MONILIASIS CUTIS PROFUNDA

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The cases which I am about to publish, have been already reported by me at the Congress of the British Dermatological Association held in London, July, 1930. They seemed to me of unusual interest not only because Monilia infections have never been reported from China, but also because of the extraordinary histological findings.

Macleod made a very exhaustive study of Monilias and although he admits, that in Europe as well as in tropical countries most of the intertriginous dermatitises are attributable to true yeast infections, most probably to Monilias, he only distinguishes three typical localizations: (1) the interdigital, (2) the suppurative peronchylia, (3) the Perlièche. He further states, that Monilias flourish best on a moist, greasy, seborrhoeic type of skin, and in a situation, where the skin is naturally warm and moist, such as the intertriginous regions, or areas subject to any macerating influences on the skin, such as wet dressings or the use of a continuous bath (the so-called water-bath mycosis.)

He describes the Monilia infection of the skin starting as a slightly inflamed papule, which is occasionally follicular and which tends to form a scaly patch on an inflamed base and to spread at the periphery, giving rise to circinate or gyrate lesions with a border which may be of brownish-yellow tinge or slightly scaly.

Bloch, one of the greatest authorities in mycology emphasizes that in the last few years Monilia infections, or at least fungous infections closely related to the latter, have considerably increased in frequency, and that we enter now quite a
new phase of the problem. In his classification of Monilia infection there is no mention made of a bilateral popliteal localization, but, with the addition of Oidiomycosis occurring in diabetics, he makes the same classification as Macleod. Nor does Castellani, who was one of the first to draw our attention to the pathogenicity of Monilias, make any mention of a popliteal localization.

Bruhns, Alexander and Kadisch not only admit the increase of Monilia infections, but also the change of fungous infections in the last few years. For example the formerly frequent deep, nodular, infiltrated mycoses of the bearded region have disappeared almost entirely. Instead they observed the superficial type of yeast infections of the feet and hands, in rarer cases of the neck and legs. In most of the cases the Kaufmann-Wolff fungus, but quite frequently also the Soor fungus (Monilia) was the cause of these infections. The question of the origin of infection was specially studied by these authors and in most cases it could be traced. The infection started after visiting a bathing house, a fact which has been reported several times by American writers. They discovered that fungi remain virulent on various matters, such as wooden floors, straw-matting and even in sand. It was also proved experimentally that fungi grew on dead media, such as silk, linen, wool, leather, birds' feathers, earth, wood, straw and dung.

Our cases not only differ from the epidemiological point of view from those previously reported, but the lesions also have been localized in a region which ordinarily is not favoured by mycotic infections and they differ also in being symmetrical.

The onset of this affection began epidemically. About 24 girls of the Door of Hope were affected at once. The lesions were all situated on both popliteal regions and consisted of fairly well circumscribed patches, partly with regular and partly with circinate contours. The lesions covered nearly the entire popliteal region. The centre of each lesion showed a tendency to heal, whereas the surrounding area showed a marked pinkish-yellow discoloration with fine furfuraceous scaling. A few lesions revealed tiny vesicles on their borderline.

The individual lesions did not spread any further than the popliteal region, and no other lesion could be found on any
Fig. 1.
The lesions in the popliteal region
Fig. 2.
Section showing round cell infiltration and slight edema of the corium

Fig. 3.
Oval and rounded yeast bodies in the section
distant part of the body. Subjectively moderate itching was present in all cases.

Clinically there was but little doubt about the nature of this small epidemic. The scrapings of each individual lesion confirmed this by the positive finding of yeast bodies in Liquor, potassae. Cultures made on 4% Glucose and on Sabouraud's Maltose Agar (about 50 tubes) resulted, in the majority, in a uniform growth of Monilia.

The histological findings revealed unusual facts. Yeast bodies are present not only on and in the epidermal layers, but also in the cutis.

The rarity of this condition is characterised by:

(1) the deep findings of yeast bodies without corresponding lesions on the skin, with the exception of those of a superficial inflammatory character with branlike scaling.

(2) its epidemic nature.

(3) its special localization.

The explanation of the epidemic nature could not be ascertained. We thought that a similar infection of the feet could infect the popliteal region by scratching. Most of the patients neither showed signs of a similar lesion on the feet, nor did they admit to ever having scratched this region over a long period. In searching further we thought that a W.C. might be brought into causal connection with this peculiar condition, but our investigations failed to give any proof of this. It is without doubt that there there can only have been one common source of infection, most probably through some other sitting accommodation, by which the popliteal region came into direct touch with the infected material, a possibility, which seems to be quite feasible after the investigations of Bruhns and Alexander, showing that fungi grow easily on wood. The localization, which is quite strange and from the epidemiological point of view unusual, could only thus be explained.

The histological findings require further explanation. Although such findings are unique, it is certain from the shape of the organisms and their elective staining with Gram's stain that they could only be yeast bodies.
CONCLUSIONS

We are reporting a Monilia infection which is unusual:

(1) for its epidemic nature

(2) for the symmetrical distribution and the localization in the popliteal region only

(3) for the finding of yeast bodies in the deep strata of the skin.

I take this occasion to express my thanks to Dr. Doris Hoffmann for having given me the opportunity of studying these cases.

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TRAUMATIC RUPTURE OF THE URETHRA

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Present medical literature takes the position that, "Traumatic Rupture of the Urethra is rare." In this district it is of rather frequent occurrence and prompt treatment is of great importance. The treatment and management of these cases as set down in the literature is both meagre and quite at variance. This is probably due to the fact that this is an emergency case and does not usually arrive at the door of the genito-urinary specialist. It is also an accident of far less frequency in western countries than in this district. In this article we wish to report our procedure as followed in some fifty cases during the past twenty years.
Traumatic Rupture of the Urethra

In dealing with this condition the anatomy of the urethra and perineum is of primary importance. A clear understanding of the membranous and bulbous urethra with the various structures around them is essential. Colles' fascia and the two layers of the triangular ligament in their relationship to the urethra and to the pubic arch must be kept clearly in mind. This anatomy need not be discussed here in detail for it can be found in any standard textbook on anatomy. It cannot be emphasized too strongly that the operator must have a clear mental picture of this region in its three dimensions.

The cause of this condition is a crushing blow to the perineum catching the urethra between the instrument and some part of the pubic arch. This lacerates the urethra with the muscle and fascia around it leaving all in a ragged condition. Throughout the canal region of China this is a rather common injury and the usual way it happens is from falling astride the boat plank. In walking from his boat to the shore, either with or without a load, the boatman slips off the plank and falls astride it. In our series of over 50 cases 70% have this as the direct cause. In five cases only a fall is mentioned and the instrument struck not named. Two fell astride a carpenter's bench; five fell on a board the same as a boat plank; one fell on a wall; one was kicked; one fell on a bucket, and one was struck by a buffalo's horn. With the boat plank as the chief instrument and the large number of women who walk the boatplanks it is strange that we have never seen a case of this injury in a woman. It might be the results are not so disastrous, that the laceration extends into the vagina and the case never reports for treatment. We have had but one case under 20 years of age and he was a boy accidentally gored by a buffalo. Our oldest case was 57 but most are in the twenties and thirties.

Almost immediately after the accident blood will come from the urethra. At times this hemorrhage is profuse and persistent usually coming from the tear of the artery supplying the bulb. Hemorrhage from the other tissue usually stops very promptly but this artery will be found bleeding after several days and will not stop until it is tied. We have two cases in our number where secondary hemorrhage occurred a week and ten days after and both required interference to stop them. This hemorrhage is so persistent that the entire perineum, scrotum, penis and
often a portion of the thighs and pubic region become black with the extravasation of blood throughout the loose tissues. This ecchymosis is not due to a laceration or injury of the parts for only a small area of the perineum itself is lacerated, just that tissue caught between the instrument and the narrow pubic bone. This extensive ecchymosis will take place in only a few hours and grows more intense during the first 24 or 48 hours. It often makes the surgeon wonder if the parts are not gangrenous. Following operation, tying of the broken vessels and drainage, the ecchymosis clears up about as rapidly as it occurred.

The next most serious and prominent sign is inability to pass urine. When the patient is able to void urine it is positive evidence that the urethra is only partially torn. Only in four of all our cases has this been true and none of these required operation nor did they have an extensive ecchymosis. It is possible that there are many suffering from these mild injuries in this district who do not report for treatment because they are able to void. It is the retention of urine that is the most serious part of the injury from the patient's point of view. It gives him a distress that urges him to seek relief. The bladder will fill to overflowing and the sphincter does not readily relax, but when it does once give way the process of urine extravasation begins and follows the same course through the tissue that the blood has taken. In 24 to 48 hours the urine will distend the bladder to the umbilicus giving the patient great distress. The longer the condition goes without treatment the more extensive and serious will the urinary extravasation become.

The hemorrhage and urinary extravasation quickly produce a marked swelling of the perineum, scrotum and penis and later extend to the upper thighs and pubic region. The scrotum will often become enormous in size, even as large as the head, and soon takes on a shiny appearance. This appearance suggest a bad infection and often alarms the surgeon until he becomes accustomed to seeing it clear up with great promptness following operation. If adequate treatment is not instituted more serious changes take place in the lacerated tissue. It becomes infected from the urine, then purulent and even gangrenous. Sometimes the gangrenous process will start as early as the third day, and again a week or more after the injury there may be none. One
of our cases came in eleven days after the injury without having voided. The gangrenous process involves the lacerated tissue and then extends to the scrotum, but does not involve the urethra itself. In one of our cases the gangrene extended up the inguinal canal, but was not recognized until the next day after the operation when the incision was extended and a gangrenous slough removed.

There is little difficulty in the diagnosis of this condition, but a differentiation as to the degree of the injury may require some care. The history of the injury with the above signs and symptoms is positive of a rupture. If there is no marked swelling or ecchymosis and the patient is able to pass urine and there is only a small amount of hemorrhage from the urethra it can safely be assumed that the injury to the urethra is slight. Here it would be safe to leave the patient without active interference and confine him to bed for a few days giving him urinary antiseptics and applying pressure if the hemorrhage is persistent. If there is marked ecchymosis and swelling with retention or difficulty in urination there is certain to be an injury of the urethra of sufficient importance to justify incision and repair. In most of our cases the rupture of the urethra has been complete but occasionally the anterior wall has been found intact and this may aid the passing of a metal catheter. The possibility of passing such a catheter is not a sufficient indication not to operate, but the other signs referred to above should be the guide. We feel that there should be no effort made to pass a catheter, but the case treated as an emergency with immediate operation. If the passing of a catheter is needed operation is also needed.

Operation. In dealing with these injuries there is no occasion for using any other than local or caudal anesthetic. In the first place the injury with its swelling and extravasation of urine has rendered the perineum almost non-sensitive. In our earlier cases a general anesthetic was used but for the last 40 cases we have used either local infiltration or caudal injection of 1% novocaine. This anesthetic is entirely satisfactory.

Various recommendations are made in the literature for the management of these cases. Besley\textsuperscript{2} establishes perineal drainage and states that suturing is not technically possible. He reports six cases with good results by his method. Farman\textsuperscript{a} gives three methods: 1. Multiple incision of the injured perineum.
2. Multiple incision combined with suprapubic cystotomy.
3. Multiple incision with perineal cystotomy and possible later repair. Berry reports 36 cases with various treatments.
1. Retention catheter. 2. Suprapubic cystotomy. 3. Perineal section. He reports cured only 25 cases out of the 36 and has treated 15 cases by the last method which is his choice. McWhorter reports two cases treated with a silk seton passed through the urethra and bladder and through a suprapubic incision. This is left in until epithelisation of the urethra is complete. Bevan recommends external urethrotomy in rupture of the bulbomembranous urethra in order to secure drainage. He feels that plastic repair or accurate suture is of little value. He passes sounds over a long period.

Our method of dealing with these rather distressing cases has given such good immediate and late results that we are encouraged to report it. We make a direct attack on the injury, relieving its distressing symptoms, repairing the defect and adequately follow up until complete healing has taken place. Removal of the blood clots, adequate drainage of the extravasated urine, accurate suture of the torn urethra over a retention catheter, followed later by procedures as indicated are the principles we have followed in all our cases.

We are dealing with the bulbomembranous traumatic rupture due chiefly to the "fall astride" something that crushes the urethra against the pubic arch. None of our cases have been complicated with fracture of the pubic bones nor rupture of the bladder as is more common with the automobile injuries. Some have had extravasation of blood and urine extending to the space of Retzius and the ischio-rectal spaces, but the usual condition is a rupture of the bulbomembranous urethra with large blood clots and laceration of tissue at the site of the injury, extensive extravasation of blood and urine into the perineum, scrotum and penis with marked swelling of the parts and retention of urine. Our cases have reported to us at various times after the injury, from a few hours to days and even months. This leaves the site of injury in any state from a recent lacerated condition to an old laceration with an added foul infection even to an advanced gangrene.

We always treat these cases as an emergency which means they are at once prepared for operation which is usually started
within an hour. The patient is put in the lithotomy position, a small amount of 1% novocaine injected into the perineal line, and incision made from the scrotal junction nearly to the anus. In cases of extensive swelling the incision will be carried further forward on to the scrotum. The incision is carried directly down to Colies’ fascia which is nearly always bulging forward due to the blood clots behind it. The skin is drawn back on either side making a good exposure of Colies fascia which is then incised and all the blood clots removed. This leaves a large cavity which is the centre of the injury and the bleeding vessel or vessels are at once seen and caught. It is the arteries to the bulb and walls of the urethra that persist in bleeding. It is rare that we fail to find active hemorrhage even where the injury is several days old. A sound or catheter is then passed into the urethra from the meatus and this immediately shows up the distal torn end. Occasionally there will be a portion of the opposite wall of the urethra intact and then the proximal end is easily located, but the usual thing is a complete tear and separation of the two ends by clots and general swelling. Sometimes this proximal end is very difficult to locate and the surgeon must go beyond the triangular fascia. But if the wound is thoroughly cleansed of clot and lacerated tissue the ragged end of the urethra will be picked up and a metal catheter can be passed into the bladder and the urine drawn off. There may be as much as 2000 cc. of urine. The margin of the urethra is grasped with an instrument, the metal catheter removed from the bladder and a retention catheter passed in through the penis and into the bladder. For this we always use an ordinary catheter of a calibre that will easily pass up the urethra. Occasionally torn shreds of the urethra must be cut off. With a plain catgut on a short curved needle the two ends of the urethra are united with five or six interrupted sutures. The surrounding tissue is not removed from the urethra but is caught in the sutures if convenient. The ends of the urethra itself usually extend a little beyond the surrounding tissue so that by drawing the surrounding tissue down with the suture the urethra itself is approximated without tension. These sutures will stop any hemorrhage from the urethra. Other sutures are placed in the perineal structures as indicated. We have seen extensive infections and gangrene but the urethra itself is never involved in the gangrene; its ends will always bleed and therefore permit
of suturing. If there is not gross pus or gangrene the perineal incision can be closed with horsehair or silkworm gut deeply placed and one or two drains put into it. If the injury is of 48 hours or more these sutures may be put in place but not tied and the wound loosely packed with strips of gauze wet with 10% sodium chloride.

Eight of our cases have had more or less gangrene about the site of injury or extending up into the scrotum. Every case gives the appearance of gangrene but one must not be deceived by the appearance. The gangrenous parts are cut away to viable tissue and the cavity packed with gauze saturated with 10% sodium chloride which is best changed every six hours. The amount of exudate during the first 24 or 48 hours is quite profuse and the rapid shrinking of the scrotum and its return to normal appearance is almost magical, contrary to the usual expectations in cases of extravasated urine. If untied sutures have been left they are tied as early as possible according to the appearance of the wound. Of course the urethra fails to unite in some of these gangrene cases, but it will unite in more than half and then the surgeon is always glad it was sutured. If it breaks down he has the same condition as if he had not sutured; namely, a perineal urethrotomy which may be repaired later or left a permanent perineal fistula. One of our cases was so left after a second failure to get union. There may be a partial break down of the urethral sutures and then a gradual granulation and epithelialisation of the defect. In cases of only 24 to 36 hours duration a complete closure with rubber tissue drains can be made and primary union will take place.

The patient is immediately put on urinary antiseptics and the urine is drawn off every two to three hours or it may be syphoned into a bottle thus keeping the bladder empty all the time. Because of the extravasation of blood and urine the discharge during the first 24 to 48 hours is abundant and it is well to change the dressing every six to twelve hours. If there is any sign of pus one or more of the stitches must be removed and appropriate drainage maintained. The catheter is changed if there is any sign of stoppage, otherwise it is left in for eight to ten days. When a drain has been maintained for a week, or union of the tissue is not complete, there is liable to be some leakage of urine from the perineum. The suturing of the
urethra has not been sufficiently accurate or a part of it has broken down. This will soon heal. When urinating the patient should stand up with legs crossed making a little pressure on the perineum. In the badly necrotic cases leaking may continue for sometime. After about two weeks or when healing is complete a number 18 or 21 sound should be passed. In the most satisfactory cases, those that have come within the first 36 hours, the site of injury will not be detected with the sound. In those where healing has been delayed the passing of sounds every week is important. If this is kept up until the epithelium has completely bridged the wound and for several months later stricture can be avoided.

In two of our cases there occurred a secondary hemorrhage a week and ten days after operation which necessitated a second operation. There is occasionally a slight secondary hemorrhage which stops of its own accord or with a slight pressure applied to the perineum. Our cases have remained in the hospital an average of 23 days each. Four cases of mild injury which did not require operation stayed only five days. The longest remained 72 days. Only one case was complicated with a gonococcus infection and he did not heal and the urethra was finally transplanted into the perineum. Only one case died. His injury was due to a severe beating and kicking by robbers and he was admitted four days later with bad local gangrene. His case was also complicated with a resistant type of malaria. The wound healed completely, but he died 72 days after admission of malaria. While all cases are requested to return for follow up soundings only about half have reported. Six were readmitted for treatment of stricture which was either dilated or resected. As long as they can pass urine they do not see the necessity of having the discomfort of passing sounds. The very fact that they will not report for later treatment makes it urgent that a good result be secured with the first operation. No doubt some of our cases have gone to other places for treatment of secondary stricture and others have gone on without any treatment. Two cases left the hospital while still leaking part of the urine through the perineum. One case a few days after his operation had an acute attack of suppurative appendicitis for which an appendectomy and drainage was done.
SUMMARY.
1. A review of traumatic rupture of the urethra as seen at the Soochow Hospital is given.
2. Its cause, symptoms and diagnosis are discussed.
3. A brief mention of the treatment as given in the literature is made.
4. Operation and management of these cases is given in detail.
5. Follow up treatment and results are discussed.

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PHRENICOTOMY IN THE TREATMENT OF PULMONARY TUBERCULOSIS
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Phrenicotomy is an operation for the sectioning or avulsion of the phrenic nerve. The former is known as simple phrenicotomY while the latter radical phrenicotomY or exairesis. The modern and better term is phrenicectomy. Phrenicotomy is relatively a new procedure. It is an operation that modern surgery can boast as being of one its most important recent achievements in the treatment of pulmonary tuberculosis. It may be practised as an independent procedure or supplementary to artificial pneumothorax or thoracoplasty.

In selected cases the operation confers undoubted beneficial effects. It should merit close study by all.
Phrenicotomy in Pulmonary Tuberculosis

It was Stuertz who first proposed the operation in 1911 but it was not put into practice until 1913 when Sauerbruch reported five cases in which the operation was performed "with marked benefit and without causing disturbance of the heart and of respiration."

The Present Position of Phrenicotomy in the Surgical Treatment of Pulmonary Tuberculosis

Although phrenicotomy may be the sole means of treatment yet it is most commonly and advantageously done either as a preliminary or supplementary measure to other active methods of treatment.

As an independent procedure it is chiefly indicated in very early unilateral cases and also in cases in which artificial pneumothorax failed, due to pleural adhesions and when in such cases the performance of thoracoplasty is not feasible.

It will then be understood that phrenicotomy represents rather a stage in the treatment of pulmonary tuberculosis than a complete and independent procedure. Therefore a surgeon who is only conversant with phrenicotomy and not with other active methods of treatment in case of necessity is not living up to the modern standard of thoracic surgery.

Physiological Effects of Phrenicotomy

Interuption of both the main and accessory phrenic nerves paralyses at once the side of the diaphragm operated upon and if the diaphragm is non-adherent it ascends passively in the chest and finally remains in the position of full expiration.

The ascent continues for several months following operation and in a few cases for a year or so. The gradual and continuous ascent of the diaphragm has the effect of gradual and permanent compression of the diseased lung in the upward direction. This constant upward compression is maintained by intra-abdominal pressure.

The hemi-diaphragm gradually degenerates and becomes motionless. (Though the rise and fall of the sound side may tuck the membrane somewhat in its upward and downward movement.)
The right hemi-diaphragm rises more than the left after operation because of the heart on the left. It is for this reason that better clinical results are obtained in cases of right lung involvements.

In the operated side the respiratory function in our opinion is carried on by the accessory muscular mechanism of respiration; the lung therefore is still functioning only less forcibly.

From the foregoing accounts we may safely expect a reduction in lung volume of from 1/6 to 1/3 provided there is no pleural adhesion.

In spite of the gross changes initiated by the operation we may rest assured of freedom from untoward after-effects. None of our patients have ever experienced any difficulty of respiration or unpleasant results on the heart.

The stoppage of the piston action of the diaphragm not only rests the lower part of the lung but also indirectly the apex.

The action of the operation is three fold. Firstly, it closely imitates the method of nature in the treatment of all diseased tissue by affording the diseased part rest. Secondly, it confers the beneficial effect of continuous compression. Thirdly, the reduction in lung volume facilitates retraction and fibrosis of the diseased lung.

Clinical Effects and Results

As soon as the immediate effects of the operation have passed, improvement usually sets in at once. The sputum is increased at first due to the compression, but soon when retraction of the lung reaches a further stage, the output is gradually diminished.

Cough is usually lessened, particularly in cases in which lung tissue is adhering to the diaphragm or to the thoracic paries. The act of coughing contrary to all expectations is unaffected. In fact in many cases it is facilitated.

In well selected cases both the pulse and temperature fall within a few days and there will therefore be a gradual gain of body weight.

As most of our improved cases had phrenicotomy in conjunction with other methods of collapse therefore it is difficult to
assess the value due to the effect of phrenicotomy alone. But in those well selected cases in which phrenicotomy was the sole method of treatment we had undoubted beneficial effects.

As a preliminary communication we may state that in ten of our cases (not selected cases) in which phrenicotomy was the sole method of active treatment six were markedly improved. These were the cases operated upon from 2 to 25 months ago (with patients varying from 16 to 64 years of age.)

Of the remaining four cases, two were unimproved and one died from massive haemoptysis originating from cavitations in the opposite lung. Two of the unimproved cases were of the acute caseous type, one of whom had advanced bilateral involvements. The fourth unimproved case had tertiary syphilis and pneumothorax was impossible on account of pleural adhesions.

Of the six improved cases it is remarkable that three were with heavily infiltrated bilateral lesions, only more so on the operated side. In all, the pulse-rate and temperature were reduced up to the present. Gain in body-weight was noticed in every case. One case with advanced bilateral lesion suffering from repeated haemoptysis has gained 38 pounds since operation. The haemoptysis stopped completely except on one occasion when he inadvertently took sun-light treatment and blood reappeared (though only in streaks.) This was stopped upon advice of the cessation of exposure. The operation was performed 25 months ago. The other five cases have had no recurrence of haemoptysis since operation.

Two of these cases deserve special mention because of the complicating diabetes and again of bilateral involvements. This complication was always looked upon with grave concern. Both of these cases however improved so remarkably that they may be now considered to be clinically cured. One of these cases had gained ten pounds in weight.

Our failures were almost invariably confined to either cases of grave prognosis or those contra-indicated for operation. In such cases the hope of phrenicotomy was to stem the tide of the disease process. In short, it was resorted to in each instance as a desperate measure in a desperate case with full understanding of the ultimate result as the indications were not upheld. Needless to add that our experience of phrenicotomy is much
more than those cases mentioned above but as they were performed supplementary to either artificial pneumothorax or thoracoplasty they are therefore valueless for the present study, as the beneficial results in such cases are difficult if not impossible to assess.

**Indications for Operation**

It is very desirable to fluorescope every case before operation with the view of ascertaining the mobility of the diaphragm. If the diaphragm is non-adherent, better results may be expected especially in cases of higher lesions. The best results are obtained in basal lesions irrespective of pleural adhesions. However in many cases the mere stoppage of the action of the diaphragm is conducive to marked benefits.

We consider that the operation is indicated in all early cases of unilateral lesion if two months of sanatorium treatment failed to influence the course of the disease. In the poorer class of patients we usually advise operation as soon as we are satisfied that the opposite lung is capable of carrying on the slightly added strain, without activating any lesion therein.

But the indications for phrenicotomy need not be so strictly observed as for artificial pneumothorax or thoracoplasty, as the increased strain on the 'good' lung is comparatively less than in the other methods. If any lesion existed in the so called "good" lung at all, it must be quite slight and inactive.

In the light of our present knowledge phrenicotomy has come to stay, for it has long passed the experimental stage. In selected cases, it is a treatment of undeniable merit. We must not however rely too much upon it as an independent and self-sufficient treatment.

We shall now consider it further as to the indications of independent treatment and as a supplementary treatment.

**Indications for Treatment with Phrenicotomy Alone**

Phrenicotomy is especially indicated in early and predominantly unilateral lesions of the chronic fibrous type. Again in those cases where artificial pneumothorax failed because of pleural adhesions and in whom thoracoplasty was not possible. It is then the only effective remedy at our disposal.
Occasionally it may be performed in acute unilateral cases of the caseous variety when other methods fail to arrest the disease. The results obtained in the adoption of such treatment even in the presence of some activity in the other lung, are at times remarkable. We emphasize that the best results are to be expected only in cases of the chronic fibrous variety.

We are of opinion that every case treated with phrenicotomy alone should be subjected to surveillance for a prolonged period of at least three years. These patients although feeling well should report themselves for examination at least quarterly. Because, if the treatment is found at any time to be inadequate other active methods of treatment must be instituted at once.

The position of phrenicotomy as an independent therapy stands therefore between artificial pneumothorax and thoracoplasty; the merits are, that it has not the complications of the former and the hazards of the latter.

**Phrenicotomy Supplementary to Artificial Pneumothorax or Thoracoplasty**

In more advanced cases phrenicotomy alone is usually inadequate but it is the most important supplement to such treatments as artificial pneumothorax and thoracoplasty. In fact in all of our patients treated with artificial pneumothorax we have made it a rule to perform a preliminary phrenicotomy before the induction. With this preliminary treatment we are convinced that it lessens the liability to pleural effusion. Our incidence is certainly far below the published 40% of complicating effusions reported by most authorities. Possibly the yielding character of the paralysed diaphragm ameliorates the pleural irritation due to the excessive gas pressure of the artificial pneumothorax.

Another merit of phrenicotomy is that in cases of artificial pneumothorax which fail to return for refills, the danger due to re-expansion is less, as the lung has only a reduced cavity to fill. Quite a few of our cases are doing so well that they have ceased to return for refills, nevertheless the improvements resulted from the earlier treatment were maintained. This attitude is of course dangerous as the re-expanding lung would pull the fibrosed and healed tissue asunder and may reactivate the disease.
Again in cases in which artificial pneumothorax was only partially successful, phrenicotomies is all the more necessary in order to effect a better compression, collapse and rest of the involved lung. Furthermore in artificial pneumothorax cases the operation has the merit of lessening the absorption of the introduced gas. It generally lengthens the interval for refills by 1/4 to 1/3 of the time.

The difficulty of a satisfactory collapse of the lung in thoracoplasty cases is well known. Phrenicotomies is therefore a most helpful supplement in such circumstances. It should be performed however at least two weeks preceding the bigger operation.

Indeed in cases of poor operative risk a preliminary phrenicotomy would bring about such marked general improvement of the patient that it makes the thoracoplasty possible and certainly with less operative risk.

Recently we have performed a primary phrenicotomy and a secondary thoracoplasty of the upper seven ribs for complete collapse. (This combination of operations was first proposed by J. Alexander in 1925. So far we are unaware of any one having put this operation into practice.)

The collapse of the lung in this case was quite satisfactory and the deformity was hardly noticeable. Although it is too early to draw conclusions, we shall not be surprised if it may in the near future supersede Sauerbruch's classical operation of extra pleural thoracoplasty, an undertaking of a very serious nature.

**The Operation of Phrenicotomy**

In the earlier days an operation known as simple phrenicotomy was practised. It was either mere sectioning or the excision of a small segment of the nerve. It was soon found however that the operation was inadequate, as the accessory phrenic remains intact and that the severed ends of the nerve soon get regenerated. It was also found that 20% to 30% of the subjects have an accessory phrenic nerve. Goetze therefore practised sectioning of both the main and the accessory nerves. But the modern operation is one mainly after the method of Felix. It is known as phrenicectomy, radical phrenicotomy or
Phrenicotomy in Pulmonary Tuberculosis

phrenicus exairesis. It is the method on which we principally base our operation. Unfortunately we have not space in this paper to describe the anatomy of the operation more fully.

Fifteen minutes before operation a preliminary injection of morphia (1/6 to 1/3 of a grain) is given. This is necessary because the avulsion of the nerve is painful.

Local anesthesia is adopted. During the last year we used a solution we called "tea" (T.E.A.) viz. tutocaine one in 200, eucupin one in 1,000, with the addition of one drop of adrenalin (1 in 1,000) to every 10 c.c. of the solution. The solution is made with physiological Saline. This compound ensures a perfectly painless operation (except during the nerve avulsion) and convalescence, as its anaesthetic effect lasts from 24 to 36 hours.

Incision. Although the vertical incision is largely practised by continental surgeons, we think it is too disfiguring for a delicate operation of this nature. We strongly recommend the transverse incision along the natural crease of the neck. The exposure afforded is quite adequate while the scar is hardly noticeable especially if we take off the Michel's skin clips (which we recommend for skin closure) on the third morning.

The best transverse incision hitherto advocated was one 6 c.m. long and 6 c.m. above the clavicle. We however recommend one, which may be called the anatomical incision as necks vary greatly in length and in thickness.

Our transverse incision commences at the junction of the middle and lower third of an imaginary perpendicular dropped from the tip of the mastoid process to the clavicle. The length of the incision should be about 5 c.m. varying with the thickness of the neck. Whenever possible we split the platysma in order to minimise subsequent scarring.

It is only fair to state that before the operation is contemplated, the anatomy of at least the lower part of the neck should be thoroughly mastered, otherwise one will only seek accident if not disaster.

As we have stated we need hardly dwell on the detail of such anatomy here.

When the phrenic nerve is fully exposed inject a few drops of the anaesthetic into the highest part of the nerve-sheath. The
nerve should be severed with a sharp knife and the distal end is slowly avulsed until at least 12 c.m. is extracted outside the wound before it ruptures.

If a minimum of 12 c.m. is obtained one may be certain that the accessory phrenic connection is ruptured because the accessory joins the main trunk in the thorax about 7 c.m. below the first rib. In one of our cases we obtained 36 c.m. of the main and 15 c.m. of the accessory nerve.

This operation therefore besides resecting the main phrenic, interrupts all its connections with the accessory, sympathetics, etc. from the neck.

The above incision would confine the operative field to that above the level of the omo-hyoid thereby safeguarding the important structures below it. We have found that in many of our cases during avulsion, the ascent and descent of the diaphragm could be distinctly felt, and sometimes the pulsation of the heart. The reason of the latter impulse is due to the passage of the phrenic nerve over the pericardium. (We are not aware that these phenomena were mentioned by any authority.) The wound is best closed in layers and the skin with Michel's clips with a small stab drain.

**Dangers of Phrenicotomy**

The only danger we have ever had was in our first case when the sympathetic was divided by mistake. This case had flushing of the ear and narrowing of the palpebral tissure on the operated side. We had however no cases of death as were reported elsewhere.

The following accidents have also been reported; excessive haemorrhage, embolism due to wounding of the cervical veins, injury to the thoracic duct, mistaken section of the vagus, the sympathetic, long thoracic nerves, etc.

**Conclusions**

1. The operation of phrenicotomy occupies a definite place in the treatment of pulmonary tuberculosis. It is chiefly practised, however, as a supplementary operation to other active methods of treatment.
2. It is chiefly indicated in early unilateral basal lesions, and in certain cases, with lesions below the mid level of the lungs. The best results are expected in cases of the chronic fibrous type.

3. In certain advanced cases it is an invaluable palliative, although it is seldom a self sufficient measure.

4. It is clearly indicated whenever a suitable patient belongs to the poor and ignorant class, whose co-operation is hardly to be expected should an artificial pneumothorax treatment be initiated (which treatment takes 3 to 6 years) and also when the transportation is unavailable owing to distance or lack of means, the patient being unable to obtain refills in the event of artificial pneumothorax having been instituted.

5. Whenever artificial pneumothorax is impracticable owing to pleural adhesions and at the same time when thoracoplasty is hazardous or unacceptable, phrenicotomy is our only effective measure in securing the diseased tissue rest and the disease arrest.

6. When phrenicotomy is practised as a supplement to artificial pneumothorax it lessens the absorption of gas, it therefore lengthens the interval for refills. Whenever an artificial pneumothorax patient has had this supplementary operation performed and fails to return for refills, he is more or less protected from activating the disease because the re-expanding lung has a smaller chest cavity to fill owing to the permanent elevation of the hemi-diaphragm.

7. When it is practised as a supplementary operation in artificial pneumothorax cases it lessens the tendency to pleural effusions.

8. Phrenicotomy in conjunction with the resection of the upper 7 ribs may advantageously supersede the severe operation of complete thoracoplasty viz. the resection of 12 ribs.

9. Phrenicotomy does not put the lung out of function as respiration is carried on by the muscles of respiration.

10. Phrenicotomy has long passed the experimental stage. It is a specialized but safe operation.
NEURO-PSYCHIATRY

Report of the Department of Neurology and Psychiatry of the
Severance Union Medical College, Seoul, Korea

CHAS. I. MCLAREN, M.D. (Melb.)

The report which, after cutting out matters of purely local interest, we publish here by permission of the Author, was recently received. It seemed to us one of very exceptional interest which would be valued by all our readers, especially in view of the fact that little of this type of material ever appears in the Journal.—Editor, C. M. J.

A hopeful and courageous realist once wrote “There is an open door and there are many adversaries.” Opportunities and difficulties characterise our work.

Our work is still hindered by the absence of a special ward for psychiatry cases. The non-violent can with propriety be treated in the general wards of the hospital. A few violent cases have been treated in a special room in the Isolation Building but such an arrangement is obviously highly unsuitable. A gift of sixteen hundred yen and another of a thousand make it possible for us to plan for a tiny psychiatry building. Another gift of four hundred yen provides something for the beginning of maintenance. We are especially grateful for these and other gifts forthcoming in these times of monetary stringency.

It is of interest to review the striking similarities and the striking differences which present themselves in the conduct of a neuro-psychiatry department in Korea in comparison with the conditions that obtain in the West. As to the similarities, they are many and striking and bear testimony to the essential biological unity of East and West. For instance, I have seen replicas in Korea of almost all the degenerative nervous diseases described in the West, as for example Progressive Muscular Atrophy, Pseudo Hypertrophic Muscular Dystrophy, Syringomyelia, Freidreich’s Ataxia, Combined Sclerosis; even I have seen a case of the Landry Dejerine (Facio-Scapulo-Humeral) type of Dystrophy.

Equally striking are the differences. Beri-beri, not seen in the West, and which used to be absent from Korea, has appeared among Koreans with the recent machine methods of preparing rice. Rheumatic fever I have never seen in Korea and, as might
have been expected, Chorea is also absent. The single case of that disease which I have seen was in a young girl suffering from a non-rheumatic septicemia. In spite of the prevalence of syphilis there is neither General Paralysis nor Tabes. It is interesting to note that General Paralysis is seen among the Japanese in Korea and though formerly absent in China, it and Tabes are now frequently seen in Peking. Delirium Tremens is another disease which I have not encountered in Korea. The strong spirituous liquors are less used than in the West. The single case of Disseminated Sclerosis in fifteen years that had come to my notice was in a European. Encephalitis Epidemica, which invaded Korea with the rest of the world some 15 years ago, has left its toll of tragically incapacitated victims. Our experience corresponding to that elsewhere, shows marked benefit derived from Hyoscine, so long as the drug is being taken. Relapse follows its discontinuance. Striking benefit has been noticed in the many cases of Epilepsy which are being treated with luminal and bromide.

During the year three cases of Distoma of the brain were treated in the clinic. In two cases the evidence was indubitable for the cases came to autopsy, and the Paragonimus westermani was found. Very strong presumptive evidence, including the finding of the fluke in the sputum, left very little doubt of the correctness of our diagnosis in the third.

We continue to have helpful co-operation with other departments, particularly with the Medical Department, which kindly carries out necessary basal metabolism tests, and with the Surgical Department.

