposal emanating from a group of Oxford and Cambridge educationalists.

3. The Hong Kong University Scheme, presided over by Sir Frederick Lugard, the Governor of the Colony.

Sir Robert Hart, writing to Sir Frederick Lugard in 1909, said:—

"Your scheme is excellent and deserves the fullest support, and it promises much that will do real good. There is, however, room for the other proposals, and the question is, How to finance all three? . . . My own sympathies are with all three, for I think each, if carried out, will certainly be useful in its time and place; but I regard the Hong Kong scheme as the most practically promising, and applied science will suit the Chinese requirements: at the same time character is one of the utmost importance, and I am glad to see that all three schemes give that idea such prominence."

It was, however, a pity that the effort made by Sir Federick Lugard to co-ordinate these schemes in a common policy leading to an educational entente between the British and the Chinese nations did not receive the support it deserved. Each stood for a principle which it was desirable that all should follow: the first in its support of existing centres, the second in its origin from the universities of Great Britain, and the third in its alliance with the government of a British colony. If a Home Universities' Committee could have founded a university in Hong Kong with the support of the local community and in co-operation with the " new " educational movement then taking place in China, a larger contribution would have been made than has been possible under existing conditions. Still, the opening of the Hong Kong University was the beginning of an imperial policy in education, since it was designed to show that the British care for culture as well as for trade, and that they recognise the value of education in cementing the friendship of nations, and though local in origin, the founders recognised the importance of linking up the Hong Kong scheme with university education in Great Britain.

With this end in view Sir Frederick Lugard wrote to the Vice-Chancellor of the University of London (which at that time had within it the possibilities of an Imperial University) and received the following reply:—

> " That the Principal be requested to inform Sir Frederick Lugard that the Senate is anxious to assist him in the promotion of his scheme so far as may be found practicable, and specifically that it will be prepared to conduct final examinations for degrees to be conferred by the Hong Kong University, provided that satisfactory arrangements can be made; and that meanwhile it has referred the matter to a Committee for consideration and report on the practicability of the scheme and the details of the necessary procedure."

The practical outcome of this has been that the award of honours for the B.Sc. degree in Engineering is now made on the advice of London University examiners, acting as assessors.

Of 108 engineering students, 11 have obtained first-class and 22 second-class honours under this arrangement.

In the Medical Faculty the degrees are recognised by the General Medical Council for registration in Great Britain, and this carries with it certain privileges in respect of admission to the examinations of the Royal Colleges of Physicians and Surgeons. The University has also been granted such privileges of affiliation as are offered to colonial universities by the Universities of Oxford and Cambridge, and the University matricula-

tion examination receives such recognition as is granted by the home universities to the universities overseas.

The foundation-stone of the University was laid in March 1910, and the main building opened in March 1912.

The following quotation from a speech made at the opening ceremony will indicate what was in the mind of the first Chancellor:—

> "I am profoundly convinced that the opening of this University in Hong Kong to-day is an event of the greatest historical interest and importance in the annals of the Far East. If this University develops on right lines, as there is every reason to believe that it will, on the lines which its founders laid down, I doubt if there is a man or woman of those here to-day who realises to its full extent the enormous importance of the task to which we are putting our hands or the far-reaching effect it may and will have on the future of China and on the relations between the East and the West—particularly between Great Britain and the Chinese nation."

So much for the vision, what of the practical results?

Although the University of Hong Kong is still a long way from achieving the position thus outlined, I think it must be admitted that since its foundation a steady progress has been maintained and that it has contributed not a little to the general position and prestige of the Colony. There has been a steady increase in income, in students, in staff, and in buildings. Owing to the generosity of local Chinese, the Medical School now has well-equipped schools in anatomy, physiology, pathology, and tropical medicine; and thanks to the Rockefeller Foundation of America, the hospital facilities now include three clinical units each with its staff team under the directorship of a full-time professor in surgery, in medicine, obstetrics and gynæcology. The Engineering Faculty is well equipped with machinery, and has recently built new engineering workshops; while the Arts Faculty has a promising Department of Education for the training of teachers, and is now organising a purely Chinese Department, where it will be possible to study the history and literature of the great oriental nation which the University desires to serve. On the social side there is a flourishing Students' Union, with which are associated the various athletic clubs and where the best traditions of British sport are fully maintained.

That this expansion has been possible during the difficult years that have elapsed since the foundation of the University is largely due to the support of the local government; and as far

as the Medical School is concerned, to the support of the Chinese residents, who gave the schools for the pre-clinical subjects; and to the Rockefeller Foundation, who made possible the beginnings of a modern university hospital.

At the end of the Great War it became clear that the financial resources of the University were not sufficient to meet the growing needs of the University, so that the local government considered it desirable to appoint a Commission to investigate and report on the whole position.

The full report of the Commission was never published, but a statement in the Government "Gazette" reads as follows:—

> "The Commission, among its recommendations, strongly advises that the University should be carried on under conditions which make for efficiency and success: that if it is to reach and keep a position worthy of the Colony and the British Empire, and if it is to take its proper part in the developments now in progress in China, it must maintain a standard fully as high as, or higher than, in the past, and must expand soon and widely. The Commission recommends that the Government should assume financial responsibility to an extent sufficient to carry on the work of the University efficiently, and proposes that the Government should contribute not less than one million dollars to the endowment fund as well as largely increasing its present yearly grant."

The Government agreed to this, "with the intention that the University shall not only be freed from all present debts and have its past endowment restored intact, but shall also be assured of an adequate income for the future.

"It is the hope and expectation of the Government in thus guaranteeing the maintenance of the University, that it will encourage contributions from other sources, especially for further expansions now unprovided for, such as the endowment of special professorships."

It was at this juncture that it was decided to approach the Rockefeller Foundation of America (which had already shown an interest in the University Medical School and had done a great deal for medical education in China) in regard to the endowment of professorships in clinical subjects.

The appeal was successful, and in 1922 the Foundation agreed to give the University a sum of $750,000 for this purpose. The announcement of this benefaction coincided with the visit of H.R.H. the Prince of Wales, who graciously accepted an

honorary degree and then as the University's most recent graduate endorsed an appeal for funds, which were necessary if the University was to benefit fully by the Rockefeller benefaction, and if the other Faculties were to share in the development outlined for the Medical School.

While the action of the Government and of the Rockefeller Foundation in thus assuring the maintenance and development of the University and its Medical School has given the Colony an institution of which it may well be proud, the recent situation in China has made it difficult for the University to secure that sympathy and support from China which is so essential if the University is to achieve the wider objects for which it was founded.

It is not within the scope of this paper to recapitulate the events which have been recently taking place in China, or to dwell on their significance, but a strong nationalist movement emanating almost entirely from the Chinese universities makes it difficult at the present juncture for the University of Hong Kong to obtain the support of Chinese educationalists; while the strong anti-foreign movement in South China and the boycott of Hong Kong, which has seriously crippled the resources of a prosperous colony, makes it impossible to secure any further financial support at present either from the citizens of the Colony or from the local government.

And yet the expansion of the University appears to offer a solution of the very difficulties from which British prestige in China is now suffering. It is probable that if the situation is properly handled, the University could do more than anything else to reconcile the Chinese to a British colony at their doors and make both nations realise the advantages to be derived therefrom. In this connection the following paragraphs, taken from a pamphlet recently issued by the Vice-Chancellor, point the way:—

> "Educated Chinese who have given long and patient study to the rich inheritance of their own civilisation are resentful both of comparative neglect by scholars of the West and of the quiet assumption that in all such matters the Western world must necessarily be superior. They point to the fact that while China is learning rapidly from the West, sending her students to Western universities and studying Western subjects in her own schools, yet the West considers that a man has received a liberal education who knows nothing about the history of art, literature, and thought of the Orient.

"The University of Hong Kong started with the idea that China's greatest need was scientific and technical training—the University was to become a force in the Far East by producing qualified engineers and skilled doctors. The training of engineers and doctors is still necessary, but the University, if it is to justify its existence as the only British university in the Far East, must do far more than impart technical and professional competence. Its teachers must study critically the signs of the times, and there must be among them those who are capable of interpreting the West to China and China to the West. Sir Frederick Lugard, the founder of the University, did not hesitate to proclaim that upon the Colony of Hong Kong devolved the duty of upholding the name and fame of the British in the Far East. The difficulties of raising this declaration from the region of mere aspiration into the realm of reality are enormous, but the issue at stake is equally great. The Chinese have a traditional respect for learning, and the presence in the University of Hong Kong of British teachers engaged in the task of training young men to think out honestly the vital problems—political, social, financial, and domestic—with which China is now beset would be a moral asset of incalculable imperial value.

" The Hong Kong University problem is not a problem of what should be done for the higher education of the citizens of the Colony. The Hong Kong University is at the moment an acute imperial problem."

But in carrying out such an imperial policy the University of Hong Kong must have the support of the universities of the Empire. The Universities Bureau stands for such a policy, though its present organisation does not admit of much being done. It must be recognised that the universities have a part to play as well as the men of commerce, the missionaries, and the State in creating the right type of relations between the nations of the East and West. That is, I take it, what is meant by the title " an imperial policy in education." Not a commercial policy, not a missionary policy, not an imperialistic policy, but an educational policy framed and executed by the universities themselves and organised through some such central body as the Universities Bureau.

The University of Hong Kong has already derived considerable prestige in China from the relations which it has been possible to establish with the home universities. The recognition of its medical degrees by the General Medical Council and by the Royal Colleges; the award of honours to its engineering graduates by the University of London; the privileges of affiliation granted

by the Universities of Oxford and Cambridge, and the recognition given to its matriculation examination—all these have proved of inestimable value in commending the University of Hong Kong to the Chinese as the representative of British universities in the Far East. And the creation of the Universities Bureau and the organisation of such congresses as that in which we are now taking part afford evidence of the desire of the home universities to co-ordinate in some way the work of British universities throughout the Empire.

In other words, an imperial policy in education already exists, although it is very desirable that it should be extended. For if the University of Hong Kong is to be really successful, it cannot be left entirely to the local community, it must be regarded as an outpost of British university activity, and as such must be supported by a strong home base.

