next step is the incision. The greatest care is required in carrying the knife exactly along the tract of the needle, and to keep in the centre of the anæsthetized area, which is often not more than one centimetre (two-fifths inch) in width. The parts are sometimes displaced by the hands of assistants, and I have seen more than one case in which the patient complained of pain because the surgeon had entered his knife on one or the other side of the part anæsthetized. Hence all manœuvres likely to alter the relations of the parts are to be avoided, and if the operator is not sure of recognizing the line of the injection by the slight whitish or pinkish ridge on the skin and the points of puncture, the incision should first be marked on the part with tincture of iodine. When these precautions are taken, the operation is absolutely painless. The patient feels the contact of the instrument, but no pain. In fact, it is really not anæsthesia but analgesia.

For the radical cure of an inguinal hernia of medium size, a tract of skin from six to eight centimetres (between two and three inches) in length is rendered anæsthetic, the injection of three or four syringefuls of the one per cent. solution being sufficient for that purpose. An incision is made down to the aponeurosis of the external oblique. The external abdominal ring and the hernial sac having been exposed, the hypodermic needle is introduced under the aponeurosis of the external oblique, and into the adjacent muscles, which are in their turn rendered anæsthetic, they are then divided as far as the internal ring. The sac is carefully dissected from the surrounding parts with the scissors to avoid injuring the adherent spermatic vessels and vas deferens. If adhesions are found, division of which gives rise to pain, a little more cocaine is injected and pain at once disappears. When the sac has been separated as high up as possible, one or two syringefuls of cocaine solution are injected into it before it is opened in order to produce anæsthesia of the peritonæum and of the contents of the sac. The latter is then opened and the hernia reduced, the reduction is not attended with colicky pains, as it would if no anæsthetic were used. The sac is tied very high up and cut off. The muscles and the aponeurosis of the external oblique are successively sutured in such a way as to obliterate the inguinal canal, and to restore the strength of that part of the abdominal wall. As a last step in the operation, the external wound is closed.

The dose of cocaine injected depends on the length of the incision, the degree of obesity of the patient, the size of the sac and the amount of adhesion to adjacent parts, to the intestine and omentum. In a recent case of this kind I obtained the desired effect with only three injections of the one per cent. solution, but in other cases I have had to inject as many as fifteen centigrammes (two and a half grains). As a general rule, from seven to nine centigrammes (about one to one and a half grains) are amply sufficient to produce complete anæsthesia.

The parts remain anæsthetic throughout the operation, and the stitching of the wound seldom gives rise to any pain, although it may not be done until half an hour after the first injection. In one case where I had to open several diverticula before I could reduce the hernia, the operation lasted an hour, and yet the patient complained of no pain when the external wound was closed, although he could feel the needle pass through the tissues. I have never had occasion to repeat the application of cocaine, even in the most prolonged operations.

The operation for the radical cure of hydrocele has many points in common with that just described. A band of skin over the anterior aspect of the distended scrotum is rendered anæsthetic with three injections of cocaine. The coverings of the testicle are divided until the tunica vaginalis is exposed. This is carefully separated from the surrounding parts as far back as the epididymis. The fluid is drawn off, and one or two syringefuls of cocaine solution are injected into the cavity and shaken about in it. When the serous membrane is completely anæsthetized, it is cut away, enough being left in position to form a new tunica vaginalis. For this purpose, after resection of a portion of the sac, the edges of the cut are brought together by means of a few silk sutures. Some surgeons prefer Bergmann's method, which consists in total excision of the tunica vaginalis inclusive of the digital fossa, which can be easily dissected off. All that now remains to be done is to replace the testicle in the scrotum, and after ligaturing the few vessels which have been divided, to close the