Last year's report mentioned the increased leper problem in Seoul owing to the drift of lepers from the south. That drift still continues. During the year we moved for the establishment of a leper injection station, but were discouraged by the Hygiene Department of the Government General on the ground of the menace from the congregation of lepers in Seoul, which such a department might encourage. We rejoice that under the leadership of the Empress Dowager broad plans are being laid for the segregation of vagrant lepers. If only all medical men will co-operate in providing treatment for early cases of leprosy, we may look for a great advance at no distant time towards the goal of the eradication of leprosy from Japan and Korea.
The teaching of students continues to be an important, interesting and encouraging feature of our work. I would like to bear witness to the value to the Medical School as a whole of the chapel hour. I regard it as a cultural opportunity of great value. It has intellectual, musical, and spiritual values which the school may well prize.

In my neuro-anatomy lectures this year I used for the first time lantern slides donated to me from the Anatomy Department of the University of Melbourne. The slides were very valuable and I am deeply indebted to Professor Berry and Dr. Coates, through whose work and courtesy these slides came into my possession. Last year in view of the increased attention and interest of late devoted to the autonomic nervous system, I gave for the first time, a special course of lectures to the fourth year on that system and its diseases.

The majority of our cases are neuroses and psychoneuroses. There is very much neurasthenia and very little hysteria. An unusual case of the latter was that of a young man who, (appropriately enough, since hysteria is so much a histrionic achievement), was a moving picture actor. He became hystERICALLY deaf and dumb after the failure of a scenario on which he had been engaged and on which all his hopes had centered.

Some of the neurasthenia cases we find to be of sexual origin, but unless one is to extend the meaning of the word “sex” so that, as with Humpty Dumpty in “Alice in Wonderland,” words can mean anything we choose to make them mean, the greater part of neurasthenia, as we see it, is not of sexual etiology. So to affirm is of course to contradict the Freudian dictum and to lay oneself open to the charge of failing to comprehend the elements of the modern scientific interpretation of psycho-pathology. Our findings and the added evidence which comes from response to treatment based on these findings lend far more credence to the views of Dejerine and Adler in regard to the etiology of neurasthenia. To the Freudian it will appear a superficial interpretation; nevertheless it becomes impossible to disregard the value of pragmatic evidence; that evidence has come from the successful treatment of a type said by Freud to be of essentially sexual etiology, cases which further are said to allow of real cure only by the use of a psycho-analytic method which reveals the unconscious libido.
We claim to have seen cures, which appear radical and not mere temporary rehabilitations, by methods of approach and treatment which have not concerned themselves (where an etiology other than sexual was understood to be responsible) with sex factors.

It is fair both to ourselves and to the Freudian to say that our eyes have not been closed to the fact of sex in the etiology of disease. The clinic has given some striking evidence of the fact that Freud speaks truth when he teaches that a specific (if perhaps not the only) cause of anxiety neurosis is a special sort of sexual malpractice.

Adler has said that there are three inescapable questions—sex, work and friendship—which life asks of every man. Failure and despair in failure, concerning these questions are, according to Adler, the essential factors in neurasthenia and the psychoses. The cure of neurasthenia is to be sought and found in the bringing to the patient a theory and philosophy of life dynamic enough to carry for him in his life and circumstance the practical solution of these or other unsolved problems which are pressing upon his soul. It is not easy. Faced with the stark facts of anxiety about livelihood, of the primitive urge of sex and its perversions, of a sense of national humiliation, of love betrayed or of degrading superstition, it becomes ten fold more difficult. It taxes human resources, and leaves one convinced that the thing is impossible........yet for faith we have been told all things are possible. But how?

In dealing with the problems of life we need all the resources of our treasury; "things both new and old." Especially we need the wisdom of the sages and of the masters in the supreme art of living.

We have been hypnotised, perhaps, by the fact of progress, amazing progress, in knowledge. But there can be no progress beyond perfection, in art.

The man on whom is pressing, in a very special way the political and social problems of the more than three hundred million people of India has said that he accepts the sacred literature of all the great religions as inspired. That belief of Gandhi's seems to me nearer to the truth than the cynicism which rejects them all as superstitions.
Even the very slender knowledge which I have of the great sayings of Confucius and Mencius have illumined me time and again in the midst of the perplexities of my practice. But most of all I turn and return to the words and teachings of Jesus Christ for I find them apposite and living. They are more; they prove themselves vitalising to the devitalised.

My chief interest in my clinic is increasingly leaning towards the psychiatric portion of the work. In spite of a certain innate pessimism, with which I entered my psychiatric practice, I have come to find it not only deeply interesting but highly encouraging. Encouragement is born, in medical practice, of some power to cure or to prevent occurrence or recurrence of disease. As in other branches of medicine, so in psychiatry, the doctor is faced, as a major problem, with the question of prognosis. What hope is there? What is to be the outcome? Will there be recurrence? Sir James MacKenzie has emphasised the importance and urgency of a sound medical opinion in these matters of prognosis. It is obvious that our opinion is to be formed in the light both of accumulated careful observations and experience of the natural course of the disease and also in light of the alterations (sometimes radical) which treatment may introduce into the situation. During the year I have been faced with the difficulties of this problem in a specially pointed and personal way.

A young man with whom I had been brought into close and intimate contact, succumbed to a grave psychosis. It showed the well marked mental disintegration characteristic of a severe schizophrenia. The outlook was very grave, but after some months the young man gradually began to recover. Later he returned to work and I had the opportunity of being in intimate contact with and in care of his mind for another period of some six months. An opening presented itself and I recomended him for a position which would ultimately carry with it grave responsibilities. I found that almost the whole weight not only of popular opinion but also of medical opinion was against me, and all the young man's hopes of a career were dashed to the ground. Bitter experience had driven home the lessons of the frequent aftermath from and liability to recurrence of mental disease.

It was only proper that the liability to recurrence in this particular case should be most seriously considered, for in one
of its aspects the case showed greater affinity to the milder but notoriously easily recurrent manic—depressive type of psychosis than the graver schizophrenic type which we felt compelled to diagnose. There was a history of a previous acute mental breakdown.

Under all the circumstances I could not quarrel with the opinion, almost I agreed with it, that to such an individual as this it would not be justifiable to commit increasing responsibilities.

Is there any hope of release from so despairing an outlook? To accept such a view and to abide by it is to bow to fate; and that in the last analysis is, I believe, not scientific but superstitious. Superstition is overwhelmed by blind fate; the scientific and Christian spirit holds to it that nature is understandable and controllable to good ends. In that faith we are constrained to strive for the cure of the immediate manifestations of mental disease; in that faith also we must press to the goal of eradication of the causes and roots of recurrence. Such a hope is neither fantastic nor unreasonable. The recurrence of malaria is inevitable if living foci of plasmodia remain in the body. Enough quinine to kill off all plasmodia prevents spontaneous recurrence. So it may yet be proved to be with mental disease.

"Canst thou not minister to a mind diseased,  
Pluck from the memory a rooted sorrow;  
Raze out the written troubles of the brain;  
And with some sweet oblivious antidote,  
Cleanse the stuffed bosom of that perilous stuff,  
Which weighs upon the heart?"

Nineteenth and early twentieth century medical thinking was characterized by a strong materialistic trend. In my own thinking and experience I have felt the pressure of that interpretation of the phenomena of life. But a new day has dawned. Medicine will always remain indebted, and let us be quick to acknowledge it, to those pioneers of last century's neurology who demonstrated the undeniable relation between mental process and the physiological activities of special parts of the brain. But that distinguished German psychiatrist, Professor Jaspers, of Heidelberg was surely not ignorant of the fact of cerebral localization when he described the attempt to interpret the phenomena of the biogenic psychoses in terms of cerebral physiology as, based on "brain mythology."
Physicists had long been seeking the fourth dimension of which the mathematical prophets had spoken. They found it, and that quite simply, in the Time-Space Continuum of Minkowski's four dimensional universe. So I believe it is with medical practice. The first dimension is material (physical, chemical). We use it often. The second is physiological. It is concerned with facts of growth, immunity, reproduction. These are new facts and nonexistent in the strictly physical plane. Till recently, orthodox medical practice has confined itself to these two dimensions. Our generation has witnessed the already commonly accepted use of the psychological or "soul" dimension. For this medicine owes a great debt to such men as Freud, Adler, Dejerine, Bleuler, and others, for they have restored to scientific medicine that which has had age long recognition in the experience of humanity, "soul" injury as a factor in disease.

As simple and obvious as the fourth dimension, when recognized, proved to be in the physical sphere, so simple and universal is the fourth dimension in medical practice. It is the spiritual: and in that dimension, I have come to believe, are we to find the cause and the cure of the biogenic psychoses. To put it very simply, a dog may die of "soul"—(in the psychological meaning of the term) injury, from sorrow at his master's death, but a dog knows nothing of God. God who "is spirit."

It is of course recognised that there are certain diseases (General Paralysis of the Insane is a good example) where mental deterioration proceeds pari passu with pathological changes in the cerebral cortex. The converse is also true and as Wagner von Jauregg has so spectacularly demonstrated with his malarial treatment of this disease, a removal of the cerebral cell infiltration restores mentality to patients who had fallen into an almost vegetative state of existence.

But the essential insanities, or the biogenic psychoses as they are technically called, present a different picture both in their course and in the very slight degree of nerve cell change demonstrable in such cases. It is true that Sir Frederic Mott has demonstrated certain endocrine and nerve cell changes in one important group of the biogenic psychoses—Dementia Precox, or Schizophrenia. On the other hand certain clinical facts make it difficult to fit these findings into a general causal
relationship with the disease. The remarkable spontaneous recoveries which sometimes occur in these cases, even after long periods of stupor, do not correspond with the mental happenings found to be associated with organic brain cell changes. I am not entitled to speak as a pathologist, but cannot but attach weight to the suggestion that the changes described by Sir Frederic Mott, as occurring in certain cases, are terminal and resultant, not, as some have claimed, primary and causal. If one starts the investigation into the cause of mental disease, firm in a materialistic philosophy, and with the a priori assumption that all mental disease must have pathological brain cell change as the essential etiological factor, then it is probable that conclusions will accord with the a priori assumptions. Not mere speculation, but a growing experience, leads me to emphasise this fourth dimension as the crucial fact in psychiatry. Of Lady Macbeth, Shakespeare says, “She has more need of the divine than of the physician,” and a greater than Shakespeare with strange prescience said, speaking of the treatment of a case of dementia with epilepsy, “This sort (the logical inference is that other sorts may yield to other methods) cometh not forth but by prayer”—and prayer is the characteristic mark of the spiritual. In treatment I have sought to discover and deal with the strange spiritual turmoil which in persons, some of them quite good and nice, some of them quite bad, I find to be at the heart of these cases.

My experience to date in the treatment of Dementia Praecox and other Psychoses along the line of the conscious recognition and acceptance of this spiritual principle has been all too small, but it has been strangely encouraging. My interpretation of the fundamental cause and treatment of such cases I might summarise thus.

They are persons who have become essentially dis-spirited, dys-spirited, evil-spirited, above all it is necessary for these patients that they be en-spirited, well-spirited, Holy-Spirited.

In treating them it is necessary to discover and to reveal those preconceptions about life which are in fact misconceptions about reality. Thus it is possible for the patient to begin to obey the Socratic injunction “Know thyself.”

More, it is necessary to help him to eradicate from the core of his being roots of pride or lust or infidelity or fear, which
are the fundamental causes of the disintegration of his personality.

To explain a psychoses by saying that the patient has "an evil spirit" is—I come to think—so plainly obvious that to say so may be a tautology, but to think so, (unless one thinks of the things of the spirit, superstitiously, corporeally, materialistically) is not—I have come to believe—a superstition.

In the year to come it is my hope and purpose to continue in effort and experiment along the lines here indicated.

PERFORATION OF GALL-BLADDER IN TYPHOID

Report of A Case

M. S. Tongs, B.S., M.D., Huchow General Hospital.

It has been well recognized that inflammation of the gall-bladder is one of the complications or sequelae of typhoid, but perforation of the same is very rare.

Armstrong says that perforation of the gall-bladder in typhoid is a rare, but exceedingly fatal complication. He collected 36 cases: In 1898 Keen reported 30 cases. In 1903 Erdmann reported 4 cases. In 1904 Willis reported 1 case. In 1907 Killini reported 1 case in which the perforation of the gall-bladder occurred coincidentally with that of ileum. Of the 36 cases 6 were operated on with 5 deaths. None recovered without operation. He further states that the perforation of the gall-bladder in typhoid may occur independently of gall-stones as in the 36 cases stones were present in 8 and absent in 17.

Thomas is of the opinion that the perforation of the gall-bladder in typhoid stands secondary in importance and frequency to intestinal perforation. He reported 39 cases of the perforation of the gall-bladder out of 154 cases of cholecystitis in typhoid. Of the 39 cases, 11 were operated on with a mortality of 54.6 per cent and the cases without surgical interference were
Perforation of Gall-Bladder in Typhoid

of all fatal. Of the operated cases, only 3 had the presence of stones.

Ashhurst reported a case of perforation of the gall-bladder in typhoid and it was found that the gall-bladder had a large perforation with local suppurative peritonitis. Cholecystectomy was performed on the forty-second day of illness and patient recovered.

Case Report—History No. 24910, Mrs. S., aged 39, was admitted to the hospital, March 21, 1931. Patient had been ill for about 2 months and her physician said that she was suffering from typhoid. During the course of illness, she occasionally had distress and fullness in epigastrium. About 4 days prior to admission, she was suddenly seized with an excruciating pain in the right hypochondrium, radiating upwards to the right shoulder. It was of a steady type, and so severe that she constantly doubled herself up in an attempt to relieve it. The onset of pain was also associated with development of generalised jaundice, which lasted for only 2 days. On admission the pain, as patient stated, had subsided a good deal since she left home to come to the hospital. Since the beginning of illness, she had lost a good deal of weight, her appetite had become much impaired; bowels were constipated. There was nothing in her past or family history that had any bearing on her present illness.

On admission patient was very septic and extremely emaciated. T. 99, P. 140, R. 30. Her tongue was moist but heavily coated. The sclera of both eyes were greenish-yellow but the skin had no marked discoloration. Palpation revealed only a slight resistance in the gall-bladder region, but a definite tenderness in the area to the right of and about on level with the umbilicus. On the following day, the pain in the right hypochondrium almost entirely subsided and she felt much easier. But the tenderness to right of umbilicus as described above still remained. Temperature and pulse showed no change. In the meantime we had carefully studied the case. On the second morning in the hospital there was a mass with a diameter of 2½ inches seen in the region where the tenderness was found. The spleen was palpable—about 2 inches below the left costal margin. Laboratory Findings:

Blood:

Leucocytes count—10,400.
Differential count—Neutrophiles, 92% 
Small lymphocytes, 2%.
Erythrocytes—3,066,000.
Haemoglobin—51%.
Coagulation time—6½ minutes.
Widal test was positive, having a titre of 1-1280.
Wassermann and Kahn were both negative.
Van den Bergh direct test was positive.
Blood Chemistry:

\[
\begin{align*}
\text{CO}_2 \text{ combining power} & \quad 40 \text{ Vol.}\% \\
\text{N. P. N.} & \quad 40 \text{ mgs.} \\
\text{Urea-N.} & \quad 19 \text{ "} \\
\text{Creatinine} & \quad 1.9 \text{ "} \\
\text{Uric acid} & \quad 3 \text{ "} \\
\text{Chlorides} & \quad 467 \text{ "} \\
\text{Sugar} & \quad 100 \text{ "} \\
\text{Cholesterol} & \quad 150 \text{ "} \\
\text{Bilirubin} & \quad 5 \text{ units.}
\end{align*}
\]

Urinary Analysis:

Acid reaction, Sp. gr. 1020, Albumin, .01%. 
A few pus cells.

Bacteriological findings:

The culture of abdominal fluid obtained at operation showed pure culture of Bacillus typhosus and the stool also showed the presence of same organism.

Operation—On March 23, 1931, after permission for operation was secured, an exploratory laparotomy was performed under ether anaesthesia. An incision about 2½ inches long was made over the most prominent part of the tender mass, and immediately after the peritoneum was incised, a greenish-yellow fluid gushed out, at first being fairly clear and then thick and dark. The incision was then extended upwards to the right costal margin and it was found that the general abdominal cavity was entirely walled off. In the renal impression of liver there was an irregular, grayish patch of the size of an orange firmly adherent. No definite structure of gall-bladder could be identified and no stone was found. A rubber drainage tube was placed under the ventral surface of liver and the abdominal wound was closed.

March 24. T. 103, P. 146, R. 25. Patient's general condition showed no improvement. The abdomen was soft and not distended. There was a good deal of purulent discharge from tube. Greenish-yellow discoloration of both eyes entirely disappeared. Patient complained of much pain in the right loin.

March 25. Temperature came down to 101 and general condition showed some improvement. There was a moderate degree of abdominal distension, but patient complained of nothing. Leucocyte count was 8,900.

March 27. Temperature was normal and there was less discharge. Abdominal distension subsided.

March 29. T. 100, P. 100, R. 25. The abdominal discharge was now mucopurulent and much more in amount. Patient complained of sore throat but throat examination revealed only a slight congestion.
Perforation of Gall-Bladder in Typhoid

April 1. The superficial stitches were removed. The discharge was less purulent.

April 5. General condition much improved. During last 24 hours there was only about 2 drams of discharge. The rubber drainage tube was displaced by rubber tissue.

April 10. General condition good, rubber tissue removed, abdominal wound very clean.

April 15. The operative wound is entirely healed. Patient sitting up in bed. Appetite has been fairly good for last few days.

May 4. Patient discharged as cured.

DISCUSSION

Distress and fullness in epigastrium, excruciating pain in the right hypochondrium, generalised jaundice and positive Widal test constitute the whole of our positive evidence pointing toward typhoid cholecystitis. The sudden onset of pain with jaundice naturally leads us to believe that the jaundice is of an obstructive type. This is further supported by a positive direct Van den Bergh reaction. If this premise were valid, what would be the actual cause of obstruction? First of all, it occurs to one's mind that the obstruction might be caused by lodgement of a stone in the common bile duct, being a single stone that soon passed out of the ampulla of Vater. Secondly, it is possible that the common bile duct might be obstructed by an inflammatory process extending down from the cystic duct; for Thomas says that jaundice is never present in acute catarrhal cholecystitis unless there is a catarrhal extension down the cystic duct, affecting the mucosa of the common bile duct. Thirdly, it may be that the sudden onset of pain with jaundice was due to the obstruction of the common bile duct by plugs of mucus or debris as Orchesner and Percy comment on the fact that mucus or debris may clog the common bile duct, and thus form the obstruction necessary to make the infective material effective. In view of the clinical evidence, the last theory seems to be more reasonable because the patient never had any symptoms of cholecystitis or cholelithiasis prior to the present illness. Obstruction by an inflammatory process should be a slow development, the sudden onset of pain with jaundice would therefore seem to eliminate this possibility.