The present Universities Bureau is a bureau of information, and its committee is chosen to represent the interests of the different universities which it serves. But if a real policy is to be developed it is necessary that a committee should be formed, with a constitution designed to secure interest in the assistance of educational effort throughout the Empire. Such a committee would not represent any particular university, but would be composed of men who were interested in the spread of culture throughout the world, and who saw in such a policy a means of preserving international peace.

The decision of the British Government to remit the Chinese Indemnity for purposes mutually beneficial to the two nations, and the despatch of the Willingdon Mission to China to confer with the leaders of Chinese thought, shows that the Imperial Government recognises the value of such a policy; while the formation of a Universities China Committee in connection with the Universities Bureau shows that British educationalists believe that universities have a part to play in establishing friendly relations between the nations. Sir Arthur Shipley, as chairman of the Committee, writes:—

> "There can be no question in this country as to the hereditary friendly attitude towards China. The time has now arrived when an organised effort should be made to place this friendship upon a surer foundation. The foundation of greater mutual knowledge and esteem. It is believed that this could best be effected by a movement to improve the cultural relations between the two countries, and the first step towards initiating such a movement should be to invite two or three eminent and representative Chinese to visit Great Britain and lecture at universities and other institutions.

"If this programme were successfully carried through, we may expect that the Chinese would respond by inviting a like member of Britishers eminent in various branches of learning to lecture at appropriate centres in China. This might well result in arrangements for such exchanges of visits being placed upon a permanent basis, and we may expect that any such attempt to improve the relations between Great Britain and China would be favourably viewed by our Government."

While as secretary of the Universities Bureau, Dr. Alex Hill writes:—

"An important Mission has recently left for China to consult with the intellectual leaders of the nation regarding the return of the Boxer Indemnity. If action initiated by our British universities can be made to synchronise with this attempt to drew the two countries closer together, results of great and permanent value may well be achieved."

This action on the part of the Imperial Government and of the Universities Bureau is very encouraging, for it affords very definite evidence that new methods are possible in dealing with the difficulties that arise between nations, and that an interchange of culture between two countries is the best means of cementing a friendship which already exists, but which for the moment is obscured.

The development and extension of such a policy by the universities must of necessity be a slow process, and it is difficult at the outset to say in detail how it is to be effected. It is undesirable that all university work should be standardised, and it is important that local effort and control should be given free play. But once such an advisory committee had been established, it would be able to assess the value of such schemes as were placed before it, and its approval of any scheme would certainly carry weight locally and encourage the local community to give it all the support possible.

The approval of any place as a suitable centre for a British university by such a committee would encourage the recruitment of staff and would give men who made the venture a standing which once recognised would enable an interchange of service between one university and another. In the approval of such centres two things above all others would come up for consideration. First, the demand by the community for the training of university graduates; and second, the question of a field for research.

In the case of Hong Kong, for example, there is not in the Colony itself a sufficient demand for the graduates which the

university is able to supply; but there is a large field among the overseas Chinese which are found throughout the British Empire, and especially in the Straits Settlements and among the Malays and other oriental subjects in British Malaya.

From time to time schemes are put forward for the foundation of other British universities in the Far East, but though competition among the different British communities is good, it would be far better if the value of such schemes were assessed by an impartial committee with a general imperial outlook.

It is not fair to start a large number of local schemes and then expect the home universities to support them by sending them men, when the home universities have not had the chance of considering the value of such schemes.

The case of research is all-important. The recognition that research constitutes an essential part of the work of a university is rather apt to be overlooked by a local community anxious to have a university. The function of a university professor is conceived to be that of teaching, and the question of time and facilities for research does not receive sufficient consideration. An imperial committee would make it quite clear at the outset to local authorities that they could not expect to get the best men unless the research aspect of university work was fully recognised, and no centre would be recognised unless it offered a field for research. In the case of Hong Kong there are wonderful opportunities for research in Medicine and the allied sciences, especially anthropology; while on the Arts side, apart from more technical subjects such as Economics, there are the opportunities for the study of the art and literature of an ancient civilisation.

With regard to Engineering, Sir Maurice FitzMaurice said, when he visited Hong Kong in 1922, that never had he visited a place where there were within so short a distance of each other so many different examples of the work of the engineer. He mentioned three large and up-to-date dockyards, where ocean-going ships are built and the largest ships in the Pacific repaired; four big electrical power-stations; splendid motor roads built in the face of almost insuperable difficulties; the water-supply system with its various reservoirs and the great dam at Tytam, the biggest thing of its kind east of India; the many modern factories; the steam railway on the mainland with its locomotive works, the unique cable train, the electric tramways; the sea-planes, the wireless masts, the great variety of shipping in one of the finest harbours in the world; the reinforced concrete buildings, the ice factory, and the system of drainage and public health work. "All these things and many others ought to be object-lessons and inspirations for the young engineer in training in Hong Kong."

Now the benefits to be derived from research in any of these fields should be of value throughout the world, but at present the University staff is too small and its time is almost entirely absorbed in teaching and administration. The question of co-operation in research throughout the Empire and the question of the interchange of staff are subjects that are receiving consideration at other sessions of the Congress, but their consideration by a permanent committee would form the most important contribution that could be made towards an imperial policy in education.

Having once approved a scheme for the foundation of a university overseas, the next thing which comes up for consideration is its support by the home universities. The question of finance must of necessity be largely a local one, but academic support by a home base is equally essential. One of the greatest difficulties in the creation of a university in a new centre separated from other universities is the question of the university library. The importance and expense of a good library is, I am afraid, not sufficiently recognised by local authorities. But before a university is established the question of library facilities must be seriously considered. The Rockefeller Foundation of America, to which reference has already been made, are now considering how they can best assist in this most important problem, and have already assisted the Medical School by publishing an appeal for reprints to be sent to Hong Kong. I think this is a way in which the home universities could also render assistance.

If it were felt by workers in isolated centres that there was a central body to whom they could appeal in this matter of obtaining the literature necessary for their work, it would tend to remove the sense of isolation and encourage research.

Hitherto the problems raised chiefly concern the university staff.

What of the students and graduates?

In the first instance, it is essential that a university centre should be fed by a number of good schools capable of educating their students up to the standards required for admission to the university. And there must be a system of scholarships to encourage school students to make the venture and establish the necessary link between the two systems of education. Further, with regard to the graduates, there should be established a system of fellowships whereby the best of them may be sent to the home universities for further training, and for that wider culture which only the home universities, owing to their age and experience, can offer. Dr. P. W. Kuo of the National University of Nanking, writing on higher education in China, says:—

> "A significant movement in Chinese higher education has been the sending of students to foreign countries to drink direct at the fountain-heads of Western learning and inspiration. . . . To them as a class must be credited the introduction of Western ideas and methods, the institution of fundamental reforms, and the gradual transformation of the social and economic order of the country along modern lines. Both as students of Western civilisation and as interpreters of Chinese learning and culture to the West, they have a share to contribute toward bringing the nations to a closer friendship based upon intelligent mutual understanding."

This again introduces subjects already under discussion at other sessions, such as the mutual recognition of examinations and of periods of study in different universities, and to the general question of affiliation. If there is to be a real interchange of culture between different countries, it is essential that some effort should be made to link up the different educational systems.

The University of Hong Kong appears to offer unique opportunities for the solution of this problem as far as it concerns the universities of China and Great Britain. For it is in touch with both systems and can interpret the one to the other.

Such are some of the problems which would come before the proposed committee. There are no doubt many others, but I hope that sufficient has been written to give a practical meaning to a subject which by title appears somewhat vague and idealistic.

It may be justly said that too much space has been given in this paper to the position of the University of Hong Kong, but since it is one of the chief purposes of these congresses to bring visitors from overseas to the home base, so that they may see what is going on, so also it is important that the home universities should be informed of the conditions and progress of the universities overseas.

The general purpose of the Universities Bureau of the British Empire is to bring the universities together, and out of that there must ultimately emerge a common view of the aims and objects of British university education.

We must see to it that when we disperse we still remain in close touch with each other's activities, and render each other that mutual help which will make the universities an effective force in binding the Empire together and in improving international relations.

SIMPLIFIED TECHNIQUES OF INTRAVENOUS INJECTION.

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There is more than one excuse in presenting such a minor subject in detail. I do not wish to amplify but rather to simplify it. Singularly enough text books and periodicals are either silent or brief in describing any technique of intravenous injection and yet it is an operation of every day practice.

To the general medical practitioner a thorough understanding of the technique is a sine qua non to his success; especially that now this route of medication is recognized to be essential in the treatment of many affections.

While visiting Shanghai and Canton I was greatly struck in seeing large sign-boards written "The Injection Hospital" or "The Injection Clinic." The existence of such special clinics shows how readily our people take to this form of treatment. In addition to being an essential method it is a very impressive one to the patient.

Needless to say, intravenous injection has now reached the stage of universal employment. Since the days of Erlich and Hata the Profession has learned that the venous stream could be medicated with impunity, indeed with the greatest benefit. Today the market is so flooded with intravenous products that the practitioner is simply bewildered.

It is true that even now there are practitioners who are not conversant enough or dare to employ this direct route of medication. When necessity arises they would inject intramuscularly. But when one injects (intramuscularly) such intensely irritating substances as salvarsan, mercurochrome, quinine, strong solutions of calcium, etc., one is looking for trouble. Moreover, the pain if not the lameness caused would be sufficient to deprive the patient of his ounce of confidence. In view of these reasons I propose to describe certain techniques what I consider to be the best and simplest, particularly in connection with the injection of neosalvarsan.

Site of injection.

It is better to have the patient lying down with the arm extended, resting the elbow on a soft pad. Either the median basilic or the median cephalic vein may be chosen, but the former

is preferable. Before selecting the arm to be injected, it pays to compare the veins on both arms first as one side may be better developed than the other. One will also find that the nearer the veins are to the bend of the elbow the less they are mobile. But any vein may be chosen provided it is large enough. I have even resorted to veins on the back of the hand when compelled to by circumstance.

