it. Occasionally iodoform causes acute local inflammation. A lady had several operations performed upon her face after a severe horse accident. A little finely-powdered iodoform was dusted upon the wound, and produced an acute dermatitis with abundant vesication. Had this occurred but once I might not have thought much about it, but it happened after a second operation, and not after others in which iodoform was omitted. It is only fair to say that iodoform has not infrequently been blamed for the effects of septic infection. Doubtless the layer of iodoform dusted upon a wound served a good purpose by excluding the air, but a layer of silver foil is more efficacious and perfectly harmless.

We all devote much time and attention to methods of operating, but I am inclined to think that all do not give the same thought to what may be called "the organization of operations." I should imagine that the organization of an operation bears the same relation to methods of operating as strategy in war bears to tactics. In an aseptic operation every detail must be perfect and all engaged in it consistent. Not least amongst the details should be included an exhaustive diagnosis and a complete knowledge of human anatomy and pathology. To get the very best results in hospital practice each surgeon ought to have his own wards, theatres, instruments, nurses, and assistants. It is most undesirable for septic cases to be introduced into the wards or theatres used for the aseptic, and separate septic wards and theatres ought to be provided. It is necessary to make provision so that septic cases arising in the wards can be removed. Obviously to carry out these requirements necessitates a much larger provision of isolation wards for septic cases as well as a theatre for septic operations. Moreover, the theatres at present used for aseptic operations often leave much to be desired, especially as regards the intrusion of the audience into the area of operation. The present organization, buildings, and equipment of our old hospitals cannot be made to meet such requirements as these; but I do not doubt that evolution will continue and that our ancient hospitals will be replaced by modern. Hospitals built on modern lines require for their construction a spacious area of land. Imagine for a moment a spacious ward containing twenty-five beds, all in view of the night nurse. Then project from one end the sanitary towers cut off by cross-ventilation, and perhaps a balcony too; at the other end put the sisters' room, kitchen, day room for convalescents, clinical room, four separation rooms, linen rooms, clothes room, and such like conveniences. Lastly, remember that in proximity must be operating theatres with anaesthetic rooms, recovery rooms, instrument rooms, and dressing rooms. What a space all these require, without mentioning the accommodation of the resident medical and surgical staff, or of the medical school, or of the sterilizing rooms, or machinery for heating and ventilating. A medical school is a great aid to efficiency and to that perfection of organization which aseptic surgery demands. Further, it is to be remarked that all this tends to the humane and considerate treatment of those who are so helpless from disease or injury. To my mind it is barbarous to compel those who are convalescent to sit about in wards surrounded by those who are undergoing the painful ordeals from which they themselves have just emerged, and to pass their time

'Mongst horrid shapes, and shrieks, and sights unholy!

Day rooms should be provided for them, and separate rooms for those who are maimed, and whose lives are ebbing away. As a profession we are far too callous about these things.

It is also probable that the system of assistants will require modification. It is of importance that the surgeon should be assisted by one who is a convinced aseptician, and who is thoroughly conversant with his methods. In nearly all our hospitals the house-surgeons and dressers are appointed for limited periods. Those gentlemen do their work remarkably well, and with great devotion, but unfortunately their period of office comes to an end just as they are beginning to be efficient.

Obviously our present system must increase the percentage of sepsis even among the cases of the most consistent aseptic surgeon; but the system is of great educational value, and it is difficult to say which is best—a system which sends out into the world numbers of men well educated in the requirements of aseptic surgery, or one which helps one surgeon to obtain a minimum percentage of suppuration. I myself have no doubt as to the right answer; the greatest good of the greatest number ought to prevail. I believe that

the inhabitants of the British Isles, even in remote parts, have at their disposal one of the best medical services that exists.

