of the crystalline platino-chlorides. This is an additional reason for using the test in the direct manner.

I had, happily, kept a considerable number of the preparations of crystals which Mott and I had made years ago, and from which we drew our previous conclusions. On examining these afresh by the new means of identification we now possess, I have found that without doubt they do not consist wholly of the choline compound, but contain a considerable admixture of inorganic platino-chlorides, especially the platino-chloride of potassium.

We, however, still hold that the obtaining of a large crop of crystals, whether they be those of the choline salt or a mixture of the potassium and choline salts, is diagnostic of extensive breakdown in nervous tissues. The contrast between such cases and the insignificant yield from normal blood is most striking. This is quite intelligible when we take into account the very high percentage of potassium that nervous tissues contain. This has been amply demonstrated by the microchemical work of Macallum and of Macdonald. The rôle which Macdonald assigns to the potassium salts in nervous phenomena it is unnecessary to discuss here, interesting and important as his views are.

This has suggested to us a new piece of work which has only just been started—namely, the actual estimation of the potassium in the cerebro-spinal fluid and blood in cases of acute degenerative diseases of the nervous system in comparison with the normal. I am sorry I cannot at present give any final figures, but, so far as the preliminary work goes, it indicates a considerable increase of the potassium in those cases where disintegration has occurred, and where choline is also discoverable.

THE PHYSIOLOGICAL TEST FOR CHOLINE.

I have devoted so much time to the chemical test for choline because that is the one so obviously suitable for clinical work. The physiological effect on the blood pressure that choline exercises is, however, not devoid of interest, and a brief mention of some recent work in this direction will conclude what I have to say. Swale Vincent, in his earlier work on the physiological action of extracts of nervous tissues, found that the intravascular injection of such extracts caused in anaesthetized animals a considerable fall of blood pressure. I had simultaneously published similar results, and attributed the fall to the presence of choline. Vincent, however, denied that choline was present. He subsequently, with Cramer, amended this statement, but was of opinion that the choline present was in the form of dicholine anhydride. The existence of this compound is very problematical, and the analytical evidence presented is not very convincing; still the suggestion that compounds or modifications of choline may exist is not devoid of interest. Vincent and Cramer also found what I had missed—namely, that there are other substances present in such extracts which are readily soluble in ether, and which produce a much more powerful depressor effect on the blood pressure than choline, and that in the case of such substances the depressor effect is not abolished by atropinization. The identification of these other materials was not attempted. It is quite possible that these substances are absolutely distinct from choline; and, on the other hand, the view is permissible that they are choline derivatives. This second view gains point from a study of some experiments which Reid Hunt and Taveau brought forward at the meeting of the British Medical Association in Toronto last year.

Dr. Hunt is one of numerous American pathologists who have repeated and confirmed the original statements of Mott and myself, and has thrown himself into the choline controversy with characteristic transatlantic enthusiasm. He has prepared and studied the physiological action of as many as 19 compounds of choline, and suggests the possibility that some of these may be formed in the body. Some of them are more and others less active than choline itself; the most powerful is acetylcholine; this is one hundred times more active in producing a fall of blood pressure than adrenaline is in producing a rise; the injection of a few cubic centimetres of a solution containing it, diluted with one hundred million times its volume of water, produces a distinct effect in a rabbit. The action of acetylcholine is not annulled by atropine, and it is capable of overcoming the effect of adrenaline. On the other hand, some of the choline

derivatives examined were less powerful than choline itself; the introduction of a phenyl group, for instance, diminishes its depressor effect.

As an outcome of his work, Dr. Reid Hunt recommends two new tests for choline; one is the formation of the acetyl compound to render the physiological test more sensitive: the other is the formation of the benzoyl compound; this gives a distinctive crystalline platinum salt which cannot be confused with the platino-chlorides of ammonium or potassium. I have not actually tested these methods myself, but I think I have said sufficient to show that in the future those engaged in research will have no lack of methods to render the testing for choline a matter of no difficulty.

REFERENCES.