In the corpulent, particularly in women whose veins are often under cover of a thick layer of subcutaneous fatty tissue, one may be difficult or impossible to identify them. In these cases, I have been invariably successful in giving injections guided by the sense of touch. The vein is first palpated and fixed by the pulp of the left index finger. The method is so successful that I think for the last 10 years now I have never had occasion to dissect a vein for the purpose of giving an injection.

Preparation of Skin.

There is probably no efficient disinfectant more expedient than the decolourized tincture of Iodine. The ordinary dark brown tincture would obscure too much the natural blue tint of the veins. Painting the skin lightly a few times would be sufficient. No preliminary scrubbing with soap and water is necessary or advisable in an ordinary case.

Compression of arm.

In order to render the veins turgid and stand out, the upper arm must be compressed but there is no need to use a tourniquet or a rubber band or any cumbersome appartus such as the pneumatic armlet of the sphygnomanometer and the like. How simple it is to get an assistant to grasp the arm with his hand. If an assistant is not available ask the patient to catch it himself with the free hand, provided the hand is laid on the patient's arm gently and gradually compressed without twisting it. Little force need be used.

In cases in which the venous pressure is low or where the veins are small and obscured, they could be rendered more conspicuous by allowing the arm to hang down for a minute or so and if this is not sufficient roll the arm back and forth briskly for a number of times between the open palms of the operator. So far I have never resorted to swinging of the arm or immersing the arm in hot water as some advised both of which should be helpful.

Syringes.

When one is dealing with metallic solutions syringes made with metallic parts should be avoided. For routine work an all glass syringe is necessary. Syringes larger than 10 cc. capacity

should have an eccentric tip. For all ordinary purposes including neosalvarsan injections I prefer an ordinary all-glass 2 cc. hypodermic syringe.

Needle.

Needles usually recommended for intravenous injection varies from 18 to 22 gauge in size. These are needlessly oversized. The objects in choosing a needle are that it should make a puncture with the least pain, to leave the smallest hole on the wall of the vessel and what is most important it must not be so large as to leave a tell-tale scar on the skin. The last point cannot be too strongly stressed when treating syphilitics.

Steel needles will sooner or later get rusty, when it does, then the clotting of blood in its lumen is unavoidable.

I have always used no other needle but the ordinary platinum hypodermic needle, the size being 27 gauge or thereabout. With such a small needle and syringe I make all the "914" injections with the greatest safety and expediency. No special needle or apparatus need be used.

The Injection.

The technician should sit on a low stool with the patient's arm pointing towards one side of him. Over extending the arm will have a tendency to flatten the veins at the bend of the elbow, therefore, it is an advantage to have it slightly flexed.

Directly on compressing the arm instruct the patient to clench his fist preferably with an article to grip. With the left thumb or index finger press down on the lower part of the vein, so as to anchor it while the skin is at the same time steaded. The syringe with needle is held by the right hand somewhat penwise. The needle is made to enter at the side of the vein at an angle of about 20°. If it is held too parallel to the vein there is the risk of dissecting its wall. On the other hand if the needle is held at too great an angle the vein may recede before the advancing point. No attempt should be made from above, that is directly over the vein, as the pressure of the needle would flatten and so obscure the landmark, moreover, it may roll from side to side.

Try to penetrate the skin first and then the vein. When the vein is entered a distinct "pop" is generally felt and the needle is felt to be less resistant in its advance, while almost simultaneously blood regurgitates to the barrel of the syringe. The needle may then be brought parallel to the vein and advanced 1/5 in. along its lumen, (if necessary one may move it gently from side to side to see if it is free in the lumen). Both the com-

pressing hand and the clenching fist should now be released and the piston is slowly driven home by the left thumb while the right hand is still engaged in steadying the barrel.

When the puncture is unsuccessful, a site either above or below it may be tried before resorting to another vein. With a fine needle one could make quite a few pricks without undue alarm if the patient is not allowed to look on. Before giving up the puncture aspirate and see if blood appears in the syringe. The most common failure is to pass the needle too deep to the vein. When this is so pass it again more superficially without withdrawing the needle altogether. Little fear need be entertained that the needle will transfix the opposite wall of the vein. Whenever during the injection the patient complains of sudden pain or that the tissues surrounding the vein is seen infiltrated, stop at once. Make another puncture if necessary. Generally it is the escape of the solution which causes the pain. One must not inject merely to see if it "goes."

Painless injections.

When using such tissue irritants as neosalvarsan, calcium chloride, quinine, etc. I make it a point to withdraw a little sterlized water into the needle after filling the syringe with solution, so that when the puncture is being done, the first one or two drops escaping would not be the irritating solution itself; and after the solution is injected, aspirate two or three drops of blood so as to wash back any medicament in the needle before withdrawing it. When these two points are attended to, there should be no pain in all injections.

Dressing.

Formerly when a patient was injected with "914" his arm was dressed and bandaged. Nowadays collodion is used instead. The latter is good except it often causes a red patch on the skin and this together with the contraction of the collodion would give the patient the impression that some undue damage was inflicted. He is generally afraid to use his arm until the application is off.

There is nothing simpler than giving the site a few brisk rubbing movements with a pledget of cotton-wool. This is safe and sufficient.

The Solution.

Unless the surrounding temperature is extremely cold I do not find it necessary to use warm water when not more than 2 cc. is used. However, the injection must be so slow as to go in almost drop by drop. In neosalvarsan injections, it is better to use warm water as it dissolves quicker, but it is not essential.

I think it was since 1913 that I first began to use a hyper-concentrated solution of neosalvarsan, dissolving it in 1½ cc. of water. Up to now I have not heard of any one using it in such concentration. The maximum dosage of .9 dissolves perfectly well in 1½ cc. of water making a clear solution of approximately 2 cc. The whole is injected by an ordinary 2 cc. hypodermic syringe and platinum needle. Injecting it drop by drop it takes about 1½ minutes. The result is as good and safe as by the orthodox method of using 10 cc. or more of water taking 10 minutes or so as to complete the injection.

Remarks.

Lately I have given up the injection of Quinine intramuscularly in favour of the intravenous route after noticing the invariable pain and with often scarring of the site. (I have now such a scar on my back).

When giving Calcium Chloride solution see that it is perfectly clear before injecting. A simple method to filter it, is by aspirating it through 1 or 2 layers of sterile lint after wrapping the lint around the nosel of the syringe. With Calcium it is well to know that any solution escaping would certainly cause pain and sometimes scarring at the point of puncture. It is therefore advisable to inject it with the same precaution and technique as that advised in "914." It is necessary also to warn the patient that during the injection he will experience a sensation of heat which may last 2 or 3 minutes.

The use of the super-concentrated solution of neosalvarsan is perfectly safe. It has the advantage in enabling the use of a small syringe which would facilitate manipulation. This would be fully appreciated when the veins are small or indiscernable. With this solution I have injected several hundreds of times if not more, and I have not had a single accident including fatality. With such a highly concentrated solution one would naturally think that in the event of any solution escaping it would be disastrous. As a matter of fact, no necrosis or suppuration were ever seen in any case in which such an escape took place. The inflammation thus caused would subside under hot formentations. I was rather surprised that the inflammation and pain caused were not appreciably more than when a weaker solution such as 10 cc. was used.

Summary.

In giving intravenous injections no special apparatus and needle is required even in neosalvarsan infections and no pain need be caused. The simple techniques described above takes but 2 or 3 minutes from beginning to end. It is really easier done than said.

Taking neosalvarsan as an example here is the simplified formula, using an ordinary 2 cc. hypodermic syringe and needle:—

(1) File and break off the tip of the tube containing neosalvarsan. With the syringe and needle run in 1½ cc. of warm sterile water. Withdraw and inject a few times until the solution is complete. Fill the syringe and withdraw 2 or 3 drops of sterile water into the needle.

(2) Lightly paint the skin with colourless tincture of Iodine a few times.

(3) Compress the upper arm manually. Place an article on the patient's palm and ask him to clench his fist.

(4) Enter needle by the side of the vein at an angle of 20° when blood appears in the syringe bring it in line with the vein and carefully advance 1/5 in. further. Relax the compressing hand and the fist.

(5) Inject slowly, almost drop by drop. Before withdrawing the needle, aspirate 2 or 3 drops of blood.

(6) Before the needle is withdrawn press a pledget of cotton-wool directly over the needle point to prevent escape of blood. When the needle is off, rub the site with the cotton-wool, briskly for a few times. Dressings and applications are superflous.

THE TREATMENT OF COLLAPSE, DUE TO LOSS OF BLOOD, BY INTRAVENOUS INJECTIONS OF HYPERTONIC SALINE.

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Many solutions have been introduced of late years for intravenous injection in cases of collapse following severe loss of blood. It is recognised that the solution used should be hypertonic in order to cause osmosis from the tissues into the circulation, and in order to obtain this condition various substances have been added to normal saline such as glucose, dextrose and gum acacia, but so far as I have been able to discover, the use of ordinary hypertonic saline has not been advocated, though such a solution is the easiest to obtain.

For many years I have treated such cases with Rogers' solution with the addition of 1 c.c. of pituitrin. The treatment first suggested itself to me by the remarkable effect this solution had in collapse due to cholera, which effect I found was greatly enhanced by the addition of pituitrin to the first injection.

The first case of haemorrhage in which I tried this treatment was in a patient suffering traumatic rupture of the spleen; the pulse was imperceptible and the abdomen was filled with blood. Immediately the pedicle was secured, two pints of Rogers' solution—with 1 c.c. of pituitrin—were given into the median basilic vein in the arm, and in a few minutes the pulse was easily felt at the wrist and the patient eventually made an uneventful recovery.

Since then I have used this treatment in a large number of cases of severe injuries where the patient's life seemed in grave danger from loss of blood, and also in haemorrhage from placenta praevia. The solution I use is as follows:—

Sodium chloride	gr. 120
Calcium chloride	gr. 4
Water	one pint.