I have pointed out many details in which my own organization may be imperfect. The disinfection of the skin of the patient and of the operator's hands leaves much to be desired, and much of my work has to be done amidst surroundings which are out of date. But one who is alive to deficiencies is more likely to supply them than one who is wrapt in complacent optimism. I am an advocate for simplicity and uniformity in the organization of operations. It has been well and truly remarked by the celebrated Desault "that the simplicity of an operation is the measure of its perfection."⁶ In organizing the operation it would be hard to improve upon these words of Desault, quoted with approval by one of his peers. Now that we are so alive to the dangers of infection simplicity is more needed than ever before. The elimination of each unnecessary pair of hands lessens the dangers of infection. Therefore the surgeon alone handles the instruments, ligatures, sutures, and dressings. The single assistant has little to do and his fingers ought to be kept out of the wound. A garrulous assistant is particularly objectionable. A passage of infective particles from the nose and mouth ought to be a well-recognized danger. Simplicity should govern the choice of instruments and of materials. Instruments should be few and simple, materials uniform and simple. Thus it would be safer to use a single reel of silk throughout than several sizes, with perhaps some fishing gut or catgut and kangaroo tendon in addition. Obviously diversity of materials multiplies the chances of infection. The same applies to dressings. The chances of error must be less when one kind of dressing is chosen and adhered to. As our hospital organization is at present I find it difficult to adhere to one dressing and those who watched my practice might naturally suppose that I was extremely inconsistent.

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SOME PRACTICAL POINTS ASSOCIATED WITH APPENDICITIS.

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QUITE recently it has fallen to my lot to see several cases of appendicitis which present tempting material for a few remarks, for almost every case, and certainly every group of cases, presents some features of interest and value.

Somewhere about twenty-five years ago I excised the appendix, long before it had become a fashionable procedure. No doubt, like many other affections, appendicitis had been long known and recorded, but its full clinical significance was not appreciated until more recently; now, as one comic paper cynically observes, those are most subject to it who can afford to pay for an operation. There may be some truth in this, although it is by no means the rule.

The early symptoms are often not only obscure but positively misleading, and the typical signs the books describe so mathematically are often represented by a cipher. Statistics on the subject have been denounced by one surgeon as belonging to the third category of lies, so I will refrain from alluding to them. The remarks I have to make are based entirely on my own observation and experience, which date back to a period long before McBurney's point was ever heard of.

CASE I.

The first case of nine quite recent ones was a young gentleman, aged about 22, whom I was asked to see by Dr. Leapingwell. When I saw him he looked very ill. There was distinct tension and fullness over the right intra-iliac region; he did not complain of pain, and only slight tenderness over the swelling. The temperature, which had been nearly 108° F. at 4 a.m., was at 8.30 a.m. about 104°. His pulse had become firmer, about 120. As he had rallied from the collapse of early morning I at once operated by lateral incision, and found considerable matting of the omentum round the caecum, the appendix gangrenous, lying in a circumscribed cavity containing some reddish, thin, foul pus. I removed the appendix very close, and noticed sloughy patches on the

caecum. A large drainage tube was inserted and some iodoform gauze. There was almost immediate improvement, and in less than a month he recovered completely.

CASE II.

A healthy farmer, aged about 34, whom I saw with Dr. Munro, of Nantwich. No history of any previous attack. Had the usual symptoms of ordinary subacute appendicitis, extending over nearly a fortnight. Then an ill-defined hard mass was felt near the umbilicus, the right side of which, when I saw him, was nearly the size of the fist. There was much tenderness over it, but little pain. He had, however, dry tongue, a temperature of 101° to 103° , and looked decidedly ill. An opening was made over the swelling along the outer edge of the rectus, and several ounces of thick, fetid pus evacuated. As the mass was omental and well shut off from the general peritoneal cavity, I disturbed it as little as possible, and put in a large drain only. Recovery was rapid and complete.

CASE III.

