that the only officially recognized treatment of cancer is the knife, and the knife as early as possible.

Now it seems to me that this phrase—that a cancer is inoperable—requires consideration, and perhaps some qualification. What is an inoperable cancer? Does the surgeon mean merely that in his opinion an operation is not advisable because likely to be followed by speedy recurrence, or does he mean that it is literally impossible, without undue risk to life, to perform any operation? From the point of view that the term "inoperable" may have a different meaning, for he may decline to submit to the vast mutilation that some surgeons still—and with good results in many cases to support them—feel themselves justified in recommending. For example, a patient has a small buccal or lingual cancer. The surgeon consulted thinks it quite operable, and suggests excision of the upper jaw or complete removal of the tongue. A further case has shown me that radium is worthy of recognition by every surgeon and physician who may be called to deal with an "inoperable" cancer. I ask the consultant surgeon not to confound inoperable with hopeless conditions, but to remember that radium, although in its infancy, has already proved its value in such cases. No reasonable man who takes the trouble to follow the records that have been published in different parts of the world can doubt that radium has won—next, perhaps, to the bistoury—the highest place in our therapeutic armory.

In Paris, my friend Dr. Chéron and Dr. Rubens-Duval published last year a case of inoperable uterine cancer cured by radium. They used the word "cured" advisedly, for fifteen months later the patient died of a disease of the central nervous system, and the autopsy verified the clinical evidence of the complete disappearance of all cancerous tissue. Some details of this case were given in the November 16th, 1910, number of the French Medical Journal.

Ten further cases of uterine or vaginal cancer have been reported by these authors in which there has been, clinically, complete disappearance of the growth. Eight of them are referred to in the British Medical Journal, August 27th, 1910, and the others, Drs. de Martel and Dominici, gave them in a paper at this meeting. In consultation with Drs. de Martel and Dominici our treatment was a combination of radium-therapy and surgery. A platinum tube containing 40 mg. of radium was introduced into the base of the tongue through a small submental incision, and, after the anterior triangle of the neck had been cleared of the glands and cancerous tissue including part of the sterno-mastoid muscle, three other tubes were left to irradiate the tissues of the neck. These four tubes were removed thirty-six hours later. The wounds healed rapidly and, a month later, the complete disappearance of the tumour was confirmed by three eminent cancer surgeons.

Nine months after the patient's condition remained excellent, and hopes of complete recovery were held by all familiar with the details of the case.

In April, 1913, that is, ten months after the treatment, further malignant processes were found in the throat—namely, ulceration of the size of a sixpence, at the base of the tongue and along the left border of the epiglottis, an inch distant from the original lesion. Under cocaine the epiglottis was removed, and the microscope showed the cancer cells extending deeply into its cartilage. The lingual ulcer was dealt with by the introduction into the base of the tongue, through small lateral incisions in the neck, of two tubes of radium of 45 and 25 mg. A month later the most careful search again failed to detect any sign of malignant disease, and the patient is to-day in full enjoyment of his usual strength.

In this case the radium has been applied after the cancer cells have been circulating in the lymphatic system for from nine to eighteen months, such results can scarcely be laid to the discredit of the therapeutic agent. It is possible no blame can be placed anywhere; but if there is any to be apportioned it is surely to the delay in the recognition of the cancer as finally inoperable, and in reaching the decision that the case is at last suitable for the radium expert.

As I have referred summarily to what may fairly be termed a definite cure of cancer by radium, let me also, as briefly as possible, note of what might be termed a failure, in that, within the year, there has been a recurrence or rather a fresh outbreak, close to the original lesion.

In May, 1912, a patient was sent to me from Paris by a distinguished French surgeon. He had had sore throat with a definite pharyngeal lesion, not, however, then recognized as cancer, in March, 1911.

In October, 1911, glands enlarged on the left side of the neck and, six months later, suppurated, were opened, examined histologically and found to be squamous epithelioma. The primary lesion, an ulcer situated between the epiglottis and the side of the pharynx, was then detected and other glands noted in the neck. On his return to Paris, therefore, he was advised to deal with a cancerous process implying conditions of time and distribution that make it of very grave import.

If the cancer, then, be considered inoperable, is there any resource other than surgery, or is the outlook altogether hopeless?

Considering that in these cases the radium has been introduced into the base of the tongue through a small submental incision, and, after the anterior triangle of the neck had been cleared of the glands and cancerous tissue including part of the sterno-mastoid muscle, three other tubes were left to irradiate the tissues of the neck. These four tubes were removed thirty-six hours later. The wounds healed rapidly and, a month later, the complete disappearance of the tumour was confirmed by three eminent cancer surgeons, among the author who had originally discovered the lesion.

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Even admitting such a case to be, however, a failure in that recurrence took place, it may justly be claimed for radium:

1. That the original tumour disappeared.
2. That the neck remains free from evidence of lymphatic infection; and
3. That the patient is still enjoying healthy activity a year after a hopeless verdict had been pronounced, and more than two years after the first evidence of cancer.
previous to which he had had for several weeks numerous attacks of colic, slight attacks of diarrhoea with no tenderness over the abdomen, and very slight rise in temperature, with no appreciable alteration in the pulse-rate. When seen by the examiner he was not noted as being in pain, nor were the muscles rigid, but to the hand gave a sense of putty-like consistence. As vomiting was persistent, I concluded that there might be an obstruction high up, and so opened the abdomen to that the whole of the intestines, large and small alike, contracted, rigidly fixed, so that when a loop was lifted from the abdomen it sprang back into its suture. That the wall of the whole intestine was chronically inflamed there was no doubt. In parts the peritoneum was seared as in the two previous cases, and through the infiltration of all the coats is still great; it is definitely non-tuberculous. Further, there is a notable number of eosinophils throughout, and a few giant cells are also present in the granulation tissue.

From the acute case, Master W. G., coliform bacilli were isolated in pure culture from the depths of the affected bowel wall under circumstances which suggest an etiological relationship. They are also demonstrable in suitably stained sections.

A careful search has failed to reveal micro-organisms of any kind in the depths of the other two cases—the ordinary bacterial flora of the gut alone being present in the most superficial part of the exudates. The symptoms in all the cases were similar; the characteristic and most striking feature being most violent colic, causing vomiting and occasionally an escape of some blood, also constant mucus from the bowel. The bowel becoming exhausted, and the contents being forced through the rigid portion, there would be at rest, quite comfortable and cheerful for a time. In the case of the child even ten or twelve hours might elapse between the attacks of pain, which were truly superficial in their intensity. In the young one would naturally suspect intussusception, but the constant suffering leads to steady emaciation, the temperature only occasionally rises and during the intervals of pain, and the pulse is quiet. In all the cases one could determine an area of resistance in the colon and sigmoid, naturally giving rise to the supposition that we might have to deal with a diffuse and malignant growth. As far as I am aware, the prognosis is bad except in cases where the disease is localized, and even there seems rather hopeless unless operation is had recourse to.

In regard to etiology, we have no direct clue by histological or pathological examination. The cases gave the impression that they were probably tuberculose, from the uniform character of the affection it evidently is not so. The affected bowel gives the consistence and smoothness of an eel in a state of rigor mortis, and the glands, though enlarged, are evidently not caseous.

In vol. xx of the Journal of Comparative Pathology and Therapeutics, McFadyen draws attention to Johne's disease, a chronic bacterial enteritis of cattle which was called pseudo-tuberculous, in which the histological changes are irreversible and not caseous. This may be to those who have found in man. The condition was first described by Henny and Frothingham in 1895, since which time numerous observers have noted its course in various parts of the Continent, and McFadyen examined 6 cases found in England in 1911. McFadyen, however, describes an acid-fast bacillus similar to but demonstrably not the tubercle bacillus, differing in size, and also as not giving rise to tuberculosis in guinea-pigs. This bacillus is found not only in the tissues but on the surface of the mucous membrane, which in animals seems to be more affected, presumably because they die earlier, than in man, so that the disease is not so advanced. In my cases the absence of the acid-fast bacillus would suggest a clear distinction, but the histological changes are so similar as to justify a proposition that the diseases may be the same. As far as I know the disease has not been previously described, but it seems probable that many cases must have been seen and have been diagnosed as tuberculous, and possibly nothing done for their relief.
The chief intrinsic ligaments are the anterior and posterior patellae; the internal lateral, which is a broad, flat structure; the cord-like external, and lastly, the posterior. Included in the former are the anterior or ligamentum of the knee-joint, particularly those which have a bearing on the internal or external surface of the tibia. The knee is not a simple hinge-joint, as at the end of extension and the beginning of flexion there is a distinct twisting movement of the meniscal cartilage. This is brought about by the fact that the articular surface of the tibia and the femur are not the same, but have a different curvature, as at the end of extension and the beginning of flexion there is a distinct twisting movement of the femur on the tibia. This is brought about by the fact that the articular surface of the tibia and the femur are not the same, but have a different curvature, and when the knee is in this position, a forcible extension is the cause. I may mention, however, that his opinion is based mainly upon anatomical grounds and experiments on the cadaver.

In regard to treatment, these cases which have come under observation have pursued their course uninfuenced by dietary or medicinal treatment, and apparently only operation can afford relief, and then only if the disease be limited. Seven out of the nine made a perfect recovery after the operation, and one does not die in rejecting large portions of the intestine. The subject has been one of great interest to me for some years. My friends the pathologists prefer to call it hyperplastic ulceritis, and I can only regret that the etiology of the condition remains in obscurity, but I trust that further consideration will clear up the difficulty.

Another specimen I obtained recently from a patient of Dr. Revie of Kilmainock.

A lady whom I had performed colostomy on the right side a year previously, with the object of arresting the intestinal current to enable us to freely flush the diseased colon. The symptoms were those already described with an exaggeration of degree, pain, and persistent, most painful diarrhoeas with blood and mucus. Distinct improvement ensued from the colostomy and lavage, though during the year she had on two occasions exacerbations. When seen at the end of the year she had been extremely ill again for one month, and was so evidently losing ground that I advised complete removal of the colon, which colony shrank to its previous dimensions as I showed you. The histological characters are similar to those found in the previous specimens. The patient has made an uninterrupted recovery so far, and I hope at no distant date to transplant her caecum (which alone was unaffected and was left) to her rectum.

An interesting fact in this case is that on the removal of the colon it was immediately sent in a sealed vessel to the pathologist, and he failed to discover micro-organisms either on the surface of the mucous membrane or in the tissues, indicating that lavage had been perfectly effective in purifying the canal, in spite of which lavage, however, the disease had steadily progressed. Indeed, from the first operation the disease had extended upwards from below the hepatic flexure to near the caput colli.

### DISCUSSION ON THE DIAGNOSIS AND TREATMENT OF INJURIES OF THE KNEE-JOINT OTHER THAN FRACTURES AND DISLOCATIONS.

**OPENING PAPERS.**

**L. M. Martin, M.B., B.S.**

In the first place I must thank the President and Council of the Surgeon Section for the honour they have done me in asking me to introduce the discussion on the diagnosis and treatment of injuries to the knee-joint other than fractures and dislocations. I can assure you it is an honour I greatly appreciate, and I sincerely trust that the subsequent discussion will prove both interesting and profitable.

It has been somewhat difficult for me to decide upon the form in which I should treat the subject, but, after considerable thought, I have come to the conclusion that the clearest and best method will be to exclude such conditions as perforating wounds and their effects, and confine myself to what I might term subcutaneous injuries. Among these are some of traumatic arthropathies, haemophilia, some forms of loose bodies, injuries, sometimes trivial, to joints already affected with disease, such as osteo-arthritis and torn semilunar cartilage.

**Anatomy.**

Before considering these injuries seriatim, I think it would make the subject clearer if I briefly mentioned some of the more important features in the anatomy of the knee-joint, particularly those which have a bearing on my subsequent remarks. This joint, besides being the largest, is the most complicated articulation in the body, and producing the most important extrinsic and intrinsic ligaments. Included in the former are the anterior or ligamentum patellae; the internal lateral, which is a broad, flat structure; the cord-like external, and lastly, the posterior.

The chief intrinsic ligaments are the anterior and posterior cruciate. Also contained in the joint, and in close relation—

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