The next question to be considered is when the perforation of gall-bladder in this case occurred. Thomas says that perforation of gall-bladder is usually signified by a sudden onset of
abdominal pain with signs of peritonitis. Does the onset of pain in this case mean only an obstruction of the common bile duct, or does it indicate the perforation of gall-bladder at the same time? In a careful analysis of the clinical and operative findings, it is most likely that the gall-bladder was perforated on patient's way to the hospital as she stated that the pain had subsided a good deal since she left home on way to the hospital. The subsidence of pain simply means a sudden release of tension in the gall-bladder after its perforation. The pain that persisted even after the jaundice was disappearing is probably due to a constant intracystic tension.

According to the operative findings, the inflammation of the gall-bladder in this case was of a gangrenous type and its perforation was probably brought on by an increase of intracystic tension associated with sloughing.

The location of the tender mass led us to think of either an appendiceal abscess—as acute cholecystitis and appendicitis are quite often associated—or a markedly distended gall-bladder being displaced by adhesions. Perforation of the gall-bladder with the accumulation of bile in that region was not thought of.

Last of all, I would like to call attention to the fact that in a case of typhoid, an internist should always be alert for any symptom of acute cholecystitis that may arise, and that he should not wait for any complaint of the patient to attract his attention to the gall-bladder. Lothrop says that the symptoms of cholecystitis in typhoid may be masked by the condition of the patient, many mild cases being overlooked. Mason states: "Inflammation may reach such a degree of severity that life is cut off without warning of the local danger. In more than half of the cases recorded either through latency of symptoms or on account of typhoidal stupor nothing unusual was observed, thus the gall-bladder may become distended or perforation may occur without detection." Since the mortality in perforation of the gall-bladder in typhoid is so high, as recorded in the literature, an early diagnosis means life saving.

SUMMARY

1. A case of perforation of the gall-bladder in typhoid with a brief review of the available literature is reported.
2. An exploratory laparotomy was performed and patient recovered.

3. The perforation of the gall-bladder in the case presented here was probably brought on by an increase of intracystic tension associated with sloughing.

4. The jaundice in this case might be of an obstructive type, probably due to the obstruction of the common bile duct by plugs of mucus or debris.

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EXPERIMENTAL STUDIES ON FILTRABLE MICROBE OF SCARLET FEVER AND ON ACTIVATORS IN RELATION TO HEMOLYTIC STREPTOCOCCI.

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The Government Isolation Hospital, Dairen, Manchuria.

(1) Can we contradict Di Cristina's theory concerning the filtrable microbe of scarlet fever?

In 1921, Di Cristina detected the specific filtrable coccus by Tarozzi-Noguchi's anaerobic culture of the blood of a scarlet fever patient and offered the filtrable microbe as the causative agent of scarlet fever.

In 1923, Caronia and Sindoni and the other Italian investigators also corroborated Cristina's theory by detecting the same microbe in various tissues of scarlet fever, mentioning the
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possession of a specific serological character, adding that it has both filtrable and non-filtrable phases in the course of its development. As regards the presence of the filtrable microbe in a scarlet fever patient, Vitteti confirmed its presence on the throat, while Ritossa did likewise in the urine, and Catteruccia in the cerebrospinal fluid. Sindoni and Piatelli conducted an active immunization with the culture of the microbe. De Villa stated that the skin test is possible by the use of the filtrate of culture.

Our experiments concerning the same theory were carried on entirely in accordance with the theory of the original author. We cultivated 5 c.c. each of the blood of 10 early stage patients infected with typical scarlet fever by use of the culture media of Tarozzi-Noguchi. Our observation extending over 4 weeks failed to reap such results as are claimed by Di Cristina although we noticed the same results in control culture and could detect a kindred body. Again, the re-examinations by Buergers and S. Meyer of Germany and by Takaki and Toda all resulted in refutation of the same theory. S. Meyer (German) called Sindoni from Rome and conjointly conducted experiments thereon with the culture media brought by Sindoni from Rome. They declare that the kindred body is detected, but observe that the same body is also present in the culture of the blood of a healthy person no less than in the culture of scarlatinal materials, and that the application of this culture to a rabbit failed to cause any special illness. A cutaneous injection thereof also gave a negative result, showing no specificity.

Again, the same culture displayed no antigenic power, failing to give an active immunity.

All the above results contradict Di Cristina's theory. Quite interesting features as regards Di Cristina's report are that the results of the skin test or the active immunization conducted by Italian investigators with the culture of Di Cristina's microbe (Caronia's vaccine) exactly coincided with those gained by the Dick test or the active immunization conducted with Dick toxin, and further that the same result can be had by the active immunization with Caronia's vaccine in turning the positive skin reaction into negative at the retest, the same as after the immunization by means of Dick toxin. Lately, we have read of reports in which scarlet fever streptococci are made out to appear
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sometimes in a filtrable form. Such reports have been published by Casagrandi who filtered the material of a scarlet fever patient with Berkefeld filter W. Urbain observes that, out of 18 strains of suppurative cocci which were filtered with Chamberland Ls 4 strains came out positive, showing the cocci in a filtrable form which turned into the typical non-filtrable cocci on being subjected to repeated cultures. Hauduroy, Paul and Lesbre reported that the gram negative cocci which came out through the filter assumed the standard form of streptococci by repeated cultures. Palante and Raschkowska also issued their reports. Especially Raschkowska stated that, when (a) 16 laboratory strains of streptococci, (b) 18 strains of scarlatinal streptococci, and (c) 16 strains recently isolated from the throat of a scarlet fever patient in early stage were filtered with Berkefeld filter N. Among the groups (a) and (b), such strains as were capable of passing through the filter were only few in number, but the majority of the streptococcus strains of group (c) were found capable of passing through the filter, that is, to the extent of 71%.

By cultivating the filtrate for 2-4 days in 10% ascites bouillon, streptococci could be obtained, and by repeating the culture, all the filtrability is claimed to have been lost.

We also carried on repeated experiments, but failed to discover anything in the ascites bouillon cultures of the filtrates obtained by means of Chamberland L or Berkefeld filter W from 3 kinds of material, namely, emulsions from the throat swabs of scarlet fever patients of early stage, bouillon cultures of the emulsions and 3 strains of scarlatinal streptococcus of the first culture generation isolated from scarlet fever cases at an early stage. However, when we remember that there are some specialists who affirm the presence of a filtrable phase in the course of development of hemolytic streptococci, and also that the process of Italian investigations gives the same results as are produced by the Dick toxin, some relation between the two is suspected, especially since, as stated by Raschkowska, some advocates have suggested that the filtrable form of streptococcus might accidentally be confounded with the filtrable microbes above mentioned. We should like to add in this connection that all the above theories are only guess work.
Is any other factor than streptococci wanted for the etiology of scarlet fever?

From the experiments conducted by Dick, Nicolle, Conseil and Durand besides our own experiments, all demonstrating that scarlet fever can be caused in a human body by means of the scarlet fever streptococcus itself, the fact that streptococci constitute the etiological factor of scarlet fever is established beyond question. The chief reason held by people who entertain a doubt as to Dick's theory is that streptococci are detectable in various other diseases, especially such as have no infective power.

Why streptococci should sometimes become the causative agent of scarlet fever possessed of a remarkable infective power is an enigma difficult of solution. It should not be wondered that there appear some specialists who advocate the presence of some activator, like Zlatogoroff of Russia and Mandelbaum of Germany.

(a) Zlatogoroff advocates the existence of a filtrable microbe for the activator. He says that, when the throat swab emulsion of an early stage patient is shaken for 1-2 hours and filtered with Chamberland L5 and cultivated for about a week in Tarozzi-Noguchi's culture media, 2 kinds of microbe will appear in the cloudiness appearing at the bottom of the test tube.

One of them is a body of 0.05-0.01 micron which is regarded as a product of autolysis of medium, and the other one of 0.1-0.15 micron is a microbe that dies at 60°C in half an hour. When this culture is applied to a rabbit by intravenous injection, it will become feverish on the first or second day and again about the eighth day.

The blood picture in the same rabbit is claimed to resemble that of scarlet fever besides showing hyperaemia of the skin.

Further, Zlatogoroff holds the opinion that the filtrable microbe is attached parasitically to the hemolytic streptococci of the throat of an early stage patient, and also that while the first culture of scarlet fever streptococci is capable of causing scarlet fever artificially, any of the successive cultures is deprived of all such power. In order to prove this, he states that the first culture of hemolytic streptococci isolated from the throat of early stage patients was treated in the shaking apparatus for
two days, 3 hours each day, and was then treated with Chamber-
land L§ and that, when 22 c.c. of the filtrate was injected in a
monkey cutaneously and also on the throat, the monkey only
developed 39.3-39.9°C. on the 11th day (normal temperature
being not higher than 39.1°C.). It further showed a little
reddening over the eye-brows, on the extremities and throat,
which blanched in 3 days. He adds that a monkey was killed
3 weeks after the inoculation, and the culture of its blood showed
the microbe in anaerobic culture only. He further adds that
when the blood of the same monkey was intravenously injected
into a rabbit, desquamation was observed.

An interesting phenomenon observed by Zlatogoroff was
that, when either the streptococci in the throat swab after being
treated in the shaking apparatus for two days, and washed in
physiological salt solution or the bouillon culture of the washed
streptococci was applied cutaneously in a monkey, no effect
thereof at all appeared. It is difficult for us to comprehend how
one day’s shaking should have failed to free the microbe from
the streptococci, while two days shaking could secure the free-
dom. It is no less a riddle to us how the first generation of
culture should still retain the microbe in the streptococci.

Outstandingly, our experiments to infect a monkey, not only
with the throat swab, but also with the blood, the viscera, etc.
all ended in failure, there being not a single instance in which
the rash could be produced in the animal.

At all events, we repeated experiments in strict observance
of Zlatogoroff’s process. The only departure made by us was
that filter L§ of greater porosity than Chamberland L§ was used.
Again, the material employed by us was the throat swab
emulsion of three scarlet fever patients, who had not yet
developed the raspberry-like tongue (while the presence of the
hemolytic streptococci in the throat swab in a large quantity
was proved), which emulsion was put through the same treat-
ment and was cultured in the Tarozzi-Noguchi culture media.
This filtrate was applied cutaneously and on the throat to
monkeys and human beings alike, but all gave negative results,
failure to confirm Zlatogoroff’s theory after all.

However, seeing that, as remarked in the paper on “Experi-
mental Scarlet Fever by means of Streptococcus Hemolyticus
Scarlatinae," our experiments showed how, by using the scarlet fever streptococci of 3rd or 4th generation of culture, scarlet fever could be produced, it does not go to support Zlatogoroff's theory that any artificial infection is impossible after the first generation, unless we could accept the theory that the filtrable microbe can be retained till the third and fourth generations of culture, which hypothesis seems quite untenable.

In short, Zlatogoroff's theory has not yet been recognized by anyone outside Russia. Even among the Russian specialists, Raschkowska, for one, has pointed out to the advocates of the theory of the filtrable microbe the presence of hemolytic streptococcus in filtrable form. At all events, this question awaits confirmation by further investigators.

(b) Mandelbaum refers to the diphtheroid bacillus as the activator of streptococci. According to him, this bacillus differs from the diphtheria bacillus in its nature on the calf serum agar plate only. He has named it "scarlet fever bacteria." He goes on to say that it is often detected in people suffering from rhinitis hemorrhagica, angina, or diphtheroid change of the throat, and that scarlet fever is apt to break out in the surroundings of these people.

However, these bacteria, while always existing together with the streptococci, are hard to be detected at the acme of the scarlet fever progress or during the period in which the streptococci multiply most rapidly. On this account, at the acme of the scarlet fever progress, their lack of infective power is claimed. When infected with these bacteria, the streptococci multiply, and in case of their being feeble, angina or diphtheroid disease only is caused, without developing scarlet fever. Further, it is argued that, if after getting infected with these bacteria, anyone becomes doubly infected with the streptococci, the rash is claimed to be produced. While resistant power is generated against the second infection with the streptococci, it is further contended that the scarlet fever bacilli are checked and will disappear.

The examinations carried on by us concerning this report as regards the presence or absence of Mandelbaum's bacillus over altogether 23 patients on the first or the second day of the onset of scarlet fever and a number of contacts, have shown that
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no case of positive Mandelbaum's bacillus could be discovered. From last autumn to this spring, in the city of Dairen, diphtheria has claimed a larger number of victims than in any recent year, but as to scarlet fever, its victims have been the smallest number of any during the past 10 years. What value should be set upon these bacilli is still indefinite. Especially, seeing how Mandelbaum himself failed to cause scarlet fever in a human being with the scarlet fever bacilli isolated by himself, we cannot be too hasty in accepting his theory before some other investigators obtain like results.

To sum up, Zlatogoroff's filtrate microbe and Mandelbaum's diphtheroid bacillus, which have been counted as activators of the streptococci in causing scarlet fever must receive a general confirmation hereafter. In our opinion, whether or not we have to recognize theoretically the existence of the second causative agent of scarlet fever must first be settled. As to what factor produces a rapid change of the pathogenic character of the streptococci, the question remains a riddle difficult of solution, as already remarked, but like riddles are also found in the cases of other infectious diseases. For instance, menigococcus and diphtheria bacillus are known to remain long on the mucous membrane as non-pathogenic microbes, displaying their virulence suddenly when an opportunity presents itself. Friedemann remarks that, as long as the cause of the aggravation of the virulence in such circumstances remains a mystery, he should refrain from regarding any other microbe as activator, and also that, granting that the theories of Zlatogoroff and Mandelbaum have received a general approbation, he will still stand for the streptococcus theory because it would be hardly logical to accept the staphylococcus as the causative agent of tetanus, although the tetanus spores can never produce tetanus without the co-action of staphylococcus or some other factor. He then goes on: "If the cause of the scarlet fever should be a mixed one, the microbes concerned with infectious diseases would lose their pathogenic significance, and have nothing more than a conditional meaning."

What are generally considered as the causative agents refer to such microbes as cause some specific symptoms through their action. Since it is clear from our own experiments up to date that the symptoms of scarlet fever are caused by the actions of
the streptococcus and its toxin, it seems quite safe for us to
deduce that the streptococci are the cause of scarlet fever.

(c) Activator observed from variability of streptococci.

We have been able to prove both from clinical experience
and from experiments on an animal’s throat that many strepto­
cocci are found on the throat of a scarlet fever patient in early
stage, but that, as the disease progresses, they decrease in num­
ber to disappear finally. Still, we cannot yet say definitely
whether, with the progress of the disease, the α type of the
streptococci will increase. However, seeing how the β type of
the streptococci disappear in the end, it must certainly result
from either the death of the streptococci or the loss of their
hemolytic power.

According to the experiments conducted by Kobayashi, Mon­
ya and Satake and Kondo, the hemolytic streptococci change into
the α type of streptococci. In particular, Kondo and Satake
reported that they have been able to change the α type of strept­
occi into the β type of the cocci.

Therefore, we have been induced to recognize the intervari­
ability of the one with the other, and vice versa. Further, we
have become convinced that not only this intervariability but
also the artificial change of the α type of the streptococci credited
with less virulence into the virulent hemolytic streptococci
always occur without help of any other unknown microbe. From
the result of their experiments, we might infer that no help of
any other unknown microbe is needed for the intervariability of
streptococci.

(3) Scarlatiniform Rash Caused by Hemolytic Staphylococcus

Dr. Satake in our Hospital has been able to prove that, by
the muscular injection of the culture filtrate of the hemolytic
staphylococcus isolated from the submental lymphatic gland of
a scarlet fever patient, the scarlet fever like rash can be pro­
duced in a healthy person, and further that a positive skin reac­
tion can be caused 1:1000 as by Dick test with solution of the
toxin. The reports concerning scarlet fever like rash resulting
from the staphylococcus have been published by Dr. Kondo
(treating 1 case), Dr. Inaba25 (treating 3 cases) Nishikawa26
(treating 1 case) and Dr. Stevens27 (treating 1 case) in addition
to 3 cases treated by ourselves. All the cases were surgical scarlet fever and, in the majority of them, they were considered as the rash caused by the staphylococci contained in the skin or the suppurative foci of skin, lymphatic gland, etc.

Again, the rash has not seldom been found to have appeared in the skin near the local focus. There are 2 cases treated by Stevens in which the infection has been caused by the staphylococcus on the throat and not from a surgical focus. In our Hospital, too, we have noticed cases in which hemolytic staphylococcus colonies and hemolytic streptococcus colonies appeared together, but in the case in question the rash was produced by the hemolytic streptococcus. Generally speaking, any case diagnosed as originating from staphylococci on the throat calls for a more careful diagnosis. Of course, the attributing of the rash to the staphylococci must be made dependent upon the following conditions:

(a) No hemolytic streptococci are detectable either on the throat or in the localized focus.

(b) The rash does not blanch by application of streptococcus antitoxin, but will by applying staphylococcus antitoxin.

No sure results can be expected to be obtained, unless the staphylococci are obtained by puncture before the localized focus has been opened and are the only organisms present. Particularly, in the case of opened foci, the hemolytic streptococci will often be found to have disappeared, leaving staphylococci only, we have met with only 3 cases fulfilling the above mentioned conditions, although there are other cases in which the staphylococci have been isolated from the suppurating focus and a good number of hemolytic streptococci from the throat, and the rash has blanched by application of streptococcus antitoxin. Generally speaking, such cases are few, but it may be said that the scarlet fever like rash can be produced by means of the staphylococci, and also that the rash and the positive skin reaction can be produced experimentally with the staphylococcus toxin similarly to when the hemolytic streptococcus is used. However, clinically speaking, the rash that has been produced by staphylococcus toxin is considered to be distinguishable from the scarlatinal rash, which is finely dotted, by giving the appearance of a sun-burn or the diffusive reddening of the skin that often appears on a baby when it cries hard.
Since this rash does not blanch under the influence of hemolytic streptococcus antitoxin, it might be regarded as a rash of a different nature. Therefore, this will not affect the theory that almost all the cases of ordinary scarlet fever are caused by the hemolytic streptococcus.

However, making allowances for the far smaller number of cases caused by the staphylococcus than those of scarlet fever even the staphylococcus can really produce a kindred disease. But we still fail to recognize the necessity to plead our inability to explain away everything without making a reservation that there exist other unknown microbes as the cause of scarlet fever, because, as already stated, the hemolytic streptococcus that has passed 2 or 3 generations of culture can still produce scarlet fever experimentally.