A Convent school girl, about 11, in whom the symptoms had developed rapidly. I saw her at the request of Dr. Hartley, and found a history of habitual constipation, and two nights before she had a very indigestible supper, followed by sickness, diarrhoea (so-called), and very acute abdominal pain referred chiefly to the right side and umbilicus. When I saw her late at night there was extreme distension of the abdomen, with rigidity of muscles, but no defined tumour. Chloroform was given, which enabled me only to make out there was fluid in the peritoneum. I arranged to operate at 8 a.m. the next morning. I opened the abdomen in right side, found intestines more or less matted, with foul sero-pus in general cavity. There were numerous adhesions about the caecum, but no appendix could be made out. It had clearly sloughed. I put in a large drainage tube, which had to be used for some time. She is now convalescent. There was no sickness after operation.

CASE IV.

A gentleman, aged 24, seen with Dr. Candler. This was the third attack, two others having occurred abroad. When I saw him the attack was passing off, so we waited for a few days, and then operated. I made the usual lateral incision, removed the appendix, which was very long and thick, and adherent to the side of the bladder. The patient was tuberculous. The appendix was found to be very large, thickened, and contained pus, with bacillus coli, but no tubercle. No drainage. Rapid recovery without untoward symptoms, except some temporary rise of temperature, which disappeared on removing some sutures.

CASE V.

A married lady, aged 35, whom Dr. J. M. Johnson asked me to see. In this instance obstinate constipation, followed by severe sickness, were the marked indications. There was a distinct hard swelling over the caecum, tender on pressure, but no marked rigidity of the muscles. Under the influence of hot applications and calomel and opium, this case yielded to treatment, and the thickening round the appendix gradually disappeared.

CASE VI.

A farmer's wife, about 42 years of age, whom I saw with Dr. Hall of Alton. She had subacute symptoms for two days, constipation, very frequent sickness which steadily increased, and acute abdominal pain chiefly at the epigastric and right iliac regions. She was subject to epilepsy. Morphine and atropine had been freely given to relieve the pain. She refused to let us examine her, and, by way of evading it, struggled violently, then climbed over the foot of the bed on to the floor. Under chloroform the muscles were rigid, abdomen very tense, and there was a localized swelling on the right side. I made a lateral opening, found a large quantity of milky fluid, fetid and confined to the pelvis and right abdomen by numerous adhesions. In some matted omentum I found the appendix very adherent and excised it in the usual way. On the surface were numerous granular bodies, also on the surface of the ileum and caecum, which looked precisely like tubercles. They were found to consist of tuberculous matter. A drainage tube was used and kept in for about ten days. In spite of all the drawbacks, she made an excellent recovery.

CASE VII.

A young dressmaker, 14 years of age, attended by Dr. Russell, who asked my opinion more especially as to the propriety of operation. The symptoms were chiefly constipation and sickness at first—very little pain complained of anywhere—some slight tenderness over the caecal region, and abdominal distension. We agreed that there was nothing to warrant operation; and as she continued to improve after the bowels had acted, we felt the attack meant to subside. She was, however, allowed to get up to the bed chair, and the same evening severe pain at the epigastrium and rapid abdominal distension set up, accompanied by signs of collapse with a running pulse and rapid rise of temperature. Clearly perforation had taken place, and immediate operation was imperative. She had some rectal enemata, strychnine, etc., to avert collapse, and we operated in a very short time after, when she looked alarmingly ill. On opening the abdomen, a quantity of most putrid thin sero-pus escaped, and among a mass of very recent adhesions were two concretions lying loose which had no doubt escaped from the perforated appendix. The girl was so very ill, I did not attempt to remove this, more especially as it appeared to be gangrenous. A large drain was put in, and each day the cavity was carefully emptied. As the peritonitis subsided, she gradually improved and has made a good recovery.

CASE VIII.