The bibliography of this subject up to 1905 will be found very completely given in my article on *Die Biochemie der Nerven*, in the *Ergebnisse der Physiologie*, vol. iv, p. 23, 1905. The principal papers which have appeared since are the following: J. Donath, *Journal of Physiology*, vol. xxxiii, p. 211; Rosenheim, *ibid.*, p. 220; Reid Hunt and Taveau, *BRITISH MEDICAL JOURNAL*, 1906, ii, p. 1788. Several observers have surmised that the breakdown of lecithin is due to the activity of a ferment; the ferment has, however, not been isolated. Marinesco (*La Presse Médicale*, February 16th, 1907) suggests that the ferment is formed by the neurilemmal cells, which actively multiply during Wallerian degeneration.

REMARKS ON A CASE OF SEVERE COMPOUND FRACTURE OF THE SKULL: RECOVERY.

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THE result of a severe injury of the head on the higher faculties is very uncertain and variable, and therefore it is always wise not to venture upon a hasty prognosis. After a severe concussion of the brain the patient may be often roused from a state of partial insensibility, and may even respond to simple questions, yet from the facial expression and the slowness of the articulation it is evident that a thick cloud is hanging over the intelligence, and this may soon end in fatal coma. Sometimes a moderate amount of shock and mental confusion is followed by the acute excitement of cerebro-meningitis, which terminates in damage to the sensory functions and permanent impairment of the faculties. On the other hand, cases of dangerous injury attended with deep insensibility and other grave symptoms do occur, and yet the patient ultimately recovers without any permanent disorder of the mental powers, as in the following case:

REPORT OF CASE BY DR. M'ELDOWNEY.

The patient was a young man, 18 years of age, who was just convalescent from an attack of typhoid fever. On March 21st, 1904, he retired to rest in fair health, but about 7 o'clock next morning he was found in bed in an insensible condition, with extensive head injuries inflicted with a heavy poker found in the room covered with blood and hair, and much bent by the force used in inflicting the blows. His head and face were enveloped with dried blood, the bed and carpet were saturated, and the ceiling and walls were spattered in every direction.

On my arrival at the house the patient was sufficiently conscious to say, "Hullo, doctor!" but he did not reply to questions, and shortly afterwards vomited and became unconscious. The pulse was then extremely rapid and feeble; the pupils were equal, half dilated, and insensible to light.

About 9.30 a.m. Mr. Ward Cousins met me in consultation. The patient was wrapped in blankets and placed on a table in another room; his head was then shaved and the scalp thoroughly sterilized. By this time the patient had rallied somewhat; his pulse had improved, and he showed some signs of restlessness and pain. An anaesthetic was administered, and we proceeded at once to examine the injuries and to carry out surgical treatment. The fracture extended over the posterior and inferior part of the right parietal bone, and involved also the upper edges of the squamous portion of the temporal and occipital bones. The diagram (Fig. 1) exhibits the outline of the broken and lacerated area where the fragments were driven in and firmly jammed together. The injury, however, extended over a larger portion of the cranium, for the edges of the opening were fissured and depressed in all directions. The dura mater and scalp were both extensively torn, and cerebral matter had escaped in two places into the wound through lacerations caused by portions of the bone, which had been driven into the brain (Fig. 2).

With the aid of the trephine and forceps all the fractured pieces were removed, and the depressed edges were elevated into position. The torn dura mater was, as far as possible, closed with catgut, the injured and bruised scalp placed in position and united by silkworm-gut sutures. Gauze drains having been introduced, the dressings were then applied.

Very little vomiting followed the operation. The patient

remained in a state of deep insensibility; the pulse was very rapid, the respirations hurried, and the pupils were half dilated and insensible to light. A rectal saline was administered at once and a nutritive enema was directed to be given every four hours.

No marked change occurred till the third day, when a severe convulsion set in, which commenced in the left arm and afterwards became general. Potassium bromide was administered. Within the next thirty-six hours there were two more attacks, but they were much milder, and afterwards they did not recur.

About the tenth day he began to exhibit increasing restlessness and other signs of returning sensibility. He commenced to swallow nourishment and freely ejaculated emotional expressions. The wound healed rapidly without any suppuration, and only a little serum escaped in the position of the gauze drains. The temperature was practically normal throughout.

On April 17th the patient was allowed to sit up. He frequently made inquiries about his head, and often made efforts to remove the protecting dressings. He was, however, quite unfit for any mental exertion, his memory for the little events of the day was very indistinct, and he could not recognize his friends or understand that he was at home.

His mental condition cleared very gradually, but on May 3rd he was sufficiently convalescent to leave home for rest and change. The pulsations at the seat of the injury were very marked.