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Classification of Diseases in Hospital Reports

I have not before had any experience in making up a Table of Diseases. When preparing for our Hospital Report for 1930, I looked over several different classifications and felt strongly that the one suggested by Dr. Maxwell had many advantages from the point of view of a small hospital. The tables in the St. Andrew's Hospital report for 1930 show the results of my efforts to use this classification. I did the work entirely alone and it is quite probable that some of the difficulties which I encountered might have been solved differently had I had anyone with whom to discuss them. The comments presented are entirely my own thoughts. They are not made in a spirit of criticism but rather in one of gratitude for I feel that the “Classification” has been of very great assistance to me. At the same time I did feel that certain changes might be introduced with advantage.

The most radical change that I would suggest is in regard to sections XVI and XVII. It seems to me that it would be an advantage to divide these into three sections “Urinary System,” “Genital System — Female” and “Genital System — Male.” There are few conditions of the urinary system in which the distinction between male and female is of primary importance and it is a very great disadvantage, for example, to have to look
in two places for the nephritides which are entirely parallel in the two sexes. There might be some conditions which could be equally apportioned to either system but they should not be many. The present arrangement certainly makes for unnecessary duplication and awkwardness among the urinary conditions. Another solution might be to have only one section, “Genito-Urinary” and under each subheading classify male and female separately.

In section II. b., it seems to me that “Gonorrhoea (except genital infections)” excludes almost everything except arthritis, fibrositis and ophthalmia. Such things as salpingitis and prostatitis are still “genital infections.” It would seem to me that it would be of considerable advantage to have all G. C. cases grouped in one place just as it undoubtedly is of advantage to have all forms of tuberculosis grouped together for comparison. I would suggest that under Gonorrhoea there be some such headings as “Acute—male,” “Acute—female,” “Chronic—male,” “Chronic—female” beneath which subheadings could be inserted as required e.g. Bartholinitis, endocervicitis, salpingitis. There would have to be another heading for “Extra-genital Infections” and “Ophthalmia.” There would even be some question in my mind as to whether an exception should not be made in the case of ophthalmia to place it under diseases of the eye, since it is so entirely an ophthalmological problem. The suggestion raises the difficulty of placing acute G.C. under the class of Sub-acute and Chronic Infections, one way of getting over this difficulty and still keeping all gonorrhoea in one group (though a clumsy one, I admit) would be to put a heading “Gonorrhoea” under II. a. with a note “see II. b.”

Mercury should be inserted in VII, among the other metallic poisons.

In VIII a. insert “Lens.”

I puzzled for some time as to where it was best to place Herniae and finally put them under IX. 16—“Alimentary System—Peritoneum.” If this is the best place for them, I think it would be worthwhile to print Hernia as a subheading in the classification.

Under XI., c, it would probably be worthwhile to insert “Adolescent Goitre.”
I was also puzzled to find a good place for Deep Abscesses and Abscesses of the Breast and finally placed them both in XII under "Muscular System and Deep Fascia." The Breast seems rather out of place here but the only other solution which I could think of would be to regard the breast as part of the Female Genital System and enter them there, but that did not appeal to me.

Postoperative Shock is probably of sufficient interest as a complication and cause of death to be inserted as a sub-heading under XIII "Nervous System."

I sincerely hope that the work of drawing up a Classification will be proceeded with and that a suitable one may be widely adopted and used throughout China. These comments have been made entirely from the point of view of a one-man hospital which must necessarily differ from that of a large departmentalized institution. However, a classification such as this is capable of limitless expansion through the introduction of subheadings. If the work of one department should be scattered throughout the table, this might be compensated for by each department drawing up in addition a very brief summary of main headings with the number of cases treated under each which would act as a guide to the fuller tables.

I would further like to make a note in regard to the use of the system of the classification of disease groups through the use of Initial Letters (C. M. J. Feb. 1930). Last year I made an attempt to use this system for outpatient history sheets. When entering the diagnosis on the sheet I made it my custom also to enter in the upper right corner the initials of the Disease Group. This was usually quickly and easily done but there were always some cases where an immediate diagnosis was difficult or where, in the rush, the initials were forgotten. About once a month I had the pile of sheets brought to me and ran over them entering the initials on those which had been missed. At the end of the year I had an assistant, who did not know English, sort all the history sheets into their respective groups. With this done the labor of entering the various cases into the classification was very much lessened. Though the two classifications are not the same, it was comparatively easy to transpose from one to the other.
COMPARATIVE VALUES OF TOXIN-ANTITOXIN MIXTURE, AND ANATOXIN (TOXOID) IN DIPHTHERIA IMMUNIZATION.

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Diphtheria is a common disease in Shanghai. Out of 1300 medical patients treated in one year (1930-31) in the Medical clinic of the Woosung Health Demonstration Station, 15 cases or 1.15% were found clinically and bacteriologically to be due to this infection. Among the deaths recorded in 1929 in the Chinese population of the International Settlement, 32 persons were the victims of this malady. Recently, we have reported that in a series of 1,698 Schick tests on the Chinese students in the City, 1,072 or 63.2% were positive reactors. This was considered a high percentage when compared with the figures from some other places. In order to prevent the disease as much as possible, in the fall of 1930 we began to undertake immunization work in our schools in Woosung and in the University of Shanghai. This paper deals briefly with our study of the comparative values of toxin-antitoxin mixture and anatoxin (toxoid) as tested out on our students.

1. Toxin-Antitoxin Mixture.

Following the first experiments in 1913 by Behring, and later by Park and Zingher, toxin-antitoxin has been extensively used in Germany and in the United States in the immunization of children against diphtheria. The mixture at first used was slightly underneutralized, and contained in each cubic centimeter 3 L + dose of toxin and 3.5 units of antitoxin. This preparation caused a certain amount of local irritation and constitutional disturbance in some persons. To lessen the reactions, a diluted mixture of toxin-antitoxin is now generally employed, and it contains only 0.1 L + dose of toxin per cubic centimeter. Antitoxin is usually produced in horses or better in goats. Three successive injections of one c.c. of the mixture should be given at weekly intervals either subcutaneously or intramuscularly at any part of the body where the subcutaneous tissue is abundant and loose. For children under one year, the dose may be reduced to 0.5 c.c.
Diphtheria Immunization

In the fall term of 1930, after the preliminary Schick tests, we had an opportunity to immunize 143 students with toxin-antitoxin, the material being produced and kindly sent to us by the National Epidemic Prevention Bureau, Peiping.

Reactions. As shown by Table 1, following the first injections of 1 c.c. of toxin-antitoxin, 18.1% of the 143 students showed more or less local reactions consisting of swelling, pain and tenderness at one about the site of inoculations; 6.2% gave histories of constitutional disturbance with headache, malaise and some fever. However, after the second and third doses, the local symptoms were reduced, and the general reactions gone. Children under ten years of age had very little local reaction, and practically no general symptoms. (see Table 2).

Immunity. From three months to one year after the third and last injections of 1 c.c. of toxin-antitoxin, 105 students came for the second Schick tests; and this time, 69 or 65.8% gave a negative reaction, indicating the immunity induced by the mixture (see Table 3).

II. Anatoxin or Toxoid.

In 1923, Ramon and his associates in France introduced a new preparation, known as anatoxin or toxoid, for active human immunization against diphtheria. It is made by adding to the toxin 0.3 to 0.4% formalin, and allowing the formalinized toxin to remain in an incubator at a temperature of 38° to 40° C. for one month. By this process, the toxicity of the toxin is completely destroyed, but its combining properties of antitoxin and its immunizing value for human beings and for animals are retained. It has been found that the anatoxin thus prepared may be injected, in enormous doses into animals which are particularly sensitive to diphtheric toxin, yet without producing any unfortunate reaction or results.

In the spring of 1931, Dr. C. L. Kao suggested using this new preparation for our immunization work, and he received a good supply of the vaccine directly from the Pasteur Institute of Paris. Since that time, we have tried it on about 406 Schick-positive persons in Woosung and in the University of Shanghai.
For complete immunization, the Institute recommended three injections: the first injection, 0.5 cc.; the second injection, 1 c.c. given three weeks after the first; and the third injection, 1.5 c.c. given two weeks after the second.

**Reactions.** As a result of the first injections of 0.5 c.c. of anatoxin, 48.3% of the 405 cases complained of local reactions; 13.8% had general disturbance (see Table 1). Quite a few adults experienced severe pain right after the inoculations. One case had temperature, 39.5°C. for one day. The reactions were probably due to the excessive amount of protein in anatoxin. However, children under five years of age were comparatively free from them (see Table 2).

On account of the unpleasant feelings, many adolescent and adult persons refused further injections; and, as a result, only a little more than 50% of this group of students came for second doses, and still fewer, for the third and last doses. Subsequent injections of anatoxin slightly reduced the number of general and local reactions (see Table 1).

**Immunity.** In spite of its marked reactions, anatoxin gave a very high immunity response. In a series of the 94 re-Schick tests done one week to three months after the two or three injections of this preparation, 86 or 91.5% became negative. The best results were obtained in children under five years of age. (see Table 3).

III. **Summary and Conclusions.**

In immunizing the Chinese students and children of preschool age in Shanghai against diphtheria with toxin-antitoxin mixture, and with anatoxin (toxoid), we have found the following:

1. Anatoxin produced more reactions, both local and general, in our students, particularly the adolescents and adults.

2. In inducing the immunity to diphtheria, as measured by the Schick test, we obtained much better results in the anatoxin group (91.5%) than in the toxin-antitoxin series (64.8%).

3. Anatoxin contains no serum or antitoxin, and therefore can not possibly sensitize an individual to subsequent injections of therapeutic serums.
Diphtheria Immunization

4. In view of the above findings, anatoxin is the preparation of choice for diphtheria immunization on children of pre-school age, while toxin-antitoxin still has its place in older children and adults.

Acknowledgement

For this investigation, the writer is much indebted to Director C. L. Kao, and the Nursing Staff of the Woosung Health Demonstration Station.

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TABLE 3. Re-Schick Tests following Diphtheria Immunization.

<table>
<thead>
<tr>
<th>Age</th>
<th>Anatoxin (Toxoid)</th>
<th>Toxin-Antitoxin Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. Tests</td>
<td>Pos.</td>
</tr>
<tr>
<td>1-5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>6-10</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>11-15</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>16-20</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>21-25</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Over 25</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Literature


ACRODYNIA

C. L. KAO, M.D., C.P.H.
Woosung Health Station, National Central University, Shanghai.

Definition

Acrodynia or erythredema is a subacute disease of unknown origin, found in infants and young children and characterized by erythema and edema of the extremities, increased perspiration, and marked mental and nervous disturbances.
Acrodynia

Past History

(1) *Synonyms:*—Acrodynea (Chardon, 1830); Pink Disease (Clubbe, ?); “Raw-Beef hands and feet” (Snowball, 1884); Erythredema (Swift, 1914). Neurosis of the Vegetative System in Children (Feer, 1922). Dermatopolyneuritis (Thursfield-Patterson, 1922). Erythredema polyneuritis (Thursfield-Greenfield, 1923); Swift-Feer’s Disease (Jenny, 1925) Swift’s Disease (Warthin, 1926).

(2) *Past History:*—With reference to the old Chinese medical classics, the chronic and subacute illnesses of infants and children were grouped under one main category known as “Kan Tsen” (肝瘟). Under which more than ten kinds of “Kan Tsen” were mentioned, such as “Diarrhea-kan” (瀉症), “Dysenteric-kan” (痢症), “Cardiac Kan” (心症), “Hepatic Kan” (肝症), and “Pulmonary Kan” (肺症), etc. Physicians in the old days certainly had very keen sense in making observations upon the clinical symptoms and noted even very minute points in recording various types of affections. Among so many “Kan-Tsen,” the “Hepatic Kan” is the only one which presents a picture simulating somewhat acrodynia. In the E-Chong-Ching Kan (醫宗金鑑) it is stated: “When the child suffers from “Hepatic Kan,” his face and nails are all pale. Eyes are apathetic, photophobic, with increased lacrimation. The patient is very restless, constantly shakes his head, picks his eyelids and sleeps with his face often covered. There may be discharge from ears, and eczema on the body. Abdomen is distended, the vessels on the abdominal wall are clearly visible. General condition presents a chronically sick and markedly emaciated child with great thirst and extreme irritability. The bowels are usually loose and the stools often green.” From this, it is seen that the symptoms of “Hepatic Kan” are marked by poor nutrition, hyperirritability, some photophobia, lacrimation and sometimes otorrhea and eczema. Most of these symptoms are quite characteristic of erythredema, but also present in other affections in children. The regular development of the course of the disease, the mild upper respiratory infection and the typical “raw beef hands and feet” are wanting in “Hepatic Kan.” Thus it leads us to believe that erythredema has never been recognized by the old type Chinese physicians. There is also lack of literature on this disease written by modern medical
men in China. The disease which has a world wide distribution can hardly be claimed to be absent in China; and most likely it has been confused with other diseases in childhood.

In Europe the disease was probably known prior to 1828, but was largely confused with others, especially pellagra. It appeared in epidemic form in Paris between 1828-1830, during which a careful study of it was made by a group of notable French physicians. As a result of their study, the disease was definitely separated from pellagra and its clinic entity was established. Chardon then gave the name “acrodynea.” That so called “Paris Epidemic” began in June, 1828, and lasted to the winter of 1830 during which from 40,000-50,000 people were involved. Since then acrodynia has been reported from time to time in various countries in Europe and also from the West Indies. There were 510 cases reported in Kingston, Jamaica, in 1888.

Acrodynia means painful extremities followed by atrophy, paralysis and, in severe cases, death, as a result of arsenic poisoning or ergotism. During the French epidemic, it was chiefly a disease of adults, specially prevalent in the camps. Its cause was ascribed by the later authors to arsenic in the wine or other toxin in the food. Such an epidemic of toxic origin occurred in England in 1900 among beer drinkers. It was an intoxication among the general population, but not a disease particular to children.

(3) Recognition of the disease:—In 1914, Swift of Australia reported 14 cases known as erythredema, and he is the first one who drew special attention to this condition. The disease was not definitely recognized in America and England, until 1920 when Patrick of Portland sent a description of his case to Morse in Boston for his advice and diagnosis. The latter sent the description to Weston of Raleigh, who is one of the pellagra experts in the United States and he concluded that the disease was not pellagra. Then Sandwith of London suggested to Weston its possible resemblance to acrodynia as occurring during the French epidemic in 1828. Weston adopted that name, acrodynia, and reported Patrick’s cases to the American Medical Conference in 1920.
The disease seems to have been under observation by Feer in Europe as early as 1911, but the author first described it as "Eine eigenartige Neurose des Vegetaliven System beim Kleinkinde" in 1922.

Natural History

(1) Prevalence and distribution:—The disease is claimed to have existed in Australia in the last 40 years, known as "Raw-beef hands and feet" and Pink Disease. After Swift's report in 1914, it was soon found that the disease is not uncommon in that part of the world: from 1917-1920, Wood and Cole observed 96 cases and Sweet in Sydney obtained 30 cases in 1924-1925.

In the United States since 1920, sporadic cases have been encountered by various authors from different parts of the country, but it is found chiefly in the Mississippi valleys and on the Pacific coast. There are already more than 150 cases observed among children and 2 cases of adults which were reported by White in 1926.

In England, Garrod seemed to notice its presence before 1914, several definite cases have been reported by Thursfield, Greenfield, and Patterson since 1920. It is also claimed to have been present in Canada in the past 30 years.

In continental Europe, Feer and Jenny were successful in finding 63 cases in Germany, Switzerland and Austria. In the last five years, sporadic cases of infantile acrodynia have been reported by several French clinicians. Pêhu and Ardission mentioned 6 new cases in 1927. Holland had the first case reported by Frank in 1925. It has also been found in the Netherlands, Sweden, and Poland. Erythredema has, therefore, a world wide distribution and occurs in sporadic form both in cold and warm countries. It may be also present in China and its recognition will depend upon the clinicians, especially the pediatricians paying special attention to looking for its presence during their daily practice.

Vital Statistics

(1) Case fatality:—The morbidity and mortality of the disease is not known at present. The disease has been claimed
to be a self-limited one and its case fatality was found invariably low. It is about 5-6%.

Acrodynia per se is rarely fatal; death usually results from the complications. Nineteen deaths in records are collected in the following table. It shows that 90% (17 cases) were due to the complications and 63% (12 cases) due to bronchopneumonia. Only 2 cases which died from sudden cardiac failure were ascribed to the disease itself.

Deaths from Acrodynia

<table>
<thead>
<tr>
<th>Causes</th>
<th>No. of cases</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudden heart failure</td>
<td>1</td>
<td>Swift.</td>
</tr>
<tr>
<td>Bronchopneumonia</td>
<td>2</td>
<td>Warthin.</td>
</tr>
<tr>
<td>Sudden heart failure</td>
<td>1</td>
<td>Wood &amp; Cole.</td>
</tr>
<tr>
<td>Septicemia</td>
<td>1</td>
<td>Zarhorsky.</td>
</tr>
<tr>
<td>Acute intussusception</td>
<td>1</td>
<td>Thursfield &amp; Patterson.</td>
</tr>
<tr>
<td>Bronchopneumonia</td>
<td>5</td>
<td>Wood &amp; Cole.</td>
</tr>
<tr>
<td>Bronchopneumonia</td>
<td>2</td>
<td>Byfield.</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>1</td>
<td>Byfield.</td>
</tr>
<tr>
<td>Deep phlegmon</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>1</td>
<td>Patterson &amp; Greenfield.</td>
</tr>
<tr>
<td>Bronchopneumonia</td>
<td>2</td>
<td>Brown.</td>
</tr>
<tr>
<td>Bronchopneumonia</td>
<td>1</td>
<td>Kernohen-Kennedy.</td>
</tr>
</tbody>
</table>

Total .......................... 19

Acrodynia

(1) Incubation Period:—It is still unknown. However, several French observers (Debre, Robert, and Petot), Feer, and Jenny in Switzerland and Germany and Wood in Australia observed that a period of 4-5 weeks elapsed before the onset of the typical skin symptoms.

(2) Etiology:—The causative agent of the disease is unknown.

Diet:—Acrodynia has been ascribed to faults in diet or lack of vitamin. But Rodda in the United States found the diet in 17 cases all good. Wood investigated particularly in this matter in his recent 50 cases and stated that 30 cases were being breast-fed when the symptoms commenced; all the mothers and the rest of the infants had lived in good conditions and had adequate diets.
Poisons:—Poison contaminating food as in the French epidemic has been suspected, but no definite evidence has been obtained. The urine and feces and even the blood of the patients gave negative findings in this respect.