A young man, about 21, seen with Dr. Parkes. The symptoms had

come on insidiously, constipation and sickness being the most marked. Pain, beginning over the appendix, had become severe and was most marked below the umbilicus. There was a distinct lump, with typhoid tongue, high temperature, and feverishness, and he was rapidly getting weaker, so we advised his removal to the North Staffordshire Infirmary. There he was admitted under the surgeon of the week, the acute symptoms having subsided, but some induration remaining to the right and below the umbilicus. It seems like one of those slumbering volcanic cases which may open up a crater at any time.

CASE IX.

A young groom, 18 years of age, in Cheshire, whom Dr. Stain, of Audlem, sent an urgent message for me to see with him. Symptoms began after a chill about thirty-six hours previously, and developed rapidly into those of general peritonitis. I operated in less than two hours after. The abdomen was swollen, very tense, extremely tender to touch over the right side, which was more resistant than the left. Temperature 103° , with rapid pulse, frequent sickness, great thirst, etc.; he looked extremely ill and weak. A right lateral excision gave exit to a large quantity of foul sero-purulent fluid; there were numerous adhesions extending quite into the pelvis, where the omentum was firmly attached to the ileum. No attempt was made to remove the appendix, as I wanted to be as expeditious as possible. He rallied well, and was apparently going on favourably until the evening of the second day, when he died quite suddenly from syncope. Dr. Stain very kindly sent me the following account of the necropsy: "The caecum was very firmly bound down to the posterior abdominal wall, the appendix firmly adherent to the caecum. Lying outside it was a concretion, possibly dislodged by manipulations. The appendix contained another concretion, was very short, and had thin and friable walls. In addition to the adhesions mentioned the whole contents of the abdomen were bound together by fresh and easily broken down adhesions, extending as far as we could reach through the wound."

CASE X.

More recently I have seen a very similar case to the last. A lad, aged 17, healthy and strong, got overheated in running after hounds on November 14th, 1903; had a heavy supper after. Next day complained of *malaise*, attributed to dyspepsia; the second day had inclination to sickness, bowels had acted the previous day; and on the morning of the third day sent for his doctor. He was then very sick, had severe pain and fullness of right iliac region, and tenderness to touch. No flatus was passing. I was at once wired for, and when we saw the patient in the afternoon we found rigidity of the right lower abdomen, great tenderness to touch and dullness on percussion. The pulse was 72, temperature normal. The definite signs decided us to operate, which I did forthwith (finding the Blieriot lamp of my motor car a great help); and we found about a pint of flaky serum in the peritoneal cavity, a long, rigid, highly-congested appendix already adherent and curled up; but no defining lymph exudations. Here was a typical case of acute catarrhal appendicitis running rapidly to acute septic peritonitis. There was a dark patch near the extremity, which in a few hours would have sloughed. A drain was put in; the patient has so far done well.

Of these 10 cases 6 were operated upon during one week, with one death.

If we take these as typical instances of some of the conditions associated with appendicitis, we find simple catarrhal inflammation, recurrent appendicitis leading to recent adhesions, entirely local; a more acute inflammation with or without matting of all the adjacent parts, with general peritonitis, causing abundance of serous effusion. Again, in Case III we have a far more acute form coming on suddenly, with rapidly developing symptoms, ending in acute septic peritonitis and a sloughing appendix.

A further variety we find in Case VII, where the ordinary indications of appendicitis were present, and steadily improved under medical treatment for three or four days, when sudden collapse occurred with acute pain at the epigastrium, and rupture had taken place, thin sero-pus only being found in the pelvis.

In Case II symptoms developing slowly, leading to a large collection of pus in a general matting of the omentum to the anterior abdominal wall.

Case IX was of a very acute type, without the graver symptoms, but running rapidly into a very septic peritonitis, with only very recent and slight adhesions. The septic condition began before the inflammatory had time to do any protective work. Then there is, lastly, the fulminating form so-called, with alarmingly high temperature and rapid collapse (Case I). Such cases are, humanly speaking, lives entirely saved by operation, for without it none recover.