This can be kept ready in a concentrated solution, only needing dilution to the required strength by the addition of sterile water, or it can be made from Burroughs, Wellcome & Co.'s Soloid Calcii Chloridi Co or Parke Davis & Co.'s Tablets of Sodium Chloride. In an emergency it can be made by adding

two teaspoonfuls of common salt to a pint of water which should be filtered and boiled before use. The Pituitrin, which is an essential to the treatment, is readily obtainable in ampoules. The temperature of the solution as it enters the vein should not be below 100°F., and to insure this temperature, the solution should be made to a temperature of about 105° and the vessel containing it kept in a basin of hot water, to prevent it cooling during the transfusion. No special apparatus is required. The solution is given through an ordinary intravenous cannula attached to a funnel by about three feet of rubber tubing, and the rate of flow is not important; the solution needs to be kept running to prevent clotting in the cannula.

I have found two pints of this solution, together with 1 c.c. of pituitrin sufficient; if, however, it is necessary to repeat the injection, the pituitrin is omitted, as a second dose, according to Lauder Brunton *, would have the effect of lowering the blood pressure. The pituitrin is added from a hypodermic syringe by injecting it into the solution in the funnel as it runs into the vein, to ensure that the whole dose reaches the patient. I usually add the pituitrin when one pint of the solution has flowed into the vein, and take care to keep the funnel filled so as to ensure thorough dilution.

Before giving the injection, it is, of course, necessary to take steps to prevent further haemorrhage, but as soon as this has been done, an assistant can cut down on a vein in the arm and give the injection while the operation is being completed. For cases of placenta praevia the treatment is slightly altered; having turned and drawn down a leg, the hypertonic solution is injected, omitting the pituitrin, which may be given intramuscularly when the os has dilated fully. I have only had the opportunity of treating three cases of placenta praevia. Each of them was in a very collapsed condition from loss of blood, when admitted to hospital, and in each case the treatment was successful and the patient recovered.

The great advantage in the treatment lies in its simplicity. Blood transfusion is probably more effective, but it requires an elaborate technique, and in the tropics is rendered still more difficult by the number of diseases affecting the blood which need to be excluded.

* Lauder Brunton, "Thereapeutics of Circulation," p. 319.

NOTES ON THE CHLORINATION OF MILK.

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I have for some time past occasionally experimented with chlorine in various forms in order if possible to hit upon an efficient and easily applied method of rendering milk safe for domestic consumption, without having to boil it as is usual in the Tropics. During the last eighteen months I have tried various samples of milk but with very unsatisfactory results. Mansell describes a process for the chlorination of milk, and my results agree with his, in part only in that chlorine does not appear to kill out the coliform organisms. Also chlorination certainly does keep milk sweet and free from clotting for a reasonable time. At the request of the Dairy Farm in Hong Kong I carried out a special set of tests recently in order to see if milk could be chlorinated before sale.

Six samples of milk were examined on successive days with the following results.

On receipt the samples contained Lactose fermenters or coliform organisms varying from 1,000 per cc. up to 1,000,000 per cc. Further investigation of these organisms on the lines of McConkeys group system, showed that in five specimens they corresponded to the tests for B Coli Communis, B Lact Aerogenes, B Acid Lactose and in one specimen B Freidlander was isolated in addition.

Chlorine was used in the form of a 4 per cent. Solution of Chlorinated Lime in sterile tap water. The chlorinated lime on analysis give 29.9 per cent. available chlorine.

The following is a summary of the results obtained:—

More than 100,000 lactose fermenters per cc. is a fair average of the samples of milk examined before chlorination. Chlorine solution was added as shown in the table below. All samples were tested for free chlorine half an hour later by means of the starch and potassium iodide test. All showed the presence of free chlorine 1 cc. samples taken from all after exposure to the chlorine for half an hour each, showed the presence of Lactose fermenters as present in 1 cc. of 1-2 dilution with sterile water the same result was obtained after exposure for one hour. The chlorinated milk was kept in covered bottles at a temperature of 15°C to 20°C again examined with the following results.

18 hours after chlorination.

Sample No.	Amount of 1% chlorinated Lime Solution added to 100cc. of milk.	Acidity to Litmus	Free chlorine detected	Smell acid or otherwise	Clotting	Lactose Fermenters present or absent Olc
1	05cc.	±	–	–	+	+
2	1cc.	±	–	–	+	+
3	1.5	±	–	–	–	+
4	2.0	+	±	–	–	+
5	2.5	+	+	–	–	+
6	3.0	+	+ +		–	+

After 36 hours exposure.

1	05	+	–	Sour	+	+
2	1cc.	+	–	Sour	+	+
3	1.5	+	–	–	–	+
4	2.0	+	–	–	–	+
5	2.5	+			–	+

All samples were again examined after a exposure of 42 hours, with similar results to those shown in after 36 hours' exposure.

From these experiments I came to the conclusion that chlorine as a milk purifier was of no value even if it would be allowed under the Food and Drugs Act, as although it certainly prevented the milk from going sour and clotting for a considerable time still it did not kill off the organisms as it does in water.

This I suggest is due to the chlorine being unable to penetrate the fat globules and possibly the other albumminus consiituents of the milk, so that organisms are not killed off, when the chlorine is first introduced, later on they grow freely again when introduced in to the McConkey Lactose bile salt broth. It would seem that chlorination to be efficient must be able to get at the organisms quickly and in free state, any fatty or albumminus substance present seems to eat up the free chlorine and so prevent its action in the organisms themselves. In fact milk appears to prevent efficient sterilization by small reasonable quantities of chlorine in much the same way as highly polluted and cloudy water will do unless the water is previously clorified.

Reference:

Journal of the R. A. M. C., No. 5, Vol. XXXIX, Nov., 1922.

Editorial.

Random Thoughts.

1926 is fast drawing to a close, and with it our trials and troubles as a Committee will soon be ended. But the year has not been barren of results. There have been three issues of the Caduceus instead of two; the illustrations are more profuse, the articles are more varied, and the Journal is much thicker, the circulation too has increased enormously so that almost without fear of contradiction, it can be safely said that nearly every well-known medical school in the world, (regardless of nationality) has a copy. For this we cannot be too grateful to our supporters—contributors of articles, readers, publishers and last but not the least our numerous advertisers. We trust the same support which we are so fortunate in securing this year, will be accorded to our successors next year. It is with a certain amount of pardonable pride that we record this unprecedented year of progress, and at the present rate of growth we need feel no concern for the future. It is with this cheering thought that we close this year, and we hope subsequent events will justify our optimistic outlook.

One criticism levelled at us is that we seem to change the constitution of the society with each change of committee. This in itself is not necessarily an evil. For one thing, it is in perfect harmony with the spirit of the age; for another reason, we should not be hampered by rules and regulations that are obsolete. It was Pascal who once said that "to avoid falling we must go on climbing," and when we apply this principle to the Medical Society it would seem to suggest that if we do not want to become stale and self-satisfied, we must go on changing with the changing times. It is better to err on the side of overactivity than perish through timid and ignoble inactivity. Stagnation is a cessation of all activities and is a sign of oncoming age or death. It was a cynic who once spoke of "divine discontent," but paradoxical though it may seem, there is more than an element of truth in it. For all progress is born of discontentment, and much of our scientific knowledge to-day had a similar beginning.

By the time these pages meet the eyes of our readers, the festive season of Christmas and New Year will have come. To all our supporters, to our readers, friends and our sister universities and medical schools in all lands we send our Greetings, and in that community of interests—the thirst for knowledge and the desire to alleviate sufferings—we feel a kinship which distance cannot separate nor time obscure. As a profession, we are linked

to the Past by our common heritage; we are linked to the Future by our common goal.

December is the month in the year in which the heart of man feels kinder towards his brother man, and the heart of woman feels softer towards her sister woman. This is the one season in the year in which we seem to let our generous impulses and noble sentiments come out for a Sunday parade, and once more we echo to one another the wish of "peace on earth and goodwill towards man."

For nearly two thousand years that wish has remained practically a sublime piece of sentiment and a beautiful piece of rhetoric but to-day it seems, the ideal is brought within measurable distance of practicability and realisation, and perhaps no word is more often heard from the lips of politicians, no thought is so predominant in the minds of the young in all schools and colleges throughout the world as that of internationalism. It was an inspiring experience to the present writer in his journey in many lands to see the enthusiasm with which the young and enquiring minds of all nations are directed towards the realisation of this ideal.

The gloom of the twentieth century unrest, of racial hatred, of hypersensitive nationalism, of morbid jingoism, of internercine strife, of wars and rumours of wars,—is relieved by this hopeful sign—a veritable silver lining in this Twentieth Century cloud; for the youths of to-day will be the citizens of to-morrow, and their dreams will be realities, their thoughts will be the prevailing practices of the future.

Here in this little island of Hong Kong we live in blissful ignorance of the thoughts that stir the hearts and fire the imaginations of the youths in other lands. Over the gateway of the beautiful International House of the Intercollegiate Cosmopolitan Club, in one of the most select parts of New York, are aptly inscribed these words of Confucius, "Within the four seas, all are brethren." This magnificent building of thirteen storeys, is the gift of that international philanthropist, Mr. Rockefeller, to the students of all nations sojourning in America, and in a short stay there, where sixty seven nations were represented at one time, the present writer had the most pleasant memories of his visit in America. However, not America alone, but in Great Britain, in Europe, and indeed, in all parts of the world where thinking people congregate, the same ideals prevail.

It was in Students' House in London, that we first caught a glimpse of the extent of this noble work and the earnestness with which it was pursued, and the rate it was growing, convinced us that *ut omnes unum sint* could not remain but a pious

wish for long. The cause is slowly gaining ground, and because it is a righteous cause it will ultimately triumph. In the noble words and thoughts of Tennyson, we would say

> Behold, we know not anything;
> We can but trust that good shall fall
> At last—far off—at last, to all,
> And every winter change to spring.

When we turn from the wider internationalism, (bristling with problems which are the results of the frailties of human nature), and look at the narrower sphere of internationalism of Science and Medicine we see a far brighter field of vision.