Toxins:—Certain toxins of unknown nature may be originated in the alimentary canal and cause the disease. Such an assumption seems far from likely.

Virus or specific infection:—Recently, the disease is regarded especially in Europe to be due to a kind of virus resembling that of encephalitis lethargica or a specific infection which affects the nervous system. Shugg in Australia observed lately two cases in the same family, which occurred almost simultaneously and one of them had had one attack before. It may suggest infectious nature. However, its real cause entirely depends upon future investigation.

Communicability:—The disease seems neither contagious nor communicable. Wood found in 116 cases one instance of 2 cases occurring in one family.

Seasonal incidence:—The reports are divergent on this point. Butler stated that the disease usually beings in spring, lasting until the fall or winter, Feer and Jenny found the highest incidence between December and April, Rodda found more cases in the fall. Swift, Wood, Cole, Weston and others failed to see any seasonal factor.

Age Incidence:—The disease is almost limited to late infancy and early childhood, although White has recently reported 2 cases of adults aged 35 and 52 respectively. The data collected from various authors shows the age incidence clearly.

<table>
<thead>
<tr>
<th>Age</th>
<th>No. of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 mos.</td>
<td>4</td>
<td>1.7</td>
</tr>
<tr>
<td>7-12</td>
<td>74</td>
<td>31.0</td>
</tr>
<tr>
<td>1-2 years</td>
<td>111</td>
<td>47.0</td>
</tr>
<tr>
<td>2-3</td>
<td>28</td>
<td>12.0</td>
</tr>
<tr>
<td>3-4</td>
<td>13</td>
<td>5.4</td>
</tr>
<tr>
<td>4-5</td>
<td>2</td>
<td>0.8</td>
</tr>
<tr>
<td>5-6</td>
<td>3</td>
<td>1.3</td>
</tr>
<tr>
<td>6-7</td>
<td>2</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>237</td>
<td>100.0</td>
</tr>
</tbody>
</table>
A total of 237 cases is collected; 31% occurred in the later 6 months of first year, 47% in the second year and 12% in the third year of age; 78% are found under 2 years and 96% under 5 years.

Sex: Feer and Jenny claimed that the disease is 2 to 3 times more frequent in girls, while the Australian and American authors stated there was no predilection in sex. The data available for this study are given as follows:

<table>
<thead>
<tr>
<th>Age Incidence</th>
<th>Male</th>
<th>Female</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month</td>
<td>0</td>
<td>0</td>
<td>Wood and Cole</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>Warthin</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4</td>
<td>Leenhardt</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>3</td>
<td>Sweet</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>7</td>
<td>Rodda</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>White</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>Shugg</td>
</tr>
</tbody>
</table>

The above figures show a slight predominance in boys.

Other social factors such as habits, clothing, housing, economic status, etc. bear little relation to the disease, so far as the present knowledge of it is concerned.

(3) Symptoms:—The disease usually sets in gradually with a mild upper respiratory infection, or with mild diarrhea and abdominal pain or occasionally with fatigue and muscular weakness. Rarely it starts acutely. At the beginning it seldom attracts the mother's attention and in a course of 2 to 4 weeks, the picture fully develops and presents three groups of the symptoms which occur in varying degrees and combinations.

(1) General and gastrointestinal:—Anorexia, loss of weight, muscular weakness, perspiration, and occasionally loss of teeth.
Acrodynia

(2) Neurologic:—Hyperirritability, photophobia, insomnia, generalized itching, loss of reflex, and burning and prickling in the hands and feet.

(3) Skin:—Two types of lesion have been observed. These lesions are most characteristic.

(a) General—a diffuse erythema (miliaria) over the entire body, often preceded by a profuse sweating.

(b) Local—Characteristic “raw-beef hands and feet” marked by erythema, swelling, cyanosis, coldness, sweating and followed by desquamation and much less frequently ulceration. Erythema usually also appears on both cheeks, tip of the nose, or ears and thus completes the picture of pink disease.

Temperature remains normal in absence of complications. A moderate leukocytosis is usually present. Urine and feces show nothing characteristic.

The course of the disease runs from 2 or 3 months to 6 months. It occasionally lasts more than 1 year.

(4) Complications and Sequelae: The disease usually ends in recovery which is evidenced first by return of sleep at night and regular gain in weight. The recovery is usually complete and it gives no sequelae. Complications are not uncommon, 90% of the deaths are due to the complications, broncho-pneumonia being responsible for 63%.

(5) Diagnosis:—Diagnosis presents no difficulty when the disease is well developed. Any child with constant fretfulness, refusal of food, disturbed sleep, marked perspiration, photophobia and general bodily itching, should have this possibility seriously considered.

(6) Pathology:—There are only a few cases under Autopsy. The results of these cases may be briefly stated as follows:

1. Degenerative changes of central and peripheral nervous system, especially in the grey matter of the middle brain, medulla oblongata and basal nuclei.

2. Chromatolysis in spinal cord, especially in the anterior horns.
3. Meninges are congested, but no lesions in cerebral cortex or cerebellum found.

4. General hyperplasia of lymphatic tissue, thyroid and adrenals.

5. Hypertrophy of the epidermis and sweat glands.

(7) Treatment and Prevention:—There is no specific treatment at present. Those who believe in a dietary cause suggest giving yeast, or potato with its skin, or banana, while others have obtained a good result from ultraviolet light. Tonsillectomy and autovaccination have been mentioned by some authors.

When the disease has developed, care should be taken to prevent complications, particularly bronchopneumonia.

Summary

1. Acrodynia or erythredema once recognized is not an uncommon disease occurring in late infancy and early childhood.

2. It effects the most important period of human life; its long duration of miserable suffering retards the growth and development of a child, lowers the resistance against general infection and predisposes the child to bronchopneumonia.

3. The disease has world wide distribution with a marked age predilection, but unrelated to sex, climate, or social relations. Further investigation will throw more light upon its real causation.

4. The clinicians in China should look for its presence during their daily practice.
Clinical Notes

AMOEBIASIS OF THE LUNGS*

Dr. I. T. Hsu

P. F. Bresee Memorial Hospital, Ta Ming Fu, Hopei.

This spring we discovered Amoeba in the sputum of four patients in our wards.

The general appearance and common symptoms of the four are as follows:—

No. 1 had a cough with spitting of blood. He had a yellow cast of face, weakened and emaciated, and with shortness of breath.

No. 2 also had cough with expectoration of blood and shortness of breath but was fairly strong.

No. 3 had a cough with expectoration of bloody sputum. He had not lost weight; but was suffering from weakness.

No. 4 had cough with expectoration of sputum but no blood. He suffered from shortness of breath and weakness.

The impression from the above was that of tuberculosis, but repeated examinations for tubercle bacilli were negative. On the other hand many amoebae were found in the sputum of these cases, and it was noted that the amoebae contained many red blood cells. On this finding the diagnosis of amoebiasis was made. The color of the sputum in each case was of a peculiar pink and the odor was offensive. The character of the sputum

*We publish this for the interest of the cases described in the paper but the title Amoebiasis of Lung is hardly a correct one. It is evident that three of the cases and probably the fourth were those of liver abscess leaking into the lung. The term amoebiasis of lung should only be used where there is definite evidence of active amoebic infection of the lung tissue and nothing in the notes given shows this here. The Author is however to be highly congratulated on carrying all four of these cases to a successful termination. The occurrence of four such in a small hospital in the course of a single year is rather striking.—Editor. C. M. J.
was like pus mixed with blood, or like the appearance of bad watermelon heart, and not very tenacious.

Emetine was used on all four of these cases, the history and treatment of which we give below.

Case No. 1. Yeh, 44 years of age, a farmer, native of Ta Ming. He entered the hospital on March 7, 1931. Family history was negative.

He had had dysentery in July 1930, with much abdominal pain and reported movements as high as forty in a day. The stools, he says, were reddish as if the passages were mixed with blood. His condition continued serious for three months but at length he began to improve under the administration of opium by a native physician. By this time he had lost much weight. In the tenth month he noticed a bulging in the liver region which slowly grew in size. At the same time he suffered much pain, fever, and loss of appetite. On the tenth day of the twelfth month the swelling subsided.

Later condition. On the date last mentioned above, he felt pain in the right chest with coughing and expectoration of sputum. Ten days later he had a very violent coughing spell with hemorrhage. The blood was pink and appeared to be mixed with pus. Within twentyfour hours he spat up nine teacups full. At this time he felt great distress with dyspnoea on any attempt to lie down, especially when lying on the right side. From this time for many days the patient brought up two or three tea cups of pus and blood each day until he was near death from weakness and emaciation. He entered the hospital for diagnosis and treatment.

On admission it was noted that his color was pale. He was suffering from night sweats, pain in the liver region and the right chest, cough, dyspnoea, and constant expectoration of pinkish sputum. He was very tender to pressure over the right lower chest and rales were distinct over the same area. The measurement from vertebrae to sternum around the right side was an inch greater than round the left side. Neither liver nor spleen seemed to be enlarged. His temperature was 101.6°F. The pulse and respiration were 118 and 30 per minute respectively. The heart sounds were normal and sharply heard. On microscopic examination of his sputum amoebae were found in great numbers. Many red cells were to
be seen within the bodies of the parasites. No tubercle bacilli were to be found. The white blood count was 16,900, the red blood cells were 2,300,000. Haemoglobin was 50%, neutrophils made up 83% of the white cells in the differential count, small lymphocytes, 15%; large lymphocytes, 2%. No other forms were met with. No amoebae could be found in the stool. The urine was positive for albumin.

_Treatment._ Because of his great weakness and prostration on admission he was given 500 cc. saline hypodermoclysis. Each day he was given emetine gr. 1/6, intramuscularly, for twenty days, getting in all (with slight increase in dosage) four grains of emetine. On the tenth day he ceased to spit blood. His strength rapidly improved and he began to put on flesh. He was given the regular diet with the addition of goats milk 1/2 lb daily, six ounces of beef liver, and nearly one ounce of cod-liver oil. The patient was in the hospital fifty one days, gained fifteen pounds and left the hospital apparently well.

_Case No. 2._ Mr. Huang, 32 years of age, a farmer, entered the hospital April 4, 1931. The family history was negative. He had had smallpox in childhood. Present illness began in the tenth month, 1930, with diarrhea. He had five or six movements a day with considerable abdominal pain. The stools varied in color, sometimes reddish and sometimes nearly white. He called in a Chinese physician who gave him some vegetable treatment, of the nature of which he is ignorant; but in the course of time his dysentery improved. However he was still much distressed with rumbling in the bowels and with loose stools on rising in the morning. This condition too, gradually passed.

During the twelfth month, 1930, he was suddenly seized with pain in the liver region. This pain was continuous night and day, and he lost his appetite. The pain was stabbing in character, lasted a month, and then slowly died away. On the third day of the second month this year, he began to cough and had severe pain in the base of the right chest. This pain lasted ten days he says. On March the second he had a violent coughing spell with hemorrhage. His expectoration from this time on was about a bowlful of pus and blood per day. While in this condition he entered the hospital.

On examination dullness and rales were found over the lower part of the right lung area. No abnormality was found in
heart, spleen, or liver. Temperature was 101. F. The respira­tions were 28, and the pulse 100, per minute. No albumin or sugar was found in the urine and no amoebae in the stool but the latter were found in numbers in the sputum. At the same time the search for tubercle bacilli was negative. The white blood cell count was 10,600 red blood cells, 3,700,000. Haemoglobin 60%, neutrophils made up 55% of the white blood cells in the differential count; small lymphocytes, 41%; and altered forms, 4%.

_Treatment._ Emetine was given intramuscularly, grains 1/3 daily until five grains were administered in all. By the fifteenth day no sputum nor blood were brought up. The patient was in the hospital thirty five days and made a gain of 30¼ pounds. In addition to regular diet he was given goats milk and beef liver. He was discharged cured.

**Case No. 3.** Mr. Kao, 43 years of age, a soldier, entered the hospital on June 6, 1931. Family history negative. He had gonorrhea six years ago. Present illness began a year ago when he rode a horse 130 li in eight hours. Following this he suffered great weariness and pain in both lower chest areas. He called in a native physician but received no benefit from his medicines. On the 13th day of the 9th month, 1930, he was sent to Hsü Chou to fight robbers. While there he was had a bad coughing spell with a hemorrhage. In January 1931 he came to Ta Ming with the troops. At this time he was suffering constant cough with expectoration of blood streaked sputum. Each morning he felt a little better, but in the afternoon he had fever with weakness. However his appetite was good and flesh was maintained. During this time he called in several physicians both of the native school and adherents of Western medicine; all of whom treated him for T.B., and without the least benefit. At last he came to the hospital for treatment.

On examination no rales were heard in the lungs and the heart was normal. His temperature was 100°F. The respirations were 20, and the pulse 90 per minute. The amount of blood-streaked sputum expectorated each day was three ounces. On microscopic examination of the sputum a moderate number of very sluggish amoebae were found. No tubercle bacilli were found, and no amoebae in the stool. Urine test was negative.
The white blood count was 11,600; the red blood cells numbered 4,925,000. The haemoglobin measured 80%.

Treatment. Emetine, grains \( \frac{1}{2} \), was injected intramuscularly each day. After three days he ceased to spit blood, and after five days the expectoration of pus decreased one half. On the seventh day he had orders from his commanding officer to move, so he was obliged to leave the hospital before his treatment was complete; but he was much improved even in that period.

Case No. 4. Mr. Chiang, 40 years of age, a local man. On July 16, 1931 he was received into the hospital. Family history is negative. His present illness began with an attack of dysentery six years ago. This trouble continued for twenty days when it passed away. A year later he developed a cough with expectoration of blood-streaked sputum. This cough and expectoration has continued off and on for the past five years with periods of remission. This year on June sixth he had a violent coughing spell, with dyspnoea, fever and loss of appetite. On entering the hospital a month later he had the following signs and symptoms. The temperature was 101.2 Fahr. The pulse was 90 and the respirations 30 per minute. Heart was normal. There were many rales in right lower lung area. Many sputum examinations failed to reveal tubercle bacilli. Many amoebae were present. No amoebae could be found in the stool. The white blood cells numbered 11,200, and the red blood cells 3,650,000. The haemoglobin was 70%. Neutrophils made up 74%, small lymphocytes 22%, and large lymphocytes, 4% of the differential blood count.

Treatment. Emetine, grains \( \frac{1}{2} \), was administered daily for ten days using 5 grains altogether. At the end of this period the cough, fever, and expectoration, all subsided. He was in the hospital one month, and was discharged well.
A REALLY PRACTICABLE GALVANIZED
BED-PAN AT LAST

This bed-pan is an inspiration from Black Hill refugee camp where it was hammered out with the aid of an imported tinsmith. Even in its immature state it commended itself at sight to the P.U.M.C. unit to the extent of forty being ordered for their own use.

In spite of appearances it is not based on a certain well-known model which so few of us can afford! Its parentage is
the humble "wei Tung" first conceived into galvanized iron as a bedside commode shortened to 6 inch height for convenience, then lengthened in the opening for the male wards, and the lengthening made complete for cleaning purposes. Then the whole was flattened to 21/2" for bed-pan use with a cut-away "bow" still further to facilitate washing; whereupon Dr. C. E. Liu introduces the Chinese boat-bow as it stands. After that we shallowed the rear end, and hollowed the back of it for comfort; and finally raised the front edge yet a little more. The result a pan which we think worth publishing.

The dimensions are as shown in figure

Technical details. To form the seating of the seat-rim the upper edge of the body of the pan is turned outward into a broad 1/4" flange. On that the rim sits with an outer edge wide enough to recurve under the flange, where it is hammered tight and soldered for appearance sake. The inner free edge of the seat rim has already been finished off with wire; which wire is now carried round the unrimmed lip of the pan whose edge is rounded over it and so finished off.

The rest of the job is plain tinsmithry. To be sure the experimental worker professed an "impossibility" at first over the hollowed shaping of the seat; but there proved to be no difficulty in it.

All joints are smoothly soldered in the inside, so that they feel round and smooth to the finger.

As to cost, one sheet of galvanized iron makes six, and a workman on easy time work makes two a day. They ought to cost roughly $1 each.

Postscript. Our latest design throws the deepest part of the pan forward so that the pan is naturally high at the forward end. Also the depth at the back is reduced even below the 2 inches shown.

Note: The dotted lines in the sketch represent the shape of the sides as cut by the tinsmith.
HOSPITAL REPORTS

For the year 1930 we have so far received some thirty-six reports of hospitals in China, representing about 15 per cent of our Hospitals. This is neither a large number nor a large proportion of the hospitals and though naturally it includes most (not all) of the largest institutions in this country it does little justice to the work of the hospitals as a whole and especially to those in the more isolated districts. It is true that this is a slight though distinct improvement on former years but the number is still disappointingly small. Five of those which have reached us have been manifestly for the information of lay home supporters only, and doubtless they have their value as such but the aim is a very limited one and to our mind not quite worthy of the important work with which they deal.

We propose therefore to state our personal views on what hospital reports should be and where some of those that reach us fail. We acknowledge that this is only the personal view of the Editor and as he does not hesitate to criticise the reports that reach him he would similarly welcome any criticism of what he writes here.

We venture to suggest two important reasons for hospital reports.

(1) A hospital, even a mission hospital, is at least a semi-public institution and as such it is desirable that a public report of its work should be made annually. The hospitals from which we receive no reports doubtless send annual accounts of their work to their Home Boards, but we hardly think that this is quite a sufficient method of dealing with the public out here among whom they work.

(2) The hospitals even those which are smallest but efficiently run, do an immense amount of medical work much of which is of real scientific value. Their opportunities are probably larger than in any other country in the world. We plead
that such opportunity also brings with it a definite responsibility which as we see it the hospitals cannot avoid—the responsibility of adding their quota, large or small, to the general knowledge of disease conditions in China. In our judgement this is a clear line of duty and it is not being met as it should be at present. There is no hospital however large and none however small that does not profit in its work from the experience of similar institutions. In other words we might paraphrase the text and say; "No hospital liveth to itself." For a hospital therefore to fail to add its own quota to the general knowledge looks at least on the surface to be an unwarrantably selfish position, and one which if everywhere followed could lead only to stagnation and decay. For its problems both as to management and as to medical treatment can only be fully solved in the common experience of all.

We acknowledge at once that there are certain difficulties in the way of the smaller hospitals publishing reports; that these are not in any way insuperable is clearly shown by the fact that some of the smallest and most isolated institutions publish reports which are among the very best, excellent indeed both from the point of view of giving information to the public and as providing accurate information as far as it goes of local disease conditions.