The ordinary symptoms of simple appendicitis are sufficiently familiar and I will not detail them, but there are some to which I think undue importance is attached, while there are others which may readily be mistaken for those of other morbid conditions. Pain, for example, is relied upon by some as essential. I have seen several cases in which the pain has been so slight as to be hardly mentioned by the patient. The locality of the pain, too, is very misleading. In a large proportion of the worst cases the pain is referred to

the epigastrium or along the course of the colon. Epigastric pain is almost invariably associated with peritonitis, and is one of the most valuable indications of its presence and the need for operation in these cases. Tenderness on pressure and referred pain should be kept distinct. Tenderness is usually over the seat of the appendix, but it must be borne in mind that the appendix may be fixed in one of the hernial openings (I found it in the obturator foramen in one of my patients), or, on the other hand, it may be free and move its position considerably, hence the locality of the tenderness may vary greatly. In women it is liable to be confounded with ovarian tenderness, and it is not an uncommon thing for the appendix and ovary to be adherent—both inflamed. I have before pointed out the comparative frequency of appendicitis in young women occurring at the catamenial periods. The presence of a lump again is very misleading. A good proportion of the cases where a localized swelling appears without very marked constitutional symptoms do well, and recover without operation. The absence of such a swelling indicates little, for the appendix may be gangrenous, may be hidden away down in the pelvis, or may be doubled down behind the ileum, and no lump be perceptible at all.

But when we come to abdominal tension, especially with rigidity of the right abdominal muscles, we have an indication of a more definite character, almost always denoting formation of pus or circumscribed peritonitis. This, in conjunction with constitutional symptoms, especially persistent sickness, is almost pathognomonic. In such cases operation is demanded. Constipation is no doubt usually present, but, on the other hand, spurious diarrhoea is not uncommon. There is frequently a history of more or less habitual constipation, with some unusual meal followed by sickness and diarrhoea, which may persist even as the graver symptoms increase. Temperature counts for little, except when a sudden rise gives indication of grave mischief, which is ordinarily apparent enough already. The same as to pulse; it is often quiet, and even slow, when the necessity for operation is clear enough (Case x).

Then as to the grounds on which we ought to operate in acute cases. Each case must be considered on its merits; but one safe rule may be laid down—that with any definite indication of general peritonitis or of increasing prostration denoting septic trouble no time should be lost; where the temperature rises and falls irregularly, with some weakening of pulse and increase of abdominal tension, operation is demanded. Persistent sickness, obstinate constipation, with typhoid symptoms, likewise. Localized swelling, painful and tender to touch, with steady rise and fall of temperature, denotes pus, and ought to be evacuated before bursting into the general cavity. Many such cases are extra-cæcal, and can be safely opened and drained from outside the peritoneum. Nearly all these do well.

The more I see of appendicitis the more am I convinced that it is far safer to operate too soon than defer it a minute too long. It is true the graver ones come most under my observation, and I frequently am not asked to see them until all doubt as to the wisdom of operation has passed; still even where we deem it wisest to wait in hope, we too often find that hope deferred maketh the patient's heart sick, and sudden symptoms of the worst character arise while we are hoping for the best. One case in this list especially emphasizes this, for Dr. Russell and I were both agreed in the case of Miss L. that we might safely wait, as the symptoms were apparently (I say "apparently" advisedly) improving, and the girl herself was cheerful and comfortable. Yet you have heard what happened. Sudden collapse, with acute peritonitis, and fortunately for her she was operated on in less than two hours after and her life saved. If she had lived far away from the surgeon and the telephone, or he had acted less promptly, that girl would certainly have died. We ought to have done it the day before, apparent improvement notwithstanding. I hope you will not misunderstand me; a certain proportion of patients will get well with ordinary care and treatment, especially strict recumbency; but in all cases of doubt it is far safer for the patient, and more to the credit of surgery, to act soon, and make practically certain of saving the patient's life. Friends have something to account for in some cases, for the pleadings for delay serve just to tip the balance of doubt in the doctor's own mind, and lead him to consent to delay, even sometimes where his unfettered judgement would decide otherwise.

As to the nature of the operation, that can only be decided after it is begun. When the appendix can be safely removed,

I always remove it; but this is sometimes impossible, and the condition of the patient often requires as rapid and as simple a procedure as can be. In all instances free drainage may stave off imminent death, and prove the first step towards complete recovery, even were it is not possible to do more. No one ought to be allowed to die unopened, unless actually moribund. Some most desperate cases do get well.

NOTES ON AN INEFFECTUAL TREATMENT OF CANCER ;

BEING A RECORD OF THREE CASES INJECTED WITH DR. OTTO SCHMIDT'S SERUM.*

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So much has been written lately about cancer that when your able Secretary—Mr. J. R. Johnson—asked me to read a paper before you, taking malignant disease as my text, I was more than half inclined to excuse myself on the ground that I had nothing of importance to communicate; but just about the same time my friend, Dr. Harold Johnson, came with a glowing account of a new method of treatment introduced by Dr. Otto Schmidt, of Köln, and I told him that if he would procure the serum I would provide the patients, and would afterwards give, as far as possible, an unbiased account of the results obtained by its use. The notes of these cases, and the conclusions which I draw from them I now propose to bring before you, for I know that, like the Athenians of old, the members of the Richmond Division of the Metropolitan Counties Branch of the British Medical Association, love "to spend their time in nothing else but either to tell or to hear some new thing." Besides, I think in so important a subject as cancer, with its apparently increasing mortality, that a fair trial ought to be given to every method of treatment which promises to give relief, provided that method can be adopted without ill-consequences to the patient. Such trials are most fittingly carried out by those who, like myself, are working in the wards of a large general hospital, for the test can then be conducted upon lines which will at least ensure an accurate record of results. The patient can be watched with a scientific accuracy which is impossible in private, for one has the assistance of the house-surgeon and dresser, the ward sister and the nurses. The observations, too, are checked and counterchecked, so that there can be no question as to their accuracy and as to entire absence of bias attending their record. I take this opportunity, therefore, of thanking Mr. Waterfield and Mr. Gurley, as well as Sister Lucas, Sister Henry, and their nurses, for the assistance they have given me in obtaining the detailed information which I shall presently submit to you.

Dr. Harold Johnson's account of Dr. Otto Schmidt's work appeared in the *Lancet* for November 14th, 1903, p. 1374, under the title "Dr. Otto Schmidt's Specific Treatment of Cancer," and his paper gained a somewhat wider circulation than was intended, as a long abstract appeared in the *Daily Mail*. The points upon which special stress is laid appear to be three in number. First, a specific reaction indicated by a general rise of temperature; secondly, local manifestations connected with the new growth; thirdly, alterations taking place in the new growth in the direction of its conversion into scar tissue. I quote a few passages from Dr. Johnson's paper on each of these heads:

1. The most constant and striking result of the injections into the body of a cancerous patient is a specific reaction in the tumour and infected parts. Injections of the cultures into a healthy subject or into one suffering from any other disease produce no symptoms whatever beyond the pinprick of the hypodermic needle. But if the cancerous process is in the body then the specific reaction is produced whenever there is any recuperative power in the blood of the patient. After the second or third injections, and generally eight or ten hours afterwards, there is a general sense of *malaise*. The temperature rises more or less: most often the evening temperature alone is raised, but sometimes the morning temperature is also affected. In a few cases the highest temperature is found in the early morning hours. The rise may occur suddenly, or it may go up by daily increments to 102° F., then it falls to the normal in two or three days. The primary rise of reaction may go on in spite of the discontinuance of injections as soon as the temperature rises at all. Patients whose blood is already poisoned by toxins—cachectic patients—often do not react at all.

2. Local signs and symptoms are noticed about the same time as the

* Read at a Meeting of the Richmond Division of the Metropolitan Counties Branch of the British Medical Association.