Our present age is familiar with such terms as International Health Bureau, International Congress of Medicine, International Conferences for nearly every branch of science and art, until it is more and more known that Art and Science know no nations. It was in the spirit of "Ego plantavi, Apollo rigavit," that much of our knowledge is attained and maintained and it is only in that spirit that science can progress.

We have often visualised Knowledge and Truth as a temple whose walls are built of bricks brought from near and far. Here we see the handiwork of Greece—brilliant in thought and execution; there we see the touches of Rome—Roman orderliness; here we see evidences of the best of the "Arabians, of the men of the Renaissance, of the Alexandrian and Byzantine schools," and there we catch glimpses of Egypt and Babylon. It was thus that civilisation itself was built, and it is on such a heterogeneous foundation as this that the monumental superstructure of Modern Medicine is erected.

One beneficial outcome of this is that no sooner is a discovery made in one laboratory than it is given to the world. It is not so very long ago, that from far off Canada, Dr. Banting discovered insulin, and from all parts of the world now come the reports of further experiments and observations on the treatment of Diabetes by this new remedy. In this way there is direct contact between workers however far apart; the results of experiments are not unnecessarily duplicated, and a healthy spirit of rivalry exists which is so essential to progress.

A glance at our medical and surgical practice of to-day reveals the composite character of our heritage. The anaesthetics we use so mercifully in our operations are the efforts of different nations and successive generations of men. The analgesic properties of the mandragora plant were known to Galen, to the ancient Egyptians and Chinese. It was centuries after, that the young Englishman of Cornwall, Humphry Davy, discovered

Nitrous Oxide or "laughing gas". Soon after, working on the same idea, an American doctor named Marcy, of Hartford, Connecticut, discovered Ether, and another American, a dentist named Morton advertised it. The attention of the whole medical world was then focussed on the problem of anaesthetics, and it was a Scotsman, Dr. Sir James Young Simpson, of Edinburgh, who revealed the powers of Chloroform, although curiously enough, it was a Frenchman, Professor Dumas, who discovered the drug.

Thus were the horrors and pain of operations conquered, but there still remained to be mastered the microbes which had so often upset the best-laid plans of surgeons and ardent hopes of patients. Then came the English genius, Joseph Lister, who first taught the world that great lesson of asepsis and antisepsis, and on that one great lesson the foundation of modern surgery was laid.

But Lister's discovery could never have materialised if that great French genius, Louis Pasteur, was not born; for it was from reading Pasteur's paper entitled "Researches on Putrefaction,"—in which he maintained that "putrefaction is caused by living ferments"—that Lister first saw light.

We find the same thing in Medicine and the Allied Sciences. An international host of names indicate the extent of our sources of knowledge.

But it is in the realm of public health that the international spirit is so striking in its results. The time was not so long ago, when public health work was carried on with the spirit of "you in your little corner and I in mine." Then it gradually dawned on people how interdependent nations are, and that to ensure health in one's country, it is essential that ones' neighbours too are healthy. No amount of Immigration Laws can keep out the Anopheles mosquitoes which transmit malaria, or the Stegomyia calopus which harbour the deadly germs of Yellow Fever, and plague-laden rats cannot be persuaded to behave themselves in some quarantine island until such time when they are free of their unwelcome guests, the Xenopsylla Cheopis fleas. It is therefore to the best interest of the nations of the world to help to stamp out such deadly outbreaks wherever and whenever they appear, and by some mutual arrangements limit their spread. The recent out-break of typhus in Eastern Europe is a case in point, and but for the timely and noble aid of self-denying nations, the deadly disease would have spread like bonfire.

The benefits that humanity gains from this broadened international outlook are immense, and there seems to be no limit to the progress of science, to the cause of humanity once the

shackles of prejudice and parochialism are shaken off. As the lines of demarcation between nations grow fainter, the points of contact and of common interest become clearer. Henceforth, we shall know no man by his nation, but by his contributions to the world. The time is not far distant when historians will judge the true greatness of an individual or a nation, not so much by their wealth or their conquests, or such like, but by their permanent contributions in the cause of science and humanity. Measured by this standard such names as Pasteur, Lister, Simpson, Marcy, Manson, Reed, Carroll, Lazear, Ehrlich, Metchinkoff, Noguchi, Kitasato and Banting, and others of this illustrious host, will ever be honoured wherever true greatness is honoured. In the eloquent words and spirit of the American Ambassador, (when he addressed Lord Lister at a banquet at the Royal Society), we too would say, "Gentlemen, it is not a profession, it is not a nation, it is humanity itself which salutes you." And

"their names shall live for ever more."

The Training of Students in Midwifery.

The Irish Times of September 16th. 1926, reported an address by Dr. Comyns Berkeley, (formerly Senior Obstetrical Surgeon at the Middlesex Hospital), on the subject of the training of students in Midwifery. It is worthy of a wider audience and it is of especial interest to us when we read it in conjunction with Professor Tottenham's Annual Report of the School of Obstetrics and Gynæcology which appears in this issue.

In brief, Dr. Berkeley contends that the present maternal and infant mortality rates cannot improve, and that the science of obstetrics cannot progress, unless and until more maternity wards or hospitals are available, and greater prominence is given to the teaching of this subject in the students' curriculum. He then traces from the history of the General Medical Council the spasmodic efforts made to improve the education of midwifery. His figures and investigations are most illuminating.

The General Medical Council was founded in 1858 and it was only in 1869 (eleven years after) that midwifery was made a compulsory subject in the students' curriculum. In 1871, a member of the Council suggested that the course might include attendance by the student on twenty cases of labour, but the resolution was squashed. In 1879, the Obstetrical Society of London, appealed to the General Medical Council to insist on a six months' course in midwifery in any students' curriculum, but again the suggestion fell through.

It was only in 1888 that the General Medical Council passed the resolution that every student should have three months' training in a maternity hospital or failing that to have twelve cases of labour, but this was not complied with. In 1896, the General Medical Council suggested that in lieu of three months' training, each student should have twenty cases of labour.

As the mortality rate did not improve for fifty years or more, a commission in 1905 under the chairmanship of Dr. John Williams was asked to investigate and it was found that the recommendations of the Council were again ignored. Another enquiry in 1919 showed unsatisfactory results. In 1923, the Council gave the present recommendations, and insisted on 20 cases for each student.

However, enquiries made by Dr. Berkeley, revealed the fact that from the figures of 1925, on an average each student in London gets only 13.3 cases of labour, and this is certainly a long way from the twenty demanded by the Council.

When we turn to the Annual Report of our Obstetrical Department, we notice the same cry for more beds, only, if anything the cry seems more insistent than Dr. Berkeley's, because the need here is more acute.

The population of this Colony according to the census of 1925 is 874,420, and it is obvious that all the hospitals in the Colony cannot adequately meet with the needs of this number; a large proportion of women come from the poorer classes whose homes at the best of times are far from ideal, and when such a woman is in confinement her position is highly unsatisfactory in in more ways than one, unless she can find accommodation in hospital.

This is still more true with regard to the poor boatwomen, whose homes are in the boats and we are not surprised therefore to read in the obstetrical annual report that "Prolapse of the uterus is seen most frequently in boatwomen, presumably straining at an oar soon after pregnancy.....must be the cause." And the population afloat is not inconsiderable. According to the 1925 census, it is 72,380.

Again, there are the poor coolie women, whose lives at all times are unenviable, but when a woman of this class is in labour or the puerperium, her condition is most pathetic indeed. Too poor to buy for herself the barest necessities of life, she lies neglected in a home in which the only place she can claim to be her own is her hard bed of planks. It is a sad commentary on the humanitarian spirit of Hong Kong's better-off classes if these things are allowed to be. We read in the papers of the

Before Treatment

Before Treatment

A case of ovarian cyst.

agitations for this and that and everybody, and "more ideal" hospitals for a more favoured class of people, but let us for once plead for more hospital accommodation for that mass of Hong Kong's poor who cannot plead for themselves.

An interesting item in the Annual Report of the School of Obstetrics and Gynæcology is the result of the blood test for syphilis, as carried out in Professor Wang's School of Pathology. The test was carried out on 171 women, and of this number only 31 had a positive result, and two were doubtful. Years ago, two doctors in Hong Kong examined the blood of 500 people of the poorer classes and reported a high percentage of positive results. We are unable to trace the exact percentage but we seem to remember that it was said to be about 80%. It is interesting therefore to see such a difference between the two results. In Professor Tottenham's series of cases, assuming that 33 out of the 171 have a positive result, this works out to 13.45 per cent. only.

It is encouraging to read that in spite of the cramped position of the obstetrical department, there were 463 cases delivered. This works out to 38.58 cases of labour for each student. When we compare this figure with that obtained by the average student in London (13.3%), we find we are very rich in clinical materials here. Indeed, we may say without fear of contradiction that whether in Anatomy, Medicine or Surgery, we have more materials for our students than can be obtained in similar schools in London or New York. Prospective medical students, whether of Hong Kong or elsewhere, should remember this when they look about for a medical school to join. For Eastern students we certainly think, it is more profitable to them, in more ways than one, if they only do their post-graduate work abroad, and as our degrees are recognised and registrable in any part of the British Empire, our graduates, for the purpose of doing post-graduate work, stand on equal footing and have similar privileges as any graduates from schools in Great Britain or the Dominions.

While apparently, the London schools find it difficult to give the requisite number of cases to their students, our obstetrical department has never had any such difficulties, and no student is allowed to sit for his examination until he has had at least 12 cases to his credit. In recent years this number was increased to 20, and now under Professor Tottenham's energetic regime, it is increased to 30.

In proposing the health of the "Coombe Lying-in Hospital" as reported by the Irish Times of September, Professor Munro Kerr remarks that "the Coombe and the Rotunda have establish-

ed a system that did not exist in any part of the British Empire." Perhaps this is not strictly accurate, for Professor Tottenham, who comes from the Rotunda, has been trying to establish that system here ever since he was with us. Of course, Hong Kong is but a dot in the map of the world, but we hope our obstetrical department will grow rapidly until Professor Kerr hears of it and knows that the system of the Rotunda and the Coombe does exist in at least one part of the British Empire.

Clinical Notes.

TWO CASES OF OVARIAN CYST.

K. C. YEO, M.B., B.S.

Case 1.—Simple Cystadenoma of the Right Ovary.

Kwok Ng Soo, 45 years old, was admitted to the University Gynæcological Clinic on August 6th, 1926, for swelling of the abdomen of three year's duration and complaining of dyspnoea.

Personal History.

The patient was married thirty years ago, has three children, the youngest being fourteen years of age. Her menstrual periods were irregular, each period lasting from five to six days, and scanty in amount. Her last period was on June 4th, 1926. There was no intermenstrual discharge.

History of Present Complaint.

The swelling of the abdomen commenced three years ago, as noticed by the patient. At first it was more prominent on the right side but gradually the whole of the abdomen was involved.

Condition on Admission (see photographs).

General Condition:

Except for her slight dyspnoea, the general condition of the patient was good.

The Abdomen Swelling:

As is shown in the accompanying photographs, the abdomen bulged out very prominently especially in the antero-posterior axis. A marked thrill could be elicited on flicking the abdominal wall. On percussion the abdomen was dull all over, except in the regions of the caecum and descending colon, which were resonant. There was no protrusion of the umbilicus. The following measurements were made:—

	inches.
Xiphoid Process to Symphysis Pubis	22½
Xiphoid Process to Umbilicus	14
Umbilicus to Symphysis Pubis	8½
Largest Circumference (1" above umbilicus)	46
Left Anterior Superior Spine to Umbilicus	11
Right Anterior Superior Spine to Umbilicus	13¼

Examination per Vaginam:

1. There was a distinct bulging of the posterior fornix. A thrill could be felt by the vaginal hand, on flicking the tumour per abdomen.
2. The uterus was normal in size and the fundus was displaced to the left.

Treatment and Progress.

Ovariotomy was performed. Twenty-five pints of thick glairy fluid were evacuated. The cyst-wall was adherent in many places to the peritoneum of the abdominal wall and diaphragm.

Twenty-four hours after operation, the patient developed post-operative tympanitis. Pituitrin 1 cc., Eserine Sulphate gr. 1/48, and turpentine stupes over the abdomen were tried without success. Turpentine enema finally cured the condition. Except for the above post-operative complications, the progress was satisfactory, and after a month in hospital the patient was discharged. (See photographs).

Case 2.—Papilliferous Cyst of the Ovaries.

Chan So Fong, 28 years old, was admitted to the University Gynæcological Clinic on September 22nd, 1926, for the following complaints:—

(1) A hard lump in the lower part of the abdomen.
(2) Distension of the abdomen.
(3) Dysmenorrhoea.

Personal History.

She was married six years ago, and had no children. Her menstrual periods were irregular, usually less than twenty-eight days. The duration of each period was about seven days and the amount was excessive. Her last period stopped two days before admission. She had no intermenstrual discharge.

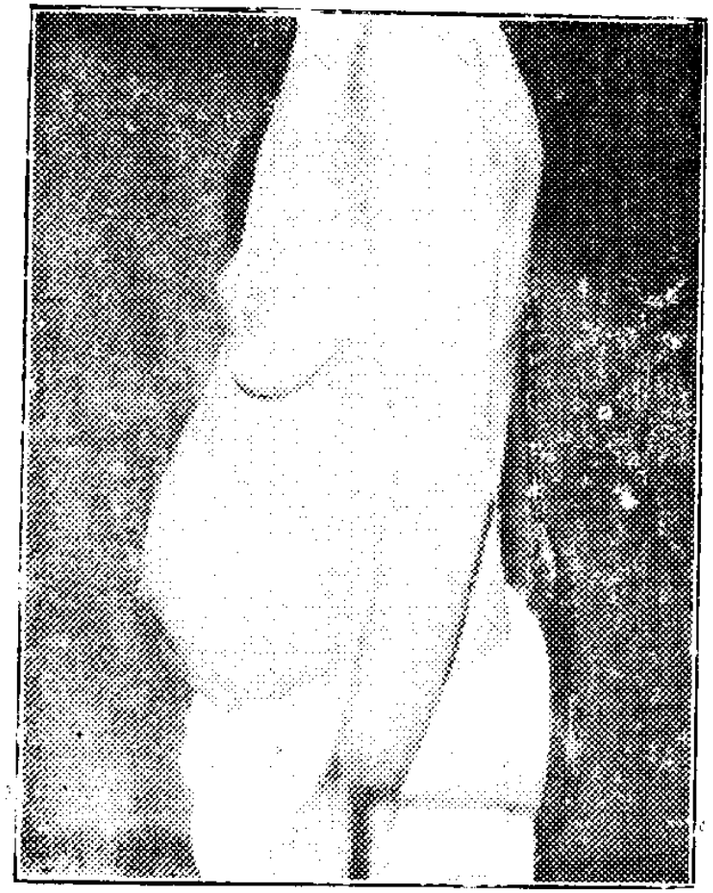
History of Present Complaint.

The patient was operated on at another hospital seven years ago for some pelvic condition. Last year she noticed a hard mass appearing in the lower part of her abdomen which was distending for the last two months. She had pain during the onset of her periods for three years.

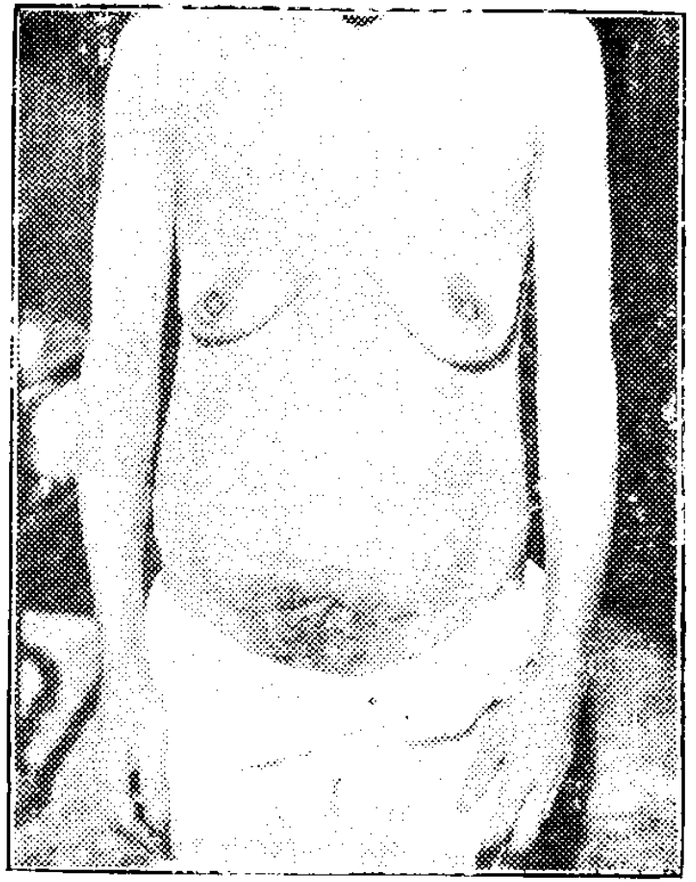
Condition on Admission.

General Condition:

The patient was emanciated and there was a peculiar facies



After Treatment



After Treatment

A case of ovarian cyst.

on her, which gynæcologists usually describe as the "ovarian facies"—appearance of suffering, deep sunken eyes, with black rings round them, and a tendency to grow moustaches.

Abdominal Tumour:

A hard lump could be distinctly felt occupying the hypogastric and parts of the iliac regions. It was slightly tender to palpation. The general enlargement of the abdomen was more in the lateral axis than in the antero-posterior. A thrill could be distinctly elicited, and there was shiftnng dullness on percussion.

Examination per Vaginam:

(1) A hard mass could be made out occupying the Pouch of Doug'as, and was fixed to the pelvis.

(2) There was a tender swelling in the right lateral fornix.

(3) The uterus could not be made out separate from the pelvic tumour.

Treatment and Progress.

An exploratory laparotomy was performed—a boat-shaped median incision was made, with excision of the old scar. Free straw-coloured fluid was found in the general peritoneal cavity and an advanced papilliferous cystadenoma of the ovaries occupied the pelvis. The right tube was much swollen and after removal it was found to contain pus. The tumour after having been dislodged with difficulty from the pelvis was excised. The omentum and transverse colon were found to be adherent to the anterior abdominal wall. Secondary deposits of a papilliferous nature occurred on the omentum and peritoneum of small intestine, abdominal wall and pelvis. The abdominal cavity was drained through the lower part of the wound by gauze arranged in a manner simulating Milkulicz's bag, which served to keep up the intestines from the pelvic cavity. This drainage was removed twenty-four hours after operation. The exudation of the fluid from the peritoneal cavity persisted for about a week, but finally the opening closed up. The patient was discharged looking healthier and fatter after a month's stay in hospital.

REMARKS.

Occurrence.

These two cases are the commonest types of ovarian tumours met with in gynæcological practice, and of the two, the simple cystadenoma is commoner. According to Jellett, papillomata form about 15% and cystadenomata about 45% of all large ovarian tumours. The simple cyst recorded above, is the largest

on record in the Clinic, containing over twenty-five pints of fluid.

Etiology.

In cystadenoma, one of the ovaries is usually affected, whereas in the papilliferous type both are involved as a rule. The typical cystadenoma met with in my hospital practice is the large unilocular cyst occupying part or whole of the abdomen. When the cyst is small, it is multilocular, but when large, it is as a rule composed of one big cavity. The explanation is that one of the loculi grows faster and predominates over the other smaller loculi, and these smaller ones at a later period incorporate with it, due to pressure atrophy of the dividing septa.

Diagnosis.

In the simple cyst, a point of diagnostic interest is to make out which ovary is affected. The following signs may help:—

1. Asymmetry of the abdomen—the side of more prominence is usually the affected side, e.g. in the case recorded, from the measurements taken between the anterior superior spines and the umbilicus, the right side is shown to bulge out more prominently.

2. When the cyst is large, the solid parts of the tumour, can often be palpated. These solid parts naturally tend to occur near to the ovary which is involved.

3. The position of the uterus—this organ is displaced backwards, i.e., if it is behind the cyst, little information can be obtained. If, however, it is displaced lateralwards, the side it is displaced away from, is the side involved, e.g. in the case recorded, the fundus of the uterus was displaced to the left, and the diagnosis confirmed by the operation, was a right ovarian cyst. Papilliferous cysts, when advanced, are associated with a certain degree of ascites, due probably to secondary invasions of the peritoneum and omentum.

Prognosis.

Three years is the period of time given by some gynæcologists for the prognosis of an uncomplicated cystadenoma. After that period, the patient succumbs from pressure symptoms, especially dyspnoea.

The prognosis of the papilliferous type is not so good, and is regarded clinically as locally malignant, when once secondary invasions have occurred.

I am indebted to the Professor of Obstetrics and Gynæcology for his kind permission to record these cases.

A CASE OF MALIGNANT MALARIA.

F. I. TSEUNG, M.B., B.S.

S. Y. K., Male, Chinese, aet. 42 years, gardener in Kowloon, was admitted to the University Medical Clinic on the 17th of October, 1926, complaining of fever of 7 days' duration and persistent hiccough of 5 days' duration.

History of Present Illness:

Seven days ago while he was walking in the street in Kowloon, he suddenly had a chill and a head-ache. He at once returned to his house, when he felt that he had fever. The fever was accompanied by shivering and pain in all his muscles. He took some ordinary Chinese antipyretic mixture, but the fever remained just the same. Two days later he developed a hiccough. He tried to relieve it by taking sips of tea but had no effect. The attack was so severe and continuous that he was kept awake at night. A native herbalist was consulted but he found no improvement. On the night of admission his condition was so serious that he came to the hospital for treatment.

Personal History:

He used to be a fish-monger until last year when he went over to Kowloon to take up his occupation as a gardener. He was married 17 years ago and had three children. His wife and two of his children together with his niece were all having the same attack of fever but they had no hiccough.

History of Past Illness:

Except that he had several similar attacks of fever within this year, he was otherwise quite healthy.

Condition On Admission:

Patient had a temperature of 100.6°F and a pulse-rate of 104. He was obviously ill and looked depressed. He was very anaemic and slightly jaundiced. He had frequent attacks of hiccough.

Except for the enlarged spleen which was about two fingers' breadth below the costal margin, there was nothing of note in the other systems.

His urine was negative.

Blood Examinations:

A blood smear was taken immediately after his admission. It is the routine of our clinic to take the blood smear of every case of pyrexia suspicious of malaria to establish the diagnosis before quinine is given.

Curiously enough his blood picture was a remarkable one. Almost every red blood corpuscle had one or more parasites. In quite a few there were three notable ring forms within them. The parasites found varied from ring forms to **Applique** or Acolé forms, Gametocytes (crescents), and **Schizonts** (sporulating forms).

His Haemoglobin was 55%.

A Van den Bergh's test for bile in the blood was also performed and showed a slight indirect reaction.

Treatment and Progress:

On the night of admission we put him on a digitalis mixture, and had a blood smear taken. As soon as we found the parasites the next morning, we started him a course of intramuscular quinine injections, GR. 10 daily for three successive days. For his hiccough a mixture containing potassium bromide and chloral hydrate was given and succeeded in relieving his attack within 24 hours. After his quinine injections another blood film was taken and examined, but this time no apparent parasite was detected. His temperature dropped to normal after the three injections. A course of quinine by mouth was also prescribed. Patient felt much better and his temperature did not go up again ever since.

Remarks:

This year we are particularly impressed by the large number of malarial cases in our clinic especially of the subtertian or malignant type, but the one just recorded is of special interest in that it showed the unusually large number of parasites and especially the various forms in the same film. It is interesting to note that the sporulating form which is very rarely found in the peripheral blood is also present.

Further it is remarkable that a man with such a heavy infection and also accompanied by such a severe and obstinate hiccough could survive.

The importance of blood examination in these cases cannot be too strongly emphasised since the line of treatment would follow its result. Whereas intramuscular injection of quinine is specific in malignant cases it has no or at least not the same effect on Benign tertian cases. In this case the effect of in-

Figure I.

Figure II.

Enlarged Prostates.

tramuscular quinine is worthy of note as checked by the second blood examination.

Finally it is striking to note that this patient only had the infection after he went over to Kowloon to take up his occupation as a gardener, and that several members of his family had the same attack would prove that there must be infected mosquitoes in his place.

I take this opportunity to express my thanks to Professor Anderson, physician in charge, for his permission to record this case.

TWO CASES OF ENLARGED PROSTATE IN CHINESE.

F. C. TSANG, M.B., B.S.

It has been generally believed in Hong Kong as well as in other parts of China that cases of enlarged prostate are uncommon amongst the Chinese. Jefferys and Maxwell, the authors of "Diseases in China," said that so far they had seen only one case of enlarged prostate in their nine years' practice in China.

It is worth while noting in this connection that Chinese people with other urinary difficulties like stone in bladder may easily submit to operation while cases of enlarged prostate always prefer palliative treatment. They all argue on the ground that they could get along with it before for the past few years and hope to do so again.

We had four cases admitted to our surgical clinic in the year 1924, and one only submitted to operation. Another one, we had, was a private case. Therefore both of these two cases (with life-sized photographs attached) are worth while recording.

Figure I. It was removed suprapubically from a teacher, aged 69, who was admitted to the surgical clinic for retention of urine and had had a history of nocturnal frequency of micturition for several years. Recovery was uneventful except for a slight attack of epididymitis.

Figure II. Male 64, Patient was admitted to the Surgical Clinic for dribbling of urine and on examination, the bladder was found to reach as high as the umbilicus. The prostate was removed suprapubically. It was only moderately enlarged but the so-called middle lobe was as large as the tip of a man's finger and acted as a valve preventing the outflow of urine.

I express my thanks to the Professor of Surgery for permission to report these two cases.

Reviews of Book.

Carbohydrate Metabolism & Insulin: By J. J. R. Macleod, D.Sc., M.B., LL.D., F.R.S., 357 pp. with illustrations. Published by Longmans, Green & Co., London. 1926. Price 18 - net.

Manna from Heaven is an unusual phenomenon, and life must be maintained by sources of potential energy derived either from plants or from animals. Owing to the power of the green leaf to utilise the energy of sunlight, plants are able to synthesise their food from elementary substances such as carbon dioxide, water, and salts, the result being large stores of carbohydrate in the form of starch and sugar which are also used by animals including man. The vegetarians would have us eat nothing else, but even on a mixed diet, carbohydrate forms the chief constituent and it is only in the extreme north that Eskimos live on a carnivorous diet.

Now it is a curious fact that animals though they eat a lot of carbohydrate, contain relatively little in their bodies, and the problem that has been solved is that of its rapid disappearance from the blood following absorption. When this mechanism goes wrong, the condition is one of disease, and is termed Diabetes Mellitus.

Another curious fact is that if animals are not given carbohydrate, they produce it, for it is the food substance most essential to tissue activity such as muscle work.

Finally before it can be used it must be fixed. This fixation is the cause of its disappearance after digestion, the organ chiefly concerned being the liver, but all tissues apparently must fix it before they can use it. When this mechanism goes wrong the condition is indeed a serious one, for the tissues have lost the power of utilising the one substance they most require, with the result that it accumulates in the blood and is excreted by the kidneys.

The modern investigation of carbohydrate metabolism started with Claude Bernard's discovery of the glycogenic function of the liver and it is significant that the latest discovery of "insulin" leads us back to glycogen as the key to the whole mystery. For Dale and Best have shown that the disappearance of sugar from the blood which follows the injection of **insulin**, is directly due to its conversion into glycogen.

In the book now under review, Professor Macleod tells how insulin was discovered, how it can be prepared and standardised and how it can be used—it is the story of a discovery together

with its application to the problems of carbohydrate metabolism. It would have been more correct, if "Insulin" had appeared first in the title.

As a record of work done the monograph may well prove to be a classic, but it would no doubt have appealed to a larger circle if more attempt had been made to develope a thesis, and if a summary had been added at the end of each chapter. It is not easy to tear the heart out of it. But no doubt Professor Macleod would reply that it was not his intention that anyone should.

There is no suggestion as to why the pancreas should harbour two tissues so different and distinct, and why the pancreas should occupy such a central place in carbohydrate metabolism. It would have been helpful if Professor Macleod had done more to estimate the general position. It is a book therefore for the specialist and advanced student and for all those who desire to get a first hand acquaintance with the sources of our knowledge of carbohydrate metabolism, especially in so far as they have been illuminated by the brilliant discovery of the Toronto school.

H.G.E.

Gray's Anatomy (Description and Applied): Edited by Robert Howden, M.A., M.B., C.M., D.Sc., LL.D., Professor of Anatomy in the University of Durham. With Notes on Applied Anatomy: Revised by John Clay, K.H.S., C.B.E., M.B., F.R.C.S., and James Dunlop Lickley, M.D. Twenty-third Edition. With 1294 illustrations of which 616 are coloured. 8vo. 42s. net. Published by Longmans, Green and Co., Ltd., London, 1926.

The appearance of the twenty-third edition of this work so soon after the previous edition is a sufficient indication of the general opinion of its value.

The first edition was published in 1858 by Henry Gray of St. George's Hospital, of whose history Professor Howden tells us something in the beginning of the book. Gray died at the age of 34. The text book which has made him famous has now reached double that age; and, with only two years to go to reach the span of three score and ten, shows no signs of advancing senility. Each new edition shows signs of rejuvenating influences at work; the latest advance in anatomical knowledge are faithfully recorded and ample references are given to students who wish to pursue the study of the subject further.

The cause of the vitality of this text book is its generalised character. In it the student can acquire a sound generalised

knowledge of the morphology of the human body. The portions of the book dealing with embryology are balanced with those portions dealing with the gross anatomy and microscopic structure. Such textbooks on the preliminary subjects of medicine must imbue the student with a desire for sound learning; and must act as a deterrent to those who would sacrifice medical education to the short-cut methods of radiology and tadpoleology. Radiology is only of value to those who have a sound knowledge of structure. Experimental methods on tadpoles may supplement, but never displace, the scientific value of accurate morphological observation.

To deal with all the good points of this work would take up too much time and the criticisms which are here put forward cannot detract from its general excellence.

English anatomy has always tended to become subordinated to surgery. Such a relationship between the two sciences is unsatisfactory. It is the anatomist's duty to deal with anatomy as such and to let the surgeon draw his own conclusions. In the paragraph dealing with the applied anatomy of the uterus surgical operations are discussed and the main features of the applied anatomy disregarded.

The applied anatomy of the uterus is concerned with the factors which maintain this organ in position, the evolution of the maintaining mechanisms; and finally its influence on relationships with surrounding structures; whether these relationships are to be applied to surgical, obstetric, medical or evolutionary problems.

In the case of the foot the anatomist is not concerned with flat foot per se but is called upon to give a reasonable account of all the factors which maintain the arch of the foot.

The second criticism is one which applies to most textbooks of anatomy: the muscles are not given their proper place in the description of joints. Joints are regarded as being held together by ligaments and moved by muscles. If a joint is to be described as a moving thing then it must be supported through the whole range of movement. The ligaments support it in positions of rest—the muscles support it in movement. The function of the anatomist is to describe the factors which maintain the position of the bones and ligaments of a joint whilst it is moving.

English anatomy owes much to surgery, and surgery much to anatomy. Anatomy is, however, wider in its application. It stands as the central science applicable to all branches of medicine. The tendency to subordinate it to surgery may hinder its

advancement as a science and should therefore be guarded against, but not to the extent of divorcement of the two subjects.

J. L. S.

Human Physiology: by John Thornton, M.A., completely revised by William A. M. Smart, M.B., B.S., etc., Department of Physiology, London Hospital Medical College, University of London. Third Edition with 463 pages and 281 illustrations, some coloured. Price 10/6. Published by Longmans, Green & Co., Ltd., London. 1926.

Thornton's "Human Physiology" has undergone another revision with which Dr. Wm. A. M. Smart, its editor, has been able to bring this useful text up-to-date. Marked improvement is seen in this new edition. It should be, however, admitted that in these days of great expansion of the physiological science, it is difficult for a small book like this one to treat with equal adequacy the recent advances in the numerous ramifications of the subject. As it is stated in the preface, this text lays stress on the relation of the facts of physiology to the interpretation of morbid conditions in disease. At a first glance, it may seem to include a little much of histological matter in its limited compass. But this has an advantage of its own in emphasising the explanations of physiological phenomena from the structural viewpoint. At any rate, this edition affords a good reference for the course of physiology in the medical curriculum. The students should find it helpful in the snappy summaries and tabulations of facts at the conclusions of certain sections of the text. The progressive questions in the appendix are particularly useful for class of individual revision of the subject for the degree examination.

S.Y.W.

Gould's Medical Dictionary: Edited by R. J. E. Scott, M.A., B.C.L., M.D., Fellow of the New York Academy of Medicine. With many tables and illustrations. Large Octavo xi + 1,398 pages. G.$9.00. Published by P. Blakiston's Son and Co., Philadelphia, 1926.

We have received for review the 1926 edition of Gould's Medical Dictionary.

It started in 1890 as a humble "New Medical Dictionary;" then as fresh needs were met and the book improved it became

the "Pocket Medical Dictionary;" then as Dr. Gould's ambition grew, the "Illustrated Dictionary of Medicine" came into existence; and then for a number of years the book appeared as the "Practitioners' Medical Dictionary," and as such it was very popular. The stages through which the book has gone, show how keenly desirous Dr. Gould is to improve it and the present "Gould's Medical Dictionary" is the result. It embodies the best features of its predecessors and possesses a distinctive feature of its own.

It is based on the current literature of Medicine and Allied Sciences; and thus it is up-to-date in its information. To students, practitioners, nurses, biologists, chemists, and indeed, to anybody who wishes to look up words in Medicine or the Allied Sciences, the book will be found extremely handy. The illustrations and tables are distinct advantages. There are 76,000 words and 1,398 pages. The book is elegantly bound, the cover is soft and limp, and altogether the book makes an ideal present for those for whom it is intended.

S. W. P.

ACKNOWLEDGMENTS.

We have much pleasure in acknowledging the receipt with thanks of the following contemporaries:—

St. Mary's Hospital Gazette, London.

The Tsinan Medical Review, Tsinanfu.

Unitas, (University of Sto. Tomas), Manila, P.I.

Monthly Epidemiological Report of the Health Section, League of Nations, Geneva.

Archives of Medical Hydrology, London.

The Taiwan Igakkai Zasshi (Journal of the Medical Association of Formosa).

Chinesische Zeitschrift für Die Gesamte Medizin, Moukden.

Dr. Huang's Medical Journal, Shanghai.

Index Universalis, Moukden.

The Tohoku Journal of Experimental Medicine, Sendai, Japan.

Epidemiological Intelligence, Statistics of Notifiable Diseases, League of Nations, Geneva.

The Japan Medical World, Tokyo.

The Australian Journal of Experimental Biology and Medical Science, Adelaide.

"Gann," The Japanese Journal of Cancer Research, Tokyo.

The Study of Vegetation, by E. Pickworth Farrow, M.A., D.Sc.

Reprinted from *Discovery*, Sept. 1925.

Blackie and Son, Ltd., London.

Transactions of the College of Physicians of Philadelphia, Third Series, Vol. XLVII, 1925.

Bulletins from the Institute for Medical Research, Federated Malay States.

"Tropical Typhus in the Federated Malay States," by William Fletcher and J. E. Lesslar.

"The Weil-Felix, Reaction in Sporadic Tropical Typhus," by William Fletcher and J. E. Lesslar.

The American Journal of Hygiene, Baltimore, MD.

Notes & Comments.

OUR GRADUATES:

Dr. W. S. C. Yuen.—Since our last issue from news to hand, we learn that Dr. Yuen has obtained the D.T.M.&H. from the Royal Colleges of Physicians and Surgeons, London. We extend our heartiest congratulations to him on the occasion of his marriage to Miss Y. H. Hoashoo, M.B., Ch.B., Edin., formerly in general practice here. It will be remembered that Dr. Yuen graduated from this University in December, 1925.

Dr. R. A. Basto.—We have lately heard that Dr. Basto has passed the examinations and has obtained the D.O.M.S. from the Royal College of Surgeons, England. He was for six months in 1921 holding the appointment of House Surgeon here. He left Hong Kong in 1922, and in 1923, he obtained the M.R.C.S., L.R.C.P. We understand that Dr. Basto is working for the Fellowship of the Royal College of Surgeons and we wish him every success in his examinations.

Dr. E. H. Lim.—From news to hand, we learn that Dr. Lim has passed the examinations and has obtained the D.O.M.S. also. After holding a year's hospital appointment here in 1923, he was awarded a China Medical Board Fellowship for seven months to study ophthalmogy at the Peking Union Medical College. He was to be awarded another fellowship to study medicine as he was offered the post of Assistant to the Professor of Medicine here, but unfortunately, he was unable to accept this post owing to some private matters. In 1924, he left for Europe for further studies and worked under Professor Fuchs of Vienna. He was there for over a year and then went to London for further studies at the Royal London Ophthalmic Hospital.

Dr. S. N. Chau.—After his graduation in 1923, Dr. Chau went to London for further studies specialising in ear, nose and throat. He was for some time working at the Royal London Ophthalmic Hospital, and later went to Vienna for special post-graduate courses. In 1925 he passed the examination and obtained the Diploma of Otology and Larynology from the Royal College of Surgeons, England. He was also successful in obtaining the D.O.M.S. and passed his examinations together with Drs. Basto and Lim, Dr. Chau was for some time connected with the Caduceus, as its Business Manager. He has now returned to the Colony after three years' absence and we understand that he will go into private practice soon.

Dr. S. A. M. Sepher.—Since our last issue, we understand that Dr. Sepher is now in Glasgow and is studying pediatrics

under Professor Leonard Findlay. We hope to hear more from him and wish him every success in his work.

SCHOLARSHIPS:

The following scholarships have been awarded:—

Blake (1926, for ophthalmology) Dr.T. Z. Bau

Ho Fook (January to June, 1926, for post-graduate work) Dr. F. I. Tseung.

APPOINTMENTS:

Since our last issue, the following undergraduate appointments have been made:—

October to December, 1926.

Surgical Ward Clerks.

Ku Hsueh Chin
Tio Swi Lam
Yang Pao Chang
Sun, E. W. J.
Yang Lin

Surgical Dressers.

Chee Chin Hai
Khoo Keng Tay
Ooi Phee Tuan
Hua Feng Tsai
Ong Huck Leong

Junior Medical Ward Clerks.

Chan Wah
Cheah Khay Chuan
Yu Chiu Kwong
Cheah Cheng Poh
Gourdin, A.

Senior Medical Ward Clerks.

Hsiu Shih Tse
Lee Shue Pui
Sudan, B. N.
Wu Ta Piao
Lam Hor Yin
Ong Chong Keng
Miss Tso Shuk Kei

Obstetric Clerks.

Laing, D.
Shi Man Wai
Kao Ching Hsun
Tu Teng Pang

Pathology Clerks.

Chua Boon Teck (Oct./Nov.)
Vephula, C (Nov./Dec.)
Kwok Ying Kong (Nov./Dec.)

Anaesthetic Clerks.

Chow Tin Cham (Oct./Nov.)
Rumjahn, A. A. (Dec./Jan.)
Ma Wai Man (Nov./Dec.)
Teoh Beh Lye (Nov./Dec.)