Still there are difficulties though these are much less formidable than they appear to some people. A report is not intended to be a literary essay and all have not equally fascinating pens, but at bottom a report is a record and surely every physician who can write a record of a case with all the diagnostic problems that every case provides, can also write the much easier record of a hospital’s efforts with their success and failure. It may be argued that the time occupied in making up the report is considerable and cannot be spared from the doctor’s busy life. The reply to this is that the argument itself suggests a lack of system. Case taking is a good example here. Without system case taking is a lengthy proceeding, wearisome to the writer and probably equally so from lack of conciseness to the reader. Given the system the matter is easy and occupies but little time. The same may be said of hospital reports. The method takes us beyond our present discussion but we would willingly take the question up again if suggestions along this
line seemed likely to be helpful. The point we want to make here is that the preparation of a hospital report should be no very serious call on the time of even a busy doctor.

Another of the objections is on the score of expense, with which we confess to have no sympathy at all. The cost of printing in this country is remarkably small even where illustrations are introduced, and we have no hesitation in saying that a judicious distribution of an attractive report among friends of the hospital is certain to repay the cost in gifts many times greater than the cost of printing and sending out the report. We feel that this is not a reasonable excuse.

A more serious difficulty has to be faced by some of the hospitals distant from large commercial centres. This is where the report can be printed and whether it can be left safely in the hands of the printers to be reproduced without oversight in respect of make-up and proof reading. This is a more serious difficulty than we had quite realised. A report reached us this year excellent in many ways but with glaring errors in these respects. We are afraid that our criticism of it was rather strong, at least we received a very kind remonstrance from the doctor in charge and a very sharp letter implying some concealed motive in our criticism from a distant correspondent. The explanation which would have modified our criticism was that the physician had left the report to the mercy of a firm that formerly had a good reputation for such work and most of our criticism applied to errors which owed their origin to the publishers.

As far as we can see this is the most serious difficulty that some of our more distant hospitals have to face in publishing reports, and there does not seem any simple way out of it. All we can say is that our own services are entirely at the disposal of doctors where this constitutes the obstacle and we should be delighted to do anything in our power to help to see such reports correctly through the press.

This Editorial has become much longer than we intended and only one or two other points can be dealt with here.

Language. For the present most of our hospitals have to continue printing in the English language as much of the support comes from home and reports should be important additional means of support. Further as a help to our knowledge
of disease, reports in English are more valuable than those solely in Chinese.

This difficulty has been overcome in three of the reports—Hoihow, Amoy, Huchow—received this year by making them bi-lingual—an excellent thing if thereby the report does not become too bulky for the present very expensive home postage. The Union Hospital, Hankow, has supplied us with separate reports in English and Chinese, this of course is still better but can probably only be done by the larger hospitals.

Spelling. Frankly we are painfully impressed by the number of errors in spelling in hospital reports, especially in the lists of diseases. This is not always due to printers errors. Printers naturally make appalling mistakes in such specialised words as medical terms. They do not repeat the same mistake from page to page.

Medical reports come into the hands of our professional brethren at home and are more and more referred to by those studying disease out here. It does not add to the credit of our work if glaring mistakes in the spelling of simple medical terms keep recurring in our reports. We claim no freedom from spelling mistakes ourselves but we do keep an English dictionary and a Dictionary of medical terms within easy reach.

Tables of Diseases. All reports should at least contain these. There is no serious difficulty in preparing them if this is done systematically throughout the year. No classification that we have got is perfect but whatever is adopted should be clear and easily referred to. We hope that some day an agreed classification may be adopted in most of our reports.

THE CLASSIFICATION OF DISEASES

The Editor is grateful to Dr. Black for the brief criticism in this issue of his suggested Classification of Diseases. It is quite clear from this and from personal communications that
we have received, that this Classification is open to a good many criticisms as to detail. It was never suggested that it was in any way perfect and the great desire of its author was that it might be so improved that it would meet general adoption in hospitals which were not prepared to give the time required to two complete classifications.

We believed that there were many hospitals in this country which were not prepared to face or able to supply the full material for two sets of tables. We have seen no reason to change this opinion.

We still think that a combined effort might make such a classification one that was available for general use and we greatly hope that a free and full discussion at the Conference next year may result in the attainment of this end. We trust that the Members attending the Conference who are interested in this subject will be prepared to contribute freely to a discussion with this aim in view.

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**PSYCHIATRY**

We venture to prophesy a hearty reception for the report on Neuro-psychiatry by Dr. McLaren which we publish in this number of the Journal. Psychiatry is a special department of medicine of which most of us have little knowledge. Not a few of us received our medical training during what might be fairly described as its pre-natal period. Yet none who have attempted to keep abreast of the progress of medical science can be ignorant of the increasingly important position that this subject is taking.

Few of the Physicians in the Far East are qualified, however, to speak with any authority on this new branch of our profession and the pages of our Journal have been singularly devoid of any papers on the subject. How far it comes within the orbit of the average physician is a matter on which we feel we can give no judgement, but we welcome very heartily this contribution from one who has both the required knowledge and the ability of making that knowledge live.
PHRENICOTOMY

The operation of phrenicotomy which has been widely used in some other countries has had little vogue in this land. This seems rather strange as subjects for its performance can nowhere be more common. We therefore very heartily welcome a paper on this operation by Dr. S. F. Li which we publish in the present issue.

Some of these operations like our little systems “have their day and cease to be” and we may well hope that this will be the ultimate fate of phrenicotomy. For cases of pulmonary tuberculosis to find their way into the surgeons hands is nothing but a confession of failure on the part of the physician. Perhaps it would be more right to say, as is undoubtedly true, that it is due to the physician never having had a fair chance. Unfortunately it is likely to be many years before any but a small fraction of cases of pulmonary tuberculosis will receive adequate attention in the early stages in this country and late and neglected cases will therefore necessarily be common. In view of this anything that will help in the treatment of such cases deserves a hearty welcome and there seems little doubt that in skilled hands and on selected cases the operation of phrenicotomy has proved of considerable assistance in aiding nature’s healing processes.
The last clinical meeting for the season, of the Medical-Dental Faculty of the West China Union University, was held in the Ear, Eye, Nose and Throat Hospital, in Chengtu, on the evening of June 12, 1931. The programme was provided by the staff of that hospital. Dr. Retta Gifford Kilborn was in the chair and a good proportion of the members were present.

The opening paper, entitled "Supra-hyoid Cysts," was given by Dr. R. A. Peterson. The speaker briefly reviewed the thirty-two cases falling under this heading, which had passed through his hands in the course of the last two years, and pointed out that these cases were roughly one in one thousand of the total number of cases handled through the clinic. Of this total number, twenty-three were admitted and operated upon and nine either refused or were unfit for operation for some reason. Those operated upon included: Ranula-6; Thyro-glossal Cyst-8; Patent Thyro-glossal Cyst-4; Dermoid Cyst-1; Sebaceous Cyst-3; and Submaxillary Cyst-1.

Those not admitted, but seen in clinic included: Ranula-4; Thyro-glossal Cyst-3; Patent Thyro-glossal Cyst-1; and Dermoid Cyst-1.

A case which had recently undergone operation for submaxillary cyst was shown, the operation described and the progress of the patient noted.

The second paper, by Dr. D. L. Lü, on Infected Tonsils, was of much interest as infected tonsils play an active part in every field of medicine. The question of diagnosis was rather fully dealt with, clinical cases being instanced to illustrate the points mentioned. The part played by the infected tonsil, in neighboring or even systemic troubles was made clear.
Considerable discussion and several interesting questions followed this paper. In reply to the question as to whether in the case of active T.B. it is wise to remove tonsils, Dr. Peterson said that the question was a very difficult one to answer, as the slight shock, loss of blood, etc. might react very unfavorably on the patient. Yet on the other hand the removal of the infected tissue might turn the balance in favor of the curative powers. He advised removing the tonsils one at a time, thus conserving the patient's strength. Dr. T. H. Williams contributed some helpful remarks on the pathology of the tonsillar infection, particularly stressing the point that many tonsils are the portals of entry of primary tuberculous infections, which pass through the tonsil, leaving no trace there of their passage.

Blepharoplasty, provided Dr. G. B. Lo with the subject for a brief but comprehensive paper. Dr. Lo reviewed the history of the operations which have been in vogue at different times for many years and described in some detail a case recently operated upon by Dr. E. R. Cunningham and himself. The eye lids had been scarred by quack treatment until they could no longer close over the palpebral fissure. Incision was made in the lid and the extra tissue for grafting provided from the upper arm for the outer surface and from the mucous membrane of the mouth for the inner surface. The graft was moulded on dental wax. A good result was obtained.

In the final paper of the evening, Dr. E. R. Cunningham spoke on the subject of Concussion Injuries to the Eye. He instanced four cases, describing them clinically and tracing their progress, concluding with classification and explanation of the conditions and the symptoms met.

The meeting adjourned. A series of similar meetings will be carried on during the winter, when not only the clinical medical people, but the non-clinical members of the faculty and the dental men will be heard.

Secretary,

E. R. CUNNINGHAM.
Hospital Reports

HOSPITAL OF UNIVERSAL LOVE, PAOKING, HUN.
1930. W. M. M. S.

Staff: Drs, G. H. Pearson and C. H. Li.
Nurses: One Foreign, two Chinese graduate nurses and ten pupil nurses.

In-patients 520    Out-patient attendances 16,542

This is only a brief interim report to cover the period of last year when communist invasion and bandit troubles greatly interfered with the ordinary routine work. In the midst of the troubles the nurses sat for their N. A. C. examinations with marked success though as the doctor writes—"It is not easy to sit for an examination if you are expecting a very hostile army to arrive in the town almost the same day!"

The latest reports are of busy times, more patients than ever before daily crowding the hospital premises.

The following urgent requirements are noted: 1. A new building to house the girl nurses; 2. A new ward block for cases still requiring the attention of male nurses; 3. A portable X-ray apparatus.
INDICATIONS FOR PHRENIC AVULSION IN BRONCHIECTASIS
BY W. G. Oakley, M.B., M.R.C.P.

BRONCHIECTASIS

As a therapeutic measure in bronchiectasis phrenic avulsion has received less attention than in tuberculosis, and consequently the literature contains fewer opinions on its uses and limitations. The results obtained in bronchiectasis by this form of treatment, and consequently the conclusions arrived at, agree no better than those reported in connexion with pulmonary tuberculosis, and suggest that the indications for phrenic avulsion in the former disease are not fully realized or understood.

The following series of cases, collected over a period of three years at St. Bartholomew's Hospital, have been followed up and analysed to discover, if possible, the indications and contraindications for phrenic avulsion in bronchiectasis.

Clinical Observations.—Seventeen cases are reported, in all of which the diagnosis of bronchiectasis was based on clinical and x-ray findings, lipiodol being used in almost every instance. The original lesions responsible for the bronchiectasis were traced wherever possible, and found to comprise the following conditions: pneumonia, 9; "influenza," 1; foreign body, 1; x-ray treatment for carcinoma of breast, 1; new growth, 2; unknown, 3. The operation was carried out nine times on the left side and eight times on the right, paralysis of the corresponding dome being observed by x-ray in every case. The technique employed was that of avulsion of the nerve, or, failing this, of radical excision.

Complications.—Pain in the corresponding shoulder occurred in about half the cases. Section of the thoracic duct occurred once, and was followed by a chylous discharge of short duration. Serious haemorrhage was entirely absent from this series.
Previous Treatment.—In four cases artificial pneumothorax was attempted, but prevented by adhesions in all but one, in which it was successful in relieving the cough. As soon, however, as the air was absorbed the cough returned, and necessitated a subsequent phrenic avulsion. Creosote baths were unsuccessful in the few cases in which they were tried. Postural drainage was employed before operation in all cases with much sputum

RESULTS IN CASES TREATED

The results in the seventeen cases of bronchiectasis may be summarized under three headings: (1) those in which the symptoms were completely relieved; (2) those in which improvement was being maintained when the patient was last seen; (3) those in which temporary improvement was followed by relapse.

The first group contains four cases which deserve brief mention.

In Case 1 a phrenic avulsion was performed without success on a man who had a persistent distressing cough with copious foul sputum. Five months later a collar stud was removed from the left lung through a bronchoscope, and a complete cure resulted in a few months. In view of the very advanced cavitation of the left lower lobe, demonstrated by lipiodol x-ray, it is reasonable to suppose that the phrenic avulsion, by assisting in the obliteration of the cavities, was in part responsible for the rapid cure.

Case 2, a girl aged 20, with left-sided bronchiectasis following pneumonia in infancy, was treated by paravertebral thoracoplasty in August, 1926, with great success. Five months later the patient still had a cough, with greatly diminished sputum (1,200 c.cm. to 60 c.cm. per diem), and a left phrenic avulsion was therefore performed, since which there has been complete relief of symptoms. Here the usual sequence was reversed, but the value of diaphragmatic paralysis as a complement to thoracoplasty is well illustrated.

In Cases 3 and 4 no other treatment contributed to the success of phrenic avulsion. In the former, that of a girl aged 15, the only symptom was cough, which was persistent and dry. Lipiodol x-ray showed dilatation of the left lower lobe. Phrenic avulsion was followed by disappearance of the cough, which has not returned.
The last case of so-called "cure" was that of a boy, aged 14, with a history of broncho-pneumonia when 4, followed three years later by two separate large haemoptyses. Vaccine treatment was carried out at a sanatorium for two years, and the boy remained quite well until, at the age of 14, he developed a cough, with much sputum. Lipiodol x-ray showed basal bronchiectasis, and phrenic avulsion was performed in June, 1927. There was an immediate decrease in cough and sputum, which fell from over 200 c.cm. of mucopust to about 5 c.cm. of clear mucoid secretion daily. Nine months later he was symptom-free, and is now able to swim and play football without cough or shortness of breath. There has been no further haemoptysis.

It is important to observe that in these four cases the lesion was not only basal, but completely confined to the side on which phrenic avulsion was performed, a combination of characteristics not to be found in any of the cases of improvement now to be considered.

The second group contains seven cases in which there has been lasting improvement in general conditions and weight, in addition to reduction or disappearance of cough or sputum. In six cases the condition of the patient is stationary, while the seventh and most recent of the series has been improving ever since his operation five months ago. Four cases gave a history of pneumonia, one of x-ray treatment following removal of the left breast for carcinoma, and in two no cause could be traced. The maximum daily sputum before operation was 200 c.cm., and after operation 25 c.cm. In two cases sputum has disappeared altogether, in four it has decreased in amount, and in one it has remained the same. In all seven cases cough is still present, but improved, and up to date there has been no recurrence of haemoptysis in the three cases in which it had occurred before operation. In this group the disease in three cases was completely unilateral but very extensive, involving both upper and lower lobes. Two cases showed x-ray evidence of involvement of the opposite base, and in the remaining two moist added sounds were persistently audible in the same situation.

The third group contains six cases in which temporary improvement was followed by relapse. The symptoms in two cases were subsequently found to be due to new growth of the lung, which proved fatal shortly after the operation. Quite
remarkable improvement followed phrenic avulsion in two cases with much sputum. In one the sputum was reduced from 1,200 c.c.m. to 120 c.c.m., and thoracoplasty, though indicated on account of the extent of the lesion, was unfortunately refused. In the second case both cough and sputum rapidly disappeared, but recurred after a short interval. Here, again, the lesion involved the whole of one side, retention of secretions causing pain over the upper lobe, which was relieved by postural drainage. The remaining two cases showed a slight but definite improvement, consisting in the one of reduction of cough, and in the other of decrease in sputum. A subsequent thoracoplasty was intended in one case, but had not been performed when the patient was last heard of six months ago. In both these cases not only were there bilateral basal lesions, but the midzones were also involved, and in one there was evidence before operation of collapse of the corresponding base.

**SUMMARY OF RESULTS**

In the seventeen cases of bronchiectasis, phrenic avulsion gave the following results:

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete relief of symptoms</td>
<td>4</td>
<td>23.5</td>
</tr>
<tr>
<td>Lasting improvement</td>
<td>7</td>
<td>41.0</td>
</tr>
<tr>
<td>Temporary improvement, with relapse</td>
<td>6</td>
<td>35.5</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

1. Phrenic avulsion in experienced hands is a safe operation, and the complications are more to be feared in theory than in practice.

2. Only in strictly basal and unilateral cases of bronchiectasis can phrenic avulsion be reasonably expected completely to relieve the symptoms.

3. Improvement is to be expected in unilateral bronchiectasis in which the lesions are confined to the bases and not advanced on the better side.

4. In unilateral bronchiectasis in which the lesion extends into upper or mid-zones, temporary improvement is the rule, but relapse must be expected unless thoracoplasty is performed.
5. In bilateral basal bronchiectasis with lesions in upper or mid-zones, little benefit is to be hoped for from unilateral diaphragmatic paralysis.

6. As a preliminary to thoracoplasty phrenic avulsion should always be performed, but should not be allowed to shelve the larger operation in event of a brilliant but temporary cure.

B. M. J., August 29, 1931.

THE TREATMENT OF INTESTINAL WORMS WITHOUT PRELIMINARY FASTING AND PURGATION

After 7 years' experience among a people 90% of whom have intestinal parasites, Dr. A. H. Kemp, a medical missionary in Angola, Africa, questions the wisdom of the current preliminary fasting and purgation before administering a vermifuge. At his hospital he treats about 1000 cases annually for intestinal parasites—mainly hook-worms and ascarides, but also whip-worms and tapeworms. At first he was careful to follow the usual method, but his instructions were often not followed and he found that the results were better. For example, in a case of tapeworm he gave 50 minims of carbon tetrachloride with a little water and two cathartic pills an hour later. In less than 2 hours the patient presented himself with a complete tapeworm 8 ft. long. A girl passed 160 ascarides after taking 2 gr. of santonin. Dr. Kemp suggests that with the bowel distended with food the drugs have a better opportunity of coming in contact with the head of the parasite than when empty and collapsed, with head possibly buried in some sulcus; also that the mixture with food probably means a longer contact of the drug with the parasite. He has treated 3000 cases with completely satisfactory results by simply administering the vermifuge and giving two cathartic pills an hour afterwards.

The Clinical Journal, July 22, 1931.
TROPICAL OPHTHALMOLGY

CONJUNCTIVA

*Trachoma.*—N. Bishop Harman chose trachoma as the subject of his opening address to the Ophthalmological Section of the British Medical Association at Winnipeg. His review of the subject pointed to the fact that the disease now only flourishes in those countries where squalor and bad social conditions exist. The elementary school, which furnishes education in personal hygiene, is the most efficient prophylactic against contagious eye disease. Bishop Harman considers that pannus rarely occurs during the first year of the disease in children, and that it may never appear if efficient treatment is instituted at an early date. He is inclined to the view that the worst end-results are sometimes due more to ill-advised severity of treatment than to the effects of the disease. He states “there is no doubt that if we could keep the children of one generation free from the disease, trachoma would be extinct.”