After a few months he returned greatly improved, but he often remarked that he did not feel well enough to return to his studies. His memory was not as good as formerly, but he remembered going to bed on March 21st.

In May, 1905, he appeared in excellent health, the large scar on his head was much firmer and the pulsation much less marked; the unprotected area being, roughly speaking, a little larger than half a crown owing to the development of bone along the edges of the fracture.

REMARKS BY MR. WARD COUSINS.

Period of Danger and Insensibility.

In this case the patient had received many severe blows on the head with a poker. The skull was extensively smashed, the dura mater contused and torn, and through two large openings the cortical substance had freely escaped. Free haemorrhage had taken place from the wound, and the scalp had undergone much bruising and laceration. When first discovered he could be roused for a few moments, but after a brief period deep insensibility supervened with hurried respiration, rapid pulse, and marked depression. The pupils were half-dilated and equal, but they did not contract to light. The urine was passed involuntarily, and in this critical condition it was impossible to estimate the probability of recovery.

About sixty hours after the injury severe but not prolonged convulsions occurred, and involved every part of the body, but they were most marked in the left arm. Convulsions are generally cortical in their origin, and the parts convulsed may sometimes be regarded as a guide to the position of the lesion. In this case there was no direct injury of the motor area, but the damage was certainly not far away, and quite near enough to provoke convulsions. Twitchings and irregular contractions confined to a group of muscles or one limb may occur occasionally without loss of consciousness, but when convulsions are general, they are always accompanied by varying degrees of insensibility, the result of widely-diffused cortical irritation.

As a general rule, it may be fairly assumed that the amount of violence received by a blow on the head, or an injury caused by falling from an elevation, with or without definite local lesion, bears a distinct relation to the severity and persistency of the mental disturbance. The external injury may be slight, and the indication of

internal lesion of the brain very indistinct, and yet the damage to the higher faculties may turn out to be far more serious than those which result from a compound comminuted fracture of the skull; and it is my opinion that if the same extent of injury to the brain and bones of the skull which took place in this patient could be produced by gentle means without any violence, there would be very little insensibility immediately following the laceration.

The effects of traumatism are generally peripheral, and they bear a direct relation to the position and extent of the injury done to the brain. Superficial lesions of the cortex are far less serious than damage to the centre. Contusion and laceration of the cerebral tissue is always accompanied with the effusion of blood, and when the destructive changes involve the ventricles, pons Varolii, or medulla oblongata, fatal symptoms rapidly set in.

Position of the Cortical Injury.

The insensibility that followed violence was the result of the widely diffused molecular disturbance of the nervous tissue. The whole organ was severely shaken by the blows, but the damage found on examination was confined to the convolutions immediately under the seat of fracture. This region behind the motor area includes

the angular gyrus, the upper part of the occipital lobe, and part also of the temporo-sphenoidal lobe—a sensory area probably situated within the centres of sight and hearing, and in a region of the cortex where a unilateral and circumscribed injury is unattended with any definite loss of function. Now, although the brain contains many special centres linked together by perfect continuity of structure, there is no evidence to show that the higher faculties are mere functions of some portion of the complex nervous apparatus; but, on the other hand, there are many facts which clearly indicate that the mental activities are exercised through a wide cortical area, and are dependent upon the stability and normal condition of the whole organ.

Our patient received a serious injury of the convex surface of the brain, which rendered him dangerously insensible for a period of ten days. When indications of returning sensibility set in, he became restless, and performed irregular and meaningless efforts to carry out habitual movements. He opened his eyes, raised his hand to his head, and uttered emotional language indicating some irritability and uneasiness. Four weeks elapsed before he commenced to take any notice of his attendants, and he remained still longer incoherent and confused, then slowly the mental faculties began to reappear. He recognized that he was at home, and he casually inquired what had happened to him. He exhibited, however, no interest in his surroundings, and appeared to have no recollection of passing events. At the end of two months the intellectual improvement was very marked, and gradually his memory and all the higher faculties were completely restored.

Return of Mental Activity Coincident with Favourable Local Changes.

