

emerges. This tube is used only for the temporary purposes of relieving the wound of accumulating serous fluid, and is soon removed. As a rule, excision wounds now do not suppurate; union takes place by rapid and healthy granulation.

During the past year or two we have had under observation many cases of excision of the knee-joint, the hip-joint, the elbow-joint, and the ankle-joint, which have been repaired with suppuration. In one instance of old and destructive inflammation of the ankle-joint the articular ends of the tibia and fibula, the surfaces of the astragalus and os calcis, and all of the surrounding tissues had to be thoroughly scraped to remove the dead bone and fungous granulations. When the cavity was prepared for dressing it was enormous. But as all diseased structures seemed to be removed, and the wound appeared everywhere clean, it was dressed for union without suppuration. The wound did heal without other suppuration than a slight amount of pus, which discharged from a small carious surface. The health of the patient began at once to improve, and in due time she was about the ward, on crutches. We may now say of excisions as of amputations, that they are regarded as simple and very safe operations.

The ligation of large arteries was formerly justly estimated as a very serious operation. The common silk ligature, prepared by unwashed hands, was left depending from the wound. To do its work properly it must in due time sever the strangulated artery by the ulcerative process, and then be removed by traction. With the keenest and often most painful anxiety, the surgeon daily watched the wound to note the amount of suppuration, and gently tested the firmness of the ligature. If after the separation of the ligature the suppuration diminished, and finally ceased, the surgeon was happy and boastful of his success. But far too often the suppuration did not diminish, and to the dismay of the surgeon a slight oozing or gush of blood indicated to his practiced eye a fatal issue by secondary hemorrhage.

How desperately yet vainly he struggled against fate, by resorting to pressure, position, styptics, etc., the older surgeon can alone realize. The repeated hemorrhages, or uncontrollable outburst, at length placed the case in the category of unsuccessful operations. Now, how completely are all the conditions of the operation changed! It is no longer necessary to divide the artery by the ligature to accomplish our object, and thus endanger life by hemorrhage; but, on the contrary, we seek, while we interrupt the circulation sufficiently to effect our purpose, to strengthen the artery by our operation. The indications now are the opposite of those which before obtained. The ligature now selected is non-irritating, and preferably absorbable, as catgut. When applied, