defects, is incomplete and often irrational. I cannot agree with the further use of the terms "uraemic" or "cardiac" asthma, even as terms of convenience; we should speak and think of an asthma associated with relative acidity of the blood, or, more briefly, an asthma of acidosis; we should separate our types of dyspnoea according to the nature of the stimulus which produces it; subdividing those of acid origin according to the type of acid which is in excess, and leaving those in which the same type of acidosis is found, whether such acids can be identified or not, in a single and undivided group, provisionally at all events. Proceeding in this manner we shall immediately separate dyspnoea due to volatile acid (CO_2) and non-volatile acid. In the last group we shall isolate the dyspnoea of diabetes; it results from intoxication by the acids diacetic and β -oxybutyric; and if these acids are in excess in diabetes only, we may still be content with the term "diabetic asthma."* We shall isolate the dyspnoea of continued exercise, it is produced by excess of lactic acid; and we shall place in a provisional and single group asthma associated with renal and cardiac disease, and may have to add to these a form of dyspnoea encountered at high altitudes. Taking the last group we may, sooner or later, come to regard the asthma in each case as the same, and due to a single error in metabolism, renal or otherwise; we may, on the other hand, be forced to place them separately; but at present, while asthmas which occur under these three sets of circumstances (renal, cardiac, high altitude) have much in common, they should be retained in a single class.

My reason for suggesting a classification with this basis is not a purely theoretical one; it has considerable practical consequences. For one and the same patient may, as we have seen, have dyspnoea from combined causes, and these causes may vary in intensity, relative to each other, in different patients and in the same patient from time to time; it is important that the cause or causes of hurried breathing should be recognized in a given case, for each has its own significance, and each calls for separate and appropriate remedies.

PROGRESS OF THE PATIENTS.

The further history of these patients in whom relative acidosis is discovered is variable. The majority are the subjects of disease which speedily terminates life. In many there is progressive emaciation; the constant distress and want of sleep rapidly fatigue and weaken the body, and exhaustion is profound at the end. In others, signs of cardiac failure are more prominent; they become more and more waterlogged and cyanosed, breathing becomes still more difficult, and the heart dilates; death appears to be due to cardiac failure. In others death is ushered in by cerebral attacks, and the patients die comatose or hemiplegic. As Drs. Ryffel, Cotton, and Wolff have shown, the picture may become complicated in the terminal phases by a retention of urea and of lactic acid. Inflammatory exudates are often developed; they may be limited to a single pleura or may affect both cavities, the pericardium and the peritoneum. When such appear, the temperature often rises to normal or above it before death. Draining the pleura is often ineffective, reaccumulation is rapid.

In some few patients the progress towards recovery, especially in those in whom signs of cardiac stasis are few, takes place. The dyspnoea vanishes, or is present only on exertion. Permanent and complete recovery is not known; relapses are frequent, and sooner or later the disease is fatal.

I do not propose to deal with the subject of treatment at all fully; it is equally variable with the symptomatology; usually it combines the treatment of renal and cardiac disease. I shall deal with special points only. For some of the patients a good deal can be done by treatment. Rest alone may be attended by considerable improvement. The dietary, as Huchard has stated, is important. Many of these patients are aware beforehand that a milk and vegetable dietary is the most suitable for them. A relatively salt-free diet seems to cause improvement in some instances. In patients who have dropsy the outlook is always serious, but some respond to diuretics, and those

* But if they also occur in starvation, we should return to a chemical terminology, defining the asthma as one resulting from a given error of metabolism.

who have fibrillation of the auricles may be greatly benefited by digitalis. Drainage of the legs should be carried out only with the strictest precaution. The incisions are prone to suppurate. Oxygen, even though administered in concentrated form, usually has little influence upon the distress of breathing. When the distress is great morphine alone affords relief. I have seen considerable relief follow free venesection, the breathing becoming quieter and sleep being induced.

The clinical signs sometimes show improvement on the cardiac side alone, so that cyanosis vanishes, engorgement and dropsy disappear, while the breathing still remains hurried, and bodily exercise remains difficult or impossible, because non-volatile acids still retain the blood in a state of diminished alkalinity.

I have given large doses of carbonates to several patients in the hope of altering the blood reaction; a difficulty in rendering the urine alkaline is often experienced, and although improvement has been seen in some patients, I cannot as yet speak of the remedy very hopefully. In the main our remedies are at present palliative, and temporary alleviation is alone anticipated.

THE ORIGIN OF THE ACIDOSIS.

Patients who suffer from the acidosis I have described have prominent lesions in two chief organs, the heart and the kidneys. In none of our cases were either of these organs found healthy after death. We seek the cause of the acidosis in defects of the circulation or in defects of the kidneys. That it is not due to deficient circulation is, I think, evident, for the degree of acidosis is not parallel to the circulatory defect. Is it the result of defective elimination, or does it come from an altered metabolism secondary to renal disease? To these and similar questions no certain answer can be returned; though we suspect that, as in one renal patient urea may be retained, and as in another chlorides may be retained, in a third type there is an alteration in the relative elimination of acids and bases. But whether this is the case or not is for the future to decide.

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An Address ON THE CLINICAL AND BACTERIOLOGICAL ASPECTS OF LEPROSY.

DELIVERED AT THE ROYAL SOCIETY OF MEDICINE,

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LEPROSY.

On considering leprosy from a nosological point of view we are struck by its long incubation, its slow and chronic course, and the terrible mutilations and disfigurement it is capable of producing without appreciably shortening the life of its victims. Its general infectivity, or, more correctly, contagiousness, appears to vary somewhat in different climates, because, though nowadays the disease, estimated by the number of cases, is practically confined to tropical and subtropical countries, still it is a universal disease occurring from north to south all over the inhabited world. In other words, it appears to have spread or persisted under some conditions and died out under others, for we know that it was extremely prevalent in Europe in the Middle Ages.

THE PATHOLOGY OF LEPROSY.

Its Contagious Nature.

It is not possible, from a scientific point of view, to deny that leprosy is contagious, even though we may not quite exactly know in which way the disease is transmitted from one individual to another. Knowledge of its

contagiousness is founded on the following substantiated observations:

1. That it is a disease due to a definite micro-organism.
2. That in Northern Germany, where the disease had been reintroduced from Russia in modern times, the infection was found to have spread concentrically from the first imported cases.
3. That the overwhelming majority of cases originate in countries where leprosy is relatively common.
4. That in the rare cases in which the disease has been contracted in countries where leprosy is not indigenous, such as England, Holland, and Southern Germany, we are able in every case to prove the more or less intimate contact with lepers who in their turn came to these districts after a more or less prolonged stay in a leprosy-ridden country.
5. That in countries where leprosy is relatively rare the disease is found to be bound to definite foci or families. This has been observed in the Alpes Maritimes, on the Riviera, and in the Valais (Switzerland).
6. That the countries which have carried out universal segregation have been rewarded by a gradual and constant diminution of the disease.
7. That where segregation has been abandoned or loosely carried out the scourge has attacked an ever-increasing number of individuals.

Arguments against its Contagiousness.

The grounds on which the contagiousness is denied are, I believe, the following:

It is said that medical men and attendants never contract the disease in leper asylums. This statement is not quite correct. Infection in these circumstances is not frequent, but several cases can be brought forward showing that attendants and medical men do contract the disease. In this country the infection of Sir George Turner has become public, but missionaries, nurses, attendants, and medical men are still living in England, and elsewhere, who have contracted the disease under similar circumstances, but whose cases are only known to those taking a definite interest in the disease. It should not be forgotten that on somewhat similar grounds the infectivity of tuberculosis has been denied, the deduction being based on statistics showing the low ratio of marital infection.

It is alleged also that the disease cannot be transmitted to animals, and inoculation experiments on human beings have failed. This also is not quite correct. The first part of this argument would have allowed us fifteen years ago to deny the contagiousness of syphilis. As a matter of fact, leprosy appears certainly to be transmissible to laboratory animals such as the rabbit or rat; the lesions in the first instance are very often strictly localized, and fail to develop at all in a very great proportion of experiments. The whole question is, however, still under discussion, but I am demonstrating sections under the microscope from which you may be able to form your own opinion.

As to the inoculations which Danielsson, Profeta, Cagnina, and Bargilli carried out on themselves and others, the results, it is true, were negative, but in view of the knowledge acquired of the bionomics of the leprosy micro-organism they have only proved that experimental inoculation with small quantities of leprosy material is incapable of producing the disease in the human being in every case. In Arning's well-known case of the convict Keanu, who was pardoned on the condition of allowing himself to be inoculated with leprosy, the disease did develop, but the case is somewhat spoilt by the fact that the man had lepers among his relatives, and was in contact with them before and after the inoculation.

Leprosy is a disease with consequences too far-reaching to make its inoculation morally justifiable, even on willing subjects. Therefore we must await the results of further animal experiments, which should confirm previous successful results.

Another argument often brought forward by non-contagionists is that leprosy disappeared in the Middle Ages from England, France, Germany, and other countries, though strict measures of segregation were not resorted to.

It appears to me, however, that the measures adopted to prevent the spread of the disease were extremely severe. Lepers were not allowed into churches or market-places;

had to carry a distinctive dress; had to make their presence known by a bell or clapper—in fact, the intimate contact between the healthy and the diseased, which gives rise to the most favourable conditions for transmission, was most radically avoided. I also believe that plague, directly and indirectly, swept away a great proportion of the leper population, as they were feeble, and, during times of epidemics and commotion, would receive no alms. This observation has been confirmed to a certain extent in India in modern times.

Family Statistics.

Figures bearing on the contagiousness of leprosy are available from Norway and Japan, and both seem to point the same moral.

Kitasato's statistics from Japan show that children of lepers become leprosy in a proportion of only 7.05 per cent. of the total. Matrimonial infection was proved in 3.8 per cent. of cases, whilst persons living under the same roof showed a proportion of only 2.7 per cent. Brothers and sisters infect each other in a ratio of 4.2 per cent. These figures may need correcting according to the latest statistical methods, but they roughly correspond to the experience gained in Norway. The statistics of Sand and Lies for that country differ somewhat, but show that the children of a leprosy mother are more frequently infected than those whose father alone is diseased. This indicates that the more intimate contact between mother and child leads to acquisition of the scourge in a greater percentage of exposed persons.

Sand's statistics for Norway show that in 357 married couples in which the father alone was a leper, 1,241 children were born, and 63 of these children (4.9 per cent.) became lepers. In 138 other married couples observed, the mother only was a leper; of 533 children born of these unions, 56 (10.5 per cent.) developed leprosy. In 17 couples both parents were diseased, and of the 63 children born to them 8 (12.7 per cent.) became infected.

Lies's figures from south-western Norway give somewhat similar results; 230 married couples in which the father only was a leper had 769 children, and 79 (10.2 per cent.) of these children contracted the disease. In 223 married couples the mother only was leprosy, and of the 648 children born, 106 (16.36 per cent.) became lepers. In 28 instances both parents were lepers; out of 79 children, 29 fell victims to leprosy—that is, 39.19 per cent.

All these figures show, however, that leprosy is relatively slightly contagious only. In certain circumstances, however, the disease has been known to be acquired with great ease after a very short stay (a day or two) in leprosy-ridden areas, though it may have developed or been noticed as late as twenty or more years after contagion.

In view of these facts it is absolutely useless to try and deduce anything from a small series of experiments, or experiments in which the observation has not been sufficiently prolonged. The same observation applies to the bacteriology of the disease; a few attempts at cultivation are bound to be futile, and even hundreds of tubes and dozens of attempts may result in perfectly negative results.

Mode of Transmission.

The statistics I have quoted seem to show so clearly that contagion or infection through immediate contact is the usual mode of transmission that it appears rather far-fetched to seek an insect carrier of the scourge.

As a matter of fact, all experiments to prove this mode of dissemination have so far failed, though it appears quite probable that the common house-fly can suck up the germs of the disease from open sores, and carry them about for several days.

The horrid sight of flies swarming and hovering round purulent sores and round the nostrils of leprosy beggars is well known to the traveller in Eastern countries.

The theory of the hereditary nature of leprosy has also been refuted in the course of time by the fact that the children of leprosy parents, if taken away at an early age, develop the disease in very rare instances only.

The possibility that in a minimum proportion of cases the lepra bacterium may pass the placenta and infect the fetus cannot be absolutely denied, but cases of congenital leprosy appear to be unknown, though in several instances

children have shown definite symptoms of the complaint before the age of 5.

The modern medical eye looks, therefore, upon leprosy as a disease which is definitely contagious, though under proper sanitary conditions to a very slight degree. In situations where hygienic precautions are defective and the contact between the diseased and the healthy is unnecessarily immediate—where, for instance, a leper is obliged to sleep in the same bed with other members of the family—and personal cleanliness is apt to be in abeyance, the danger of contagion is certainly present to a varying extent.

We know that at the present moment about 25 to 50 lepers, or perhaps more, are living in England, and yet of these only one has acquired the disease in the United Kingdom. The simple precautions these unfortunates are able to take to keep themselves separated from their families have been sufficient to prevent contagion.

In India, on the other hand, the last census appears to show an increase of lepers from 100,000 to 110,000 in ten years.

In Basutoland the principal medical officer counted 300 lepers twenty-five years ago. An official report was made asking the Government to enforce segregation, as otherwise an increase to double that number was to be expected within twenty years. For financial and other reasons this advice was not acted upon. Last year a census showed 800 to 900 lepers in Basutoland, so that the principal medical officer does not appear to have gone far wrong in his prophetic estimate.

THE TREATMENT OF LEPROSY.

Nearly every imaginable drug has been tried, and a great number are still under experiment in the hope of discovering a cure for leprosy; but we have yet to find a specific and sure method of treatment.

The present position can, however, be summed up by saying that even the most useful therapeutic agent requires the help of an early diagnosis of the disease and proper hygienic conditions; but that at no moment has the therapeutic outlook been so hopeful as at the present moment.

In its initial stages leprosy affects the general well-being and appearance of an individual to such a slight extent that any therapeutic effort which succeeded in arresting the disease in its early stages in a fair proportion of cases would practically amount to a cure.

Spontaneous remissions of the disease and spontaneous apparent "cures" occur, however, in a small proportion of lepers, and may last for several years, in some instances as long as fifteen years or more, but afterwards the disease may again become virulent and rapidly carry its victim to the grave. Therefore any drug or method of treatment must stand the test of time, five years or more, and be applied to a sufficient number of patients.

Without taking into consideration these important initial factors it is absolutely irresponsible to speak of cure in a disease so chronic, slow, and intractable as leprosy is known to be.

A review of all therapeutic attempts, many of them very sketchy and saltatory, would fill a volume by itself. I may, however, be allowed to give the results of the experience at Robben Island and in South Africa generally. For all advanced nodular stages Chaulmoogra oil, or, better, its refined constituent "antileprol," injected intramuscularly in doses of 3 to 5 c.cm. is still the best palliative I know. The injections should be repeated every three days, and the course should last five months or more if the patient can stand it, because at times the injections may become very painful. Chaulmoogra oil and antileprol can also be given internally in small capsules, and for this mode of treatment antileprol is decidedly preferable, as it does not cause the gastric disturbances produced by the unrefined oil. Doses varying between 15 minims and ten times that quantity can be taken daily.

Cases in the early macular stage appear to respond better to other forms of treatment. A cultural extract has been prepared from the micro-organism of leprosy isolated by Kedrowsky on lines similar to those used in the preparation of Koch's *alt-tuberkulin*. It contains, accordingly, the water-soluble toxic constituents of the bacillus, which, however, in the case of Hansen's germ, are very feeble indeed, so that much higher concentrations have to be injected than is the case in the analogous

treatment of tuberculosis by tuberculin. Dr. MacLeod, of Charing Cross Hospital, and Dr. Davies, Resident Medical Officer of the Pretoria Asylum, have made use of this substance on single selected cases. The result in both instances was very satisfactory. The maculae, or spots, slowly and surely faded away. [This was illustrated by lantern slides of photographs.]

Dr. MacLeod's case has now been under treatment over a year, and has improved to such an extent that the disease is no longer diagnosable. I am authorized to say that other therapeutic efforts failed to bring about any change for the better, and that the patient has now been observed for over a year and a half without any recurrence being observed. On the contrary, there has been subjective improvement, inasmuch as muscular pains, previously present in the affected arm, have disappeared.

Dr. Sydney Davies's patient, a girl aged 8½, was covered with dusky red patches, which were to be seen all over her body. They faded away during the course of treatment, which occupied three months, and had not reappeared during the following ten months. Similar results were obtained at Robben Island. [This was shown by lantern slides.]

I should like, however, to state clearly that this method of treatment does not appear to be of real advantage in advanced nodular cases. The injection of 1 or 2 c.cm. of the cultural extract causes a rise in temperature accompanied by the appearance of bacilli in the blood. This may possibly lead to dissemination of the germs of the disease; but if the individual affected is young and otherwise healthy and the leprotic symptoms not marked, a course of injections, beginning with 1 c.cm. hypodermically every three days, may be distinctly beneficial. The treatment should be continued for some time even after the maculae have disappeared.

The surgical treatment of leprosy requires most careful and constant attention. Fingers, toes, hands, and feet frequently become septic, and prompt surgical intervention can work marvels. Eye complaints, which are exceedingly frequent among lepers, are to a certain extent amenable to operative procedures, but relapses often follow even after the most skilful intervention.

PREVENTIVE MEASURES.

Having shown that leprosy is but slightly contagious if proper sanitary precautions are taken, and that any form of treatment which can be applied with any hope of success must be made use of in the very early stages of the disease, it may seem inconsequent to follow with the statement that only by a universal system of segregation can it be hoped to cope with the spread of the disease successfully and promptly.

The Americans in the Philippines succeeded by an energetic segregation of all cases in reducing the new admissions by 90 per cent. In South Africa, where in some districts, owing to financial considerations, only about one-half of the leper population is segregated, the rate of admission has remained constant for the last ten years. The Leprosy Repression Act in the Cape Colony was extremely severe, but owing to its very severity it could not be carried out in its entirety.

Opponents of segregation consider that it is cruel to separate the lepers from their family and friends. Two facts, however, are overlooked. One is that when an individual develops leprosy in a severe form his friends soon abandon him; and that consideration of the feelings of one may mean the misery of many, because one single leper may give rise to several. In a case observed in Northern Germany one girl directly and indirectly infected twenty-eight people.

It is only in properly constructed and conducted asylums that lepers can be taken care of satisfactorily and prevented from infecting their surroundings. If in the course of time early cases, and a certain proportion of the more advanced, can be favourably influenced by treatment, or even if the present results stand the test of time, there will be ample reason for trying to get rid of the scourge by universal registration and segregation—measures which ensure also proper treatment and care.

I quite admit that tuberculosis and syphilis present two problems which are equally if not more pressing. But we are not aware that consumption can be stemmed by segregation, and syphilis requires quite other measures.

Leprosy is so far-reaching in its social results, for the individual affected is cut off to such an extent from his fellow beings as to render his earning a livelihood very precarious, that whether we look at the matter from the standpoint of humanity or from that of sound policy, it is seen to be the duty of every Government to prevent its further spread.

It does not seem to have been sufficiently understood that all measures of preventive medicine which are based on sound scientific principles are excellent business propositions. I believe that the money invested in the study of Malta fever, now that the cause has been found, is saving the Government yearly a sum which would be sufficient to pay a dividend of 100 per cent. or more.

Such examples could easily be multiplied; one which lately came under my notice in Russia deserves mention here. Relapsing fever in Moscow alone attacked about 1,500 to 3,000 individuals each winter. Each patient remained in hospital from three to five weeks. Since the invention of salvarsan, which is a wonderful specific for similar diseases of the blood, the stay has been shortened to five days or a week. The resulting saving is about 30,000 to 50,000 roubles (£3,000 to £5,000) a year!

The sanitation of Khartoum, which owes so much to the work of Dr. Andrew Balfour, lately Director of the Wellcome Laboratories at the Gordon College, has also made itself pay over and over again in hard cash by the resulting influx of visitors and saving in hospital expenses for inhabitants and officials.

How are these comforting examples applicable to the problem of leprosy in the British Empire? By a systematic and persevering attempt to get rid of the disease by instituting settlements for the voluntary segregation of the worst cases, where the numbers are too great to be dealt with at one time, as is the case in India; and by a system of universal segregation in properly conducted asylums in those colonies and dependencies where relatively small numbers only are to be accounted for. Unfortunately, in some countries the principle "out of sight out of mind" is still applied to the leper asylums, and money spent on this principle is almost wasted. It should, however, be clearly understood that every system of segregation needs the co-operation of the lepers themselves, and this can only be obtained by paying the asylum staffs proportionately and adequately, and securing proper medical attendance.

The experience of other countries shows us that such a course would lead to the gradual extinction of leprosy, a disease which has now been known for so long a time that its survival should no longer be tolerated.

REMARKS ON ACUTE PANCREATITIS.

WITH NOTES OF SEVEN CASES.

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JUDGING from the literature on acute pancreatitis, one would imagine this condition, although very serious, to be one in which, with surgical intervention, a cure may be expected in about 40 per cent. of the cases.¹

We have recently had under observation 6 cases of this condition, all of which terminated fatally; 4 of these were treated by operation and 2 died undiagnosed. Although we are aware that the number of cases is small, our impression, gained from a study of them, is that the condition is more serious than one would be led to suppose by the cases already published. We may have been unfortunate in having to deal with a specially virulent set of cases, but we cannot help thinking that, as a rule, unsuccessful results are not published, and that this mitigates against a proper idea of the great gravity of the condition.

CASE I.

A male, aged 40, was admitted to the Norfolk and Norwich Hospital on December 22nd, 1909, with the history that the illness started suddenly on December 20th with acute pain in

the abdomen and vomiting. The pain continued severe and the vomiting became profuse. There was a history of previous attacks of biliary colic.

Operation.

On admission the abdomen was tender and rigid. No distension; no dullness on percussion. General condition very bad, skin cold and clammy. Operation two hours after admission—supra-umbilical laparotomy. Pancreas found hard, enlarged, sloughing in places, and beads of pus. Tubes inserted after incising the gland above the stomach and below. A few glistening white patches of fat necrosis seen in transverse mesocolon; none in omentum. The patient died twelve hours after operation.

Necropsy.

Closed wound above umbilicus, middle line, 5 in. in length, and an open wound 1 in. in length below the umbilicus. General peritonitis, lymph being found on the peritoneum. Fat necrosis in the transverse mesocolon. Three gall stones in the common bile duct, the gall bladder being full of stones. The tail of the pancreas quite necrotic, the head and body being of a dark red colour, swollen and hard.

Microscopical Examination.—The architecture of the pancreatic lobules is well marked. In some the cells are loose, breaking away from each other and the basement membrane; others are completely necrotic; in others abscess formation is taking place in the middle of a lobule already necrotic; others again have become abscess cavities. Extensive haemorrhage has taken place, mostly intralobular. The ducts in most cases show little change, but those in the centre of the larger necrotic areas are necrotic as well; in these the cell outlines have quite disappeared. Areas of fat necrosis are abundant. The islands of Langerhans are not to be distinguished in the necrotic areas.

CASE II.

A male, aged 40, was admitted to the hospital at 8.45 p.m. on August 27th, 1910. The illness began on the night of August 24th with sudden pain on the right side of the abdomen and vomiting; the latter became constant and profuse. On admission the patient was in a very collapsed condition; abdomen rigid and distended, dullness over pubes extending into right loin.

Operation.

At 10 p.m. on August 27th anaesthesia was induced with a mixture of ether and chloroform. The stomach was washed out preliminary to the operation, and a quantity of filthy brown fluid evacuated. Median subumbilical laparotomy performed; reddish dirty fluid found in the pelvis; small intestine very distended and dark red; circular, glistening white areas of fat necrosis seen in mesentery, but none in the omentum. The patient's condition was so bad that no attempt could be made to explore the pancreas, and he died from failure of respiration while the wound was being closed.

Necropsy.

A little reddish dirty fluid was found in the abdomen and fat necrosis in the mesentery. The pancreas was found firm and swollen, and appeared to be full of haemorrhagic effusion. The liver was somewhat enlarged and the gall bladder was distended, several stones being present, but the ducts were all patent. Nothing else abnormal was found, except old pleural adhesions on the right side.

Microscopical Examination.—The lobules in places appear normal, but most of them are in a condition of early necrosis, the cells being dislocated from their normal positions, and some parts have become quite necrotic. There is some inflammatory reaction, with haemorrhage around the pancreas. There are also areas of fat necrosis within the substance of the gland. The islands of Langerhans have suffered less than the rest of the organ.

CASE III.

A female, aged 51, was admitted to the hospital on November 19th, 1910. The illness began twenty-four hours before admission with sudden violent pain in the abdomen. History of "indigestion" for over a year, with two attacks of haematemesis. On admission the patient was in great pain, vomiting frequently. Abdomen rigid and tender, especially in the upper part; slight dullness above pubes. Very collapsed; no pulse to be felt at the wrist. Dr. Long and Dr. Cleveland saw the patient with one of us, and although a definite diagnosis was not made, it was obvious that an operation held out the best chance of life. At their suggestion the patient's limbs were firmly bandaged and two pints of saline and some pituitary extract were administered prior to the operation.

Operation.

Suprapubic laparotomy was performed. Dirty blood-stained fluid was found in the pelvis, and the omentum showed obvious patches of fat necrosis. The abdomen was washed out with saline, an incision made in the left loin, and a tube passed through to the tail of the pancreas, which was felt to be hard and enlarged.

November 20th. Patient comfortable; no pain; pulse, however, not perceptible. A quantity of dirty fluid draining through the tube.

November 21st. Pulse perceptible.

November 22nd. Patient better, pulse stronger, respirations 40, temperature subnormal.

The improvement did not continue after the 23rd, and the patient died on the 28th.