Weiss, reviewing existing opinions regarding trachoma, considers the specific nature of Noguchi’s *Bacillus granulosis* still unproved. The actiological problem presented by the disease is one of the most difficult in the whole field of bacteriology. He discusses the possibility that trachoma may be the local manifestation of a general constitutional derangement. The fact that ophthalmologists disagree about the clinical and pathological definition of the early stages adds to the difficulty. “Evidently it will be impossible to define it properly until the exact etiology, not only of trachoma, but also of those other conjunctival diseases that are being confused with trachoma, is known.” The same author describes the inconclusive results of inoculation of *Bacillus granulosis* made by him on monkeys. Tilden and Tyler record their observations on some of the strains of the *Bacillus granulosis* isolated by Noguchi in 1926. Some of the animals described in Noguchi’s monograph are still alive and continue to show granular lesions. Cultures of Noguchi’s strain have been recovered from the monkeys as late as 3 years after inoculation and have reproduced the granular disease in other monkeys. Cultures of the bacteria kept in semi-solid medium containing 10 per cent. rabbit serum (*Leptospira*
medium") remained viable for many months at room temperature. It is noteworthy that cocaine has a bactericidal effect on the micro-organism. It is suggested that this may explain the negative results reported by some workers.

Tropical Diseases Bulletin, June, 1931.

KERATOMALACIA, A DEFICIENCY DISEASE

Prof. R. E. Wright finds that keratomalacia is the chief cause of preventable blindness in children in India, and a much more important cause than ophthalmia neonatorum. But the disease is practically unknown in the Punjab, where the inhabitants are wheat- and not rice-eaters, and consume much milk and milk products and other vitamin A-containing foods. Keratomalacia in adults is also responsible for an appreciable amount of blindness. Though deficiency of vitamin A is the chief factor in the etiology, deficiency of other vitamins, particularly of vitamin B, seems to play a part. The disease, therefore, does not entirely correspond to the experimental xerophthalmia produced in animals by a diet devoid of vitamin A. In keeping with this, crude cod-liver oil (which contains vitamins A, B, C and D) is the most effective remedy, and is better than any preparation of vitamin A. A smoky pigmentation of the conjunctiva is an early characteristic sign. It is often the second clear indication of the disease, night-blindness being the first. McCarrison has suggested that the pigmentation may be an expression of adrenal deficiency, due to want of vitamin B.

The Clinical Journal, August 6, 1931.
THE TREATMENT OF ANGINA AGRANULOCYTICA
WITH X-RAYS

Agranulocytic angina is a condition, described by Schultz in 1922, which occurs in severe sore throat when the usual polymorph response fails. Usually it is rapidly fatal. K. Neidhardt reports the case of a woman, aged 42, taken ill with rigors, vomiting, fever, and great weakness. A bilateral follicular angina of both tonsils developed and icterus of the sclera. There was a marked leucopenia (2800 leucocytes); 97% of the leucocytes were lymphocytes. There were numerous thrombocytes. The condition became rapidly worse, when radiation with X-rays of both thighs and hips was performed. The leucocyte count increased within 2 hours by 500 to 800 per c.c., and after 8 hours by 1700 per c.c. Two days afterwards the upper and lower arms were submitted to X-rays, the general condition rapidly improved, and the leucocyte count reached 20,000 per c.c. with marked increase of the granular forms. The patient recovered—a very rare result.

The Clinical Journal, July 15, 1931.

Mr. Cecil Wakeley is to be congratulated upon the 5th Edition of Treves' Student's Handbook of Surgical Operations. The book is essentially practical, it epitomises the standard operations of surgery omitting those which are now out of date and including some of the more recent advances such as the injection treatment of varicose veins and haemorrhoids. It is well printed, well illustrated and not too long. Its size makes it truly a handbook.

We are inclined to think that a chapter on anaesthesia, particularly special anaesthesia, would be a useful addition to future editions.

We would unhesitatingly recommend this book to the house surgeon making a beginning in practical surgical work and to the general practitioner who may be liable to be called upon to perform the ordinary operations of surgery.

H. G. T.


This volume of 170 pages is the result of the decision of the Tuberculosis Commission to undertake a general study in several countries on the importance of the various factors influencing tuberculous mortality.

The three Scandinavian countries were chosen, not merely because the necessary statistical data were available, but also because they present a geographical and ethnical unity which facilitates the comparison and, finally, because the different provinces of Norway and Sweden are far from having attained the same point in evolution of their tuberculosis mortality.

The report is one of very great value in view of the painstaking and complete nature of the investigations which are recorded in great detail;
much of this value to the general reader, however, is lost by the complete absence of any attempt to summarize the findings. Each country is dealt with in detail and with a wealth of tables, graphs and diagrams, but in no case is there any bringing together of the results in a form that gives a birds-eye view of the progress and the causes thereof. There is no list of the chapters and contents at the beginning, and no index at the close.

The report covers the period from 1876 on, and it is interesting to note that no improvement took place in the earlier half of this period from 1876 to about 1900; indeed during this time the deaths from tuberculosis in Norway showed a rising tendency. From 1900 on the deaths drop steadily, especially in Denmark. It is interesting also to note that in all three countries there has been a slight difference in the curves of tuberculosis mortality as between males and females, the latter sex running a roughly parallel curve at a slightly lower level.

One point of considerable importance is brought out in this study and that is the remarkable changes in tuberculosis death rate over a period of years in different areas. This is strikingly shown in maps shaded for incidence in different parts of the country. The explanation for this given in the words of the Authors is:

"In each area the spread of tuberculosis seems to pass through three phases: (1) invasion and rapid spread until a maximum is reached; (2) an apparent stagnation; and finally (3) a spontaneous regression beginning when tuberculosis has prevailed for three or four generations.

This is the phenomenon which explains the contrast between the tuberculosis maps at the beginning of the 19th and at the beginning of the 20th century."

and again:

"The question still remains whether the population in the areas which first reached their minimum in the course of a few generations will again be exposed, defenceless, to a fresh invasion of tuberculosis; and whether, consequently, the country will have to go through the same tuberculosis cycle again—and possibly repeat the process endlessly in the course of time. The future task of the tuberculosis campaign will thus be to provide a means of protection against possible new invasions and its work will therefore probably lie to a large extent in the field of biological immunity."

It would be impossible to exaggerate the importance of these conclusions, if borne out in other countries but the immense amount of work done in prevention and cure as described in this report and the striking success of these measures has also to be borne in mind.

J. L. M.

The sole purpose of this Conference, as stated in the introduction, was to determine a method of serodiagnosis that gave as high a percentage as possible of positive results and which did not produce non-specific reactions. It is pointed out that: "the various methods recommended have hitherto often been open to objection for one or other reason and sometimes produced inexplicably divergent results when used by different serologists."

During the conference 966 blood serum samples and 200 samples of cerebro-spinal fluid were examined. Each sample of blood and cerebro-spinal fluid was divided up into a number of small samples corresponding to the number of research workers. These samples were distributed for examination bearing only a number so that, in every case, the research worker was unaware of its origin or of the clinical diagnosis.

The results obtained completely agree with those reached at the Copenhagen Conference in 1928 where the best of the precipitation tests were demonstrated to be superior as regards sensitiveness and equal as regards specificity to the Wassermann reaction and its modifications.

The majority of the serologists agreed that in the hands of Professor Kahn himself, the Kahn "standard" test which proved to be absolutely specific and extremely sensitive, was the best of those demonstrated at the Conference.

The report contains full tables giving the detailed results obtained by the various serological methods and a full description of the methods employed.

J. L. M.

EINFUHRUNG IN DIE MEDIZIN. By H. E. SIGERIST, M.D. Published by Georg Thieme, Leipzig.

Sigerist is a Professor of History of Medicine at the University of Leipzig, but he is well known beyond the boundaries of the German language, as is shown by the invitation to lecture during the coming winter at the Johns Hopkins College.

Sigerist does not see in the history of medicine only a collection of historical dates and the clearing of old disputes about priority. For him medical science is best and most convincingly introduced to the medical
profession through the history of medicine. That he, as a historian, is entitled to give an introduction in such a living and practical science as medicine, he has demonstrated by this book in a splendid way. He explains the nature of our science and our practical work by their development, and he leads the novice of the art in this way from the fundamental facts of natural science to the latest technicalities of the therapeutical and diagnostic specialist.

The main aim of the book is the explanation of the ideals of medicine from the point of view of the sufferers. The general leading ideas are never hidden by detail. One would like to see the book in the hands of every young medical student. But even the graduate, who has won knowledge in all its various details of the many branches of special medicine, will find here again the leading general line. Many older physicians will in a quiet hour have through this introduction to medicine a general review of it which is not always kept in mind in the detail and strain of every day work.

G. R.

UNTERSUCHUNGSMETHODEN ZUR KLINISCHEN DIAGNOSTIK.
By Richard Weiss, M.D. Published by Fischers Medizinische Buchhandlung, Leipzig. 4th edition.

A Manual of Clinical Pathology, Churchill, London, 1910, was published by the same author. Now the fourth edition of the German issue has brought this well known book up to the most recent standard. Numerous tests at random show even to the laboratory worker, that this manual is a reliable adviser. One finds simple methods stated in a clear way for the beginner, and in the same way is given the technique of those rarer tests, which even the experienced worker likes to read over, before doing them. One feels everywhere the daily routine experience of the author. With the help of this manual the less experienced will also obtain good and reliable results.

A practitioner or anyone in hospital work needing chemical tests in clinical diagnosis will in case of doubt be quickly and suitably guided by the use of this book.

G. R.
CHININ IN DER ALLGEMEINPRAZIS. By Fritz Johannesson, M.D.
Published by Bureau tot bevordering van het Kininegebruik. Amsterdam-W.

This monograph dealing with quinine gives a good summary of the history, chemistry and pharmacological action of this valuable drug and its common derivatives as Optochin, Eucupin, Vuzin, Aristochin, Euquinine. A complete and detailed exposition with a survey of the recent literature of the many possibilities of therapeutical application of this drug follows. This is indispensable to the physician even though he neglects its leading role in the treatment of malaria. But I cannot approve of the one-sided attitude of the author to Plasmochin with which in its combination with quinine in the treatment of malaria no one who has once tested it thoroughly and without prejudice can dispense.

G. R.

DIE NORMALE ENTWICKLUNG DES KNOCHENSYSTEMS IM RONTGENBILD. By E. Ruckensteiner, M.D. Published by Georg Thieme, Leipzig.

Clinical medicine had already made use on a large scale of the possibilities opened by the X-rays long before normal anatomy availed itself of the same opportunity. Then it did not take long to make the Rontgenologist familiar with a number of peculiarities of the osseous system of youth. Special attention was needed to avoid giving rise to serious diagnostic errors. From this point of view these appearances were mentioned in the manuals of radiology. But Ruckensteiner gives a summary of to what extent our knowledge about the growth and development of the human osseous system had been widened through the use of X-rays. He gives special attention to all variations, to their number and their distribution at the different ages; and he shows the results of his investigations in a number of tables. The principal drawings of the different stages of development are of distinct value for medical education. For this reason they have been specially issued as large tables of the size of 84 to 101 centimeters and can be bought separately at the price of Marks 6.60.

The book is very instructive and is well illustrated. It is of special value to the anatomist, but, further, the book will be useful to everybody who has to make X-ray pictures of the bones of children. It would be a problem well worth while for any hospital in China which has a sufficient stock of X-ray pictures to test the results of Ruckensteiner, which are founded on his material from Vienna and on papers from Europe and the U.S.A., for their validity in the East and to discover the racial differences.

G. R.
Correspondence

Cut-Throat

Wesleyan Mission
Chungsiang
Sept. 13, 1931.

The Editor,
China Medical Journal,
Dear Sir,

I write to ask advice about cut-throats. I have often treated a severed trachea, and there is nothing special to say about it.

But twice recently I had to treat a severed larynx, and in neither case did I get a good result. The trouble was the same in each case. The top of the larynx runs back against the vertebral column and base of the skull, (or somewhere whereabouts). I can't do anything with it. The lower part of the larynx, of course, runs down to the base of the neck, but you can get it back up again. The trouble is with the top part, and it is a great trouble.

Case No. 1. Young woman, larynx completely severed, oesophagus just punctured. I put in a tracheotomy tube, just below the cricoid and tried suturing the thyroid cartilage, there and then. Practically the whole of that cartilage sloughed out later. She has some communication between the trachea and upper passages, she can speak faintly, and with difficulty. She must wear a tracheotomy tube for life.

Case No. 2. Boy of 16. Larynx completely severed, oesophagus not touched, wound dirty. I put in a tracheotomy tube, and cleaned up that wound. The top of the larynx had receded out of sight, and it was only by looking for it that I could find it. When the wound was clean, I tried to bring the top of the larynx forward, and failed. I put my stitches, not through the cartilage that time (having had disaster that way once), but through what little there is outside it. They cut out immediately. The lad has, as he often pointed out to me, no breath at all in his nostrils. He has no continuity in the air passage. He must of course wear a tracheotomy tube for life. But he can make queer little sounds that are just audible, and just intelligible.

Having thus failed rather badly twice, I shall be very glad to have advice from anyone who has succeeded in this class of case.

I am yours sincerely

Sarah C. Wolfe, M.B., Ch.B.

Comment by Dr. H. Gordon Thompson

The difficulty about wounds in the completely severed larynx is that the strong pharyngeal muscles tend to pull the upper part of the Thyroid cartilage away up, and the only treatment is a tracheotomy below the cricoid—pushing the isthmus of the thyroid well down—so that the lower end of the larynx can be brought up as easily as possible.
Then long interrupted tension sutures between the cut parts of the cartilage and short interrupted tension sutures along the edges to bring the parts together.

The top of the larynx does not of course go anywhere near the base of the skull, but the pharyngeal muscles are continued upward to the styloid process and the upper vertebral palate, etc.

Nephrosis in West China
Chengtu, Oct. 9, 1931.

The Editor,
China Medical Journal
Dear Sir,

In a case of Lipoid Nephrosis recently reported by me in your pages the fact of a pronounced Eosinophilia was commented on. (see C.M.J. Vol. xlv, P. 990).

The patient has since then made another brief stay in my wards, (September 27th-October 7th) and the neglected stool examination has been done with negative results.

More interesting still, as bearing on the clinical course of such cases, he has now developed Urea-retention; his blood-urea being 74 milligrams per cent. His condition otherwise remain unchanged.

Yours truly
H. G. Anderson, M.B., M.R.C.P.

Risks in Medical Practice
Hankow, Oct. 5, 1931.

The Editor,
China Medical Journal,
Dear Sir,

At this time I am sending to "The National Medical Journal" a report of an informal committee of doctors who met at Wuchang to enquire into a case which had died of typhoid fever and where the relations blamed the doctor in charge of the case and did all in their power by posters, etc. to incite a riot and threatened the life of the doctor.

In view of the notorious case at Kuling last year and of other more recent cases known to me, and details of which I may be able to furnish later, I think you will agree that publicity is needed to obtain in time some proper protection to bona-fide medical practitioners where relatives feel aggrieved and proceed to "take the law into their own hands."

The case was a fairly common one. A boy aged 16 years was brought to hospital ill with typhoid fever and malaria. The malaria was treated but the typhoid went on to the usual septic complications with haemorrhage, and, three days before the end, the patient was taken out of hospital, and other treatment was instituted but without affecting the inevitable result.

The temperature charts and records of treatment were removed by the relations and even before he was taken out of hospital they brought in other medical advisers and nurses although the treatment and attention given was, in our belief, entirely adequate.

The hospital doctor, in our opinion, was to some extent at fault in not emphasising to the relations the serious nature of the case, and in urging them to have the opinion of any other qualified doctor that they wished for. It seems that he did do this, but at a time when the
relations did not realise how ill the boy might become. This is a point that young doctors would do well to observe. A further point is this: Treatment ordered and nursing records and laboratory reports should not be in the patient's room, and should be available to the inspection only of a qualified medical person.

*If a consultant is called in, he should see the attending physician before he sees the patient and if he has any advice to give he should write it down, and not give it to or through the relations,—even if he be a relative of theirs.

Should the relations bring in persons with some medical knowledge, then these should be under the close observation of the hospital attendants throughout their visit. If a patient leaves the hospital he is entitled to copies of the temperature charts and the laboratory findings and a statement in writing of the treatment given.

A point not always observed by nurses is to enter on the temperature-chart all hypodermic and intravenous medication administered.

We all know of cases where relations may be neglectful in visiting the patient,—and these may have to be sent for and warned of the issue. On the contrary relations will on the other hand (especially if it is a sick child) be too apt to interfere with the treatment, attempt other methods or alter the routine that has been ordered.

In any event, in their disappointment and grief at the unhappy end, they may feel that, as in this case, they were not properly warned, that wrong treatment was given and that insufficient attendance was made.

I have known of a case also where the body in the mortuary was marked deliberately in order to make it appear that rough usage had been suffered by the deceased.

It behoves all doctors who know of these difficult cases to let the authorities know at once what the attitude of the relations is and to welcome all publicity that the Journals of the Medical Associations may offer.

Registration, National and Provincial, must not be neglected.

Yours faithfully

A. H. Skinner.

*See "Lancet:" Sept. 5, page 551.
Wanted

A woman Doctor with experience in Surgery and able to speak Mandarin.

Apply to
Dr. L. S. Huizenga,
Jukao, Ku.

Wanted

A Chinese Christian Doctor for full charge of an old-established hospital at Chuchiatsai, Shantung, one day's journey from the railway. Consultation with English Doctor a few hour's journey away. Beds 47.

Please apply to
Dr. F. R. Craddock,
English Methodist Mission,
Wutingfu, Shantung.

Wanted

Next Spring a well-recommended Christian doctor for the new hospital at Wuting, to work with foreign doctor and nurse. Great opportunity for suitable man or woman.

Particulars from
Dr. F. R. Craddock,
English Methodist Mission,
Wutingfu, Shantung.

Wanted

Kwang-Chi Hospital (Church Missionary Society), Hangchow. 250 beds general Hospital (plus 190 beds in leprosy and tuberculous depts.).

Wanted, a Chinese or foreign doctor (either man or woman) with surgical experience, to take charge of surgical beds. The appointment may be either temporary or permanent according to circumstances. Good opportunity for practical surgical experience.

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NEW MEMBERS ELECTED

Dr. R. W. Backus, Dr. F. G. Scovel,
M. E. F. B. P. N.
Peiping, Hopei. Tsining, Sung.