The passage from insensibility to the conscious state after a severe head injury is marked by slow improvement. The first signs in this case of reviving activity in the nervous centres were irregular muscular movements. The limbs were stretched out, and contractions followed in response to external stimulation. The eyes were then opened, and the organs of sense exhibited some returning sensibility. No doubt these external indications were

Fig. 1.—Shape of opening in skull. (The size was about 4 in. by 3 in.)

coincident with the favourable changes which were taking place at the seat of injury. The extravasated blood and cellular elements which had infiltrated the wounded tissue were now being steadily absorbed, and although many neurons had been destroyed the damage sustained was limited, and quite insufficient to cause any permanent loss of function. The gradual improvement in mental power was well sustained, and this rendered the prospect of a good recovery more hopeful without any remnant of the lesion beyond the scar, the local thickening of the membranes, and some adhesions between them and the cerebral cortex.

Risk attending Injury increased by Intemperance and Constitutional Disorders.

The prognosis in every case of head injury attended with violence is a matter of anxiety, but when the patient is in feeble health or is the subject of any constitutional disease, the risk to life is at once greatly increased. A man in good health and of regular habits often recovers from the effects of violence which, occurring to any one suffering from the structural changes associated with intemperance, would either prove fatal or terminate in serious loss of mental power.

A man, aged 52, well-built and muscular but unfortunately a very heavy drinker for many years, was thrown out of a carriage early in August, 1905, in a state of semi-intoxication. When seen a few minutes after the accident he was deeply insensible, with dilated and immovable pupils, and a large haematoma behind and above the right ear. There were also some small superficial wounds, and a little blood escaped from the external meatus, but no fracture of the skull could be detected. He continued in this condition for seven days with rapid pulse, hurried respiration, and moderate fever. A few teaspoonfuls of nourishment only were taken during this period, and the secretions escaped involuntarily; then partial consciousness returned, and was soon followed by paroxysms of great violence, during which he required the constant attendance of two male nurses. At the end of three weeks his condition improved, the maniacal excitement subsided, he slept calmly, and took nourishment freely.

Many months have now elapsed since the accident, and the general health of the patient is well restored. There is no indication of any form of paralysis, no loss of muscular co-ordination, the senses are entire, and the articulation is clear and distinct; still his mental power is obliterated, and he continues incoherent and senseless.

The patient in this case received a violent injury of the cortex without any definite indication of fracture of the skull. The mechanical disturbance of the brain caused at once capillary haemorrhage and transudation of blood into the strained and bruised nerve tissue already damaged by structural changes and vascular degeneration, the result of years of irregular living and intemperance. The violence, however, in this case happened to fall upon a dangerous region, and it is my experience that the immediate effect of an injury to the back of the head, whether with or without fracture of the skull, is attended with special risk, arising from the proximity of the disturbance of the brain to the vital centres which are lodged in the posterior fossa.

Permanent Injury to the Superior Cortex.

A few days after the accident a severe attack of localized meningitis set in, which has left behind many pathological changes. An examination of the brain of this unfortunate patient would probably reveal the destruction of a large number of neurons in the system of the superior cortex and a broad lesion involving both hemispheres, showing the formation of areas of sclerotic tissue, the increase of glia cells, and a large development of connective tissue elements. In similar cases the atrophic changes have been found to extend over a large

part of both hemispheres. Now, the structure of the nervous system exhibits great complexity, and is composed of cellular elements exhibiting many common characters and of marked histological similarity. Still, from clinical and experimental evidence, we are able to associate them together in groups by their functional activities in many regions of the cortex. The neurons are recognized as original elements, persistent structures of the organization, liable to very slow biological change, and, if injured or destroyed by any pathological process, are incapable of regeneration. They are, in fact, the material basis of the higher faculties during life, and their destruction over a large area results in a permanent loss of mental power.

Mental Condition of these Patients after Convalescence.

On reviewing these cases we can discover that they present many characters in common. At the same time, the after-effects of the injuries on the mental powers are widely dissimilar. Both patients received severe posterior cortical damage from direct violence which caused dangerous cerebral disturbance. Both escaped without any loss of motor power, the lingual and ocular muscles were unimpaired, and articulation and muscular co-ordination undisturbed. Both regained their health and vigour; but here the resemblance ceases.

When we turn to the condition of the higher faculties, the first patient, a young man of regular and temperate habits, has completely recovered without any loss of mental energy. In the second case the patient, a man of middle age, who had been for years a heavy drinker, and at the time of the accident was in a state of partial intoxication, still remains intellectually weak, his memory is confused, and he is incapable of engaging in any occupation.

The persistent presence of alcohol in the blood has a very harmful effect on the delicate structures of the nervous system, and at all times adds greatly to the risk of every form of traumatism.

Immediate Treatment for Promoting Firm Repair at the Seat of Injury.

Small bony injuries of the skull have often been successfully treated by immediate replacement of the fragments. Periosteum does not appear essential for maintaining the vitality of the graft, but whenever possible it ought to be preserved. Sometimes the replanted fragment becomes firmly united to the adjacent bone, but it is probably more often absorbed and replaced by new osseous tissue. In the closure of large defects of the skull caused by compound fracture the comminuted pieces cannot be reinserted in this way, and the orifice in the majority of cases is ultimately filled up by firm fibrous tissue without any formation of new bone.

In this case five square inches of broken fragments were removed at the time of the operation, but the injury extended over a much larger area, for all round the margin of the fracture the bony edge was broken and depressed. In closing the wound the fractured pieces were elevated into position, the lacerated dura mater was lightly placed over the exposed convolutions and fixed by a few catgut sutures, at the same time all the scales and little fragments of bone adhering to it and to the periosteum were carefully preserved, and after trimming the contused and injured skin the flaps were drawn accurately together with another layer of fine stitches and protected by three gauze drains. In this way a number of small bone grafts were introduced into the opening and in becoming ossifying centres they added greatly to the formation of the firm cicatrix. The centre of the fractured area was also fortunately narrowed by two projecting pieces of

Fig. 2.—Position of fracture. Line across skull indicates direction of fissure of Rolando.

partially detached bone, and these no doubt materially helped forward the satisfactory result.

For some months after the injury well-marked pulsation of the brain continued and the bony edges of the defect could be easily recognized; but when the patient was examined after a lapse of sixteen months a thick cicatrix had developed, the whole margin of the opening was well covered with firm tissue, and only a very feeble pulsation could be detected. I have practised this simple method in many cases of head injury with equally good results.

In concluding these remarks I desire to accentuate the value of utilizing scales and small fragments of bone in cases of extensive fracture of the skull, for the purpose of securing the development of a sound and thick cicatrix, a result which may be anticipated with confidence provided the wound is rendered thoroughly aseptic at the time of the operation, and the general condition of the patient continues favourable for gradual recovery.

The performance of secondary osteoplastic operations for the closure of large openings ought to be limited to cases in which persistent headache and other severe head symptoms are present, and there is evidence that these disorders can be attributed to the injury. Under these circumstances surgical interference may be undertaken for the relief of suffering which appears to be caused by some local irritation involving the cerebral cortex, and associated with cicatricial thickening and adhesion of the membranes.

CASE OF SUBCUTANEOUS INJURY OF THE PANCREAS: OPERATION: RECOVERY.

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Cases of subcutaneous injury to the pancreas without involvement of other organs must be extremely rare; in fact, it is difficult to conceive how such an injury can take place. Mikulicz (Moynihan's *Abdominal Operations*) had collected up to July, 1903, twenty-four recorded cases; of these thirteen were not operated upon, and all died; and of eleven which were operated upon, seven recovered. Some of the operations were late, and consisted of evacuating disintegrating blood clot and providing drainage.

J. H., a man aged 38, was admitted to the Royal South Hants and Southampton Hospital on October 10th, 1906.

History.

On October 6th he was walking home after dark on a road skirting the river Itchen, which was guarded by a wooden railing. He had taken a fair amount of liquor that night, and, his foot striking some obstruction, he fell over the rail into the river, hitting his abdomen as he did so. He was rescued and taken home, but remembered nothing until the next morning. He then had great pain in the stomach and back, shooting up into the chest. The pain came on worse in paroxysms, and was accompanied by severe vomiting, the vomit being of a greenish colour. He remained in much the same condition till October 10th, when he became much worse, the pain having spread all over the abdomen. He sent for Dr. Jackson of Eastleigh, who at once advised his removal to hospital. The day previously he had taken three doses of salts, but there had been no bowel action, though a little flatus had been passed.

State on Admission.

He looked extremely ill and was very pallid. The pulse was 100 and very small; temperature, 98.8° F. The abdomen was uniformly distended but not greatly so, and there was much rigidity; there was a little dullness in both flanks and in the hypogastrium, the rest of the abdomen was tympanitic. Liver dullness was present. There was tenderness all over. Rectal examination was negative. The examination of the chest yielded nothing of moment. Urine drawn off by catheter was healthy, a small quantity only being obtained. He complained of great abdominal pain and of much thirst. The case was regarded as one of peritonitis and exploration decided upon; it was carried out shortly after admission.

Operation.

The abdomen was opened a little to the left of the middle line between the umbilicus and pubes by an incision about 3 in. in length. Liquid blood began to flow out

from all directions as soon as the peritoneum was opened. The incision was enlarged upwards and downwards, and the lower viscera explored, no injury or disease being detected; there was much clot in the pelvis. The hand, passed upwards, came across a bulging, semi-fluid swelling above the navel; an incision was therefore made above the umbilicus, about 4 in. in length, when blood was seen coming through a hole in the omentum, between the stomach and transverse colon. The two cuts were now joined, and it became apparent that the swelling was the lesser sac filled with clot and fluid blood. The opening in the omentum was enlarged by tearing and the clot removed by handfuls. Dark liquid blood continually welled up from the region of the pancreas, obscuring everything so that a view of the source of the flow was impossible. It was obvious that the only thing to be done was to trust to gauze pressure, and accordingly gauze was packed firmly against the pancreas and the back of the lesser sac, quite 12 yards being used. The abdomen was rapidly closed with through and through silk-worm-gut stitches, and several pints of saline fluid poured into the general cavity. The end of the gauze was brought out of the wound on a level with the hole in the gastro-colic omentum. The operation had to be completed as rapidly as possible owing to the collapsed condition of the patient.

The next day, October 11th, the man had recovered to some extent from the shock. Temperature was 99.2° F.; pulse about 100, and extremely feeble. He vomited on and off all day. Saline fluid was given by the bowel. An enema in the evening brought away a fair amount of flatus. There had been much oozing from the wound; the dressings were changed, the gauze plugging being left untouched.

On October 12th he was distinctly better, and was able to take fluid nourishment. Calomel was given with good result. Dressing changed. Discharge thinner.

October 13th. Still improving. Pulse 86. The gauze plug was becoming loosened by the blood-stained discharge, and part of it was removed by gentle traction.

October 15th. The rest of the gauze packing was removed quite easily. There was much discharge of blood-stained fluid.

The wound healed up fairly well, except for the sinus where the plug had been, and from this was discharged daily 6 to 8 oz. of clear fluid. This fluid was most irritating to the skin, causing a very painful dermatitis wherever it came in contact with it. The skin condition was relieved by a catheter conveying the fluid from the sinus to a bottle. A specimen of the fluid was sent up to the Clinical Research Association, and was reported to be pancreatic.

He was discharged well on December 12th, fitted with an abdominal belt, to which was fixed a celluloid flask with a small rubber tube leading into it, the other end of which, inserted into the sinus, conveyed the juice away without contact with the skin.

When seen last, in March, 1907, he was doing his work, the sinus still discharging 3 or 4 oz. of fluid a day; belt and apparatus as before.

On one occasion (January, 1907) the sinus had closed, as he had left out the tube for some days. He came up complaining of pain in the back. A small nick was made at the site of the sinus, and several ounces of fluid let out, with immediate relief; the tube was then put back.

Before operation no diagnosis was made, in fact the condition was extremely puzzling. There was the history of injury with much pallor and signs of commencing peritonitis, the patient having become much worse the day of admission. There was no bruising to be found anywhere. Ruptured bladder was thought of, as there had been some difficulty of micturition with frequency. On opening the abdomen the appearance was just like that of a ruptured ectopic gestation. When the abdomen was completely laid open by joining the two incisions, a rapid examination of liver, spleen, mesentery, etc., disclosed no apparent injury, the trouble being confined to the lesser sac.

There is no doubt that laceration of the pancreas had taken place, as was proved afterwards by the discharge of pancreatic juice. An irregular mass could be felt at the back of the cavity; but no view could be obtained, owing to the continual flow of blood.

Evidently bleeding at first was confined to the lesser sac, and the paroxysmal increase in the pain the patient suffered the first day or two was probably due to successive hæmorrhages into the distended cavity. When the man became so much worse on October 10th, the extravasation had doubtless burst through the omentum between the stomach and colon, involving the general cavity of the peritoneum.

Many cases of pancreatic cyst so called have followed injuries to the upper part of the abdomen, and are probably caused by blood extravasations into the lesser sac with a wound of the pancreas allowing the escape of a certain amount of pancreatic secretion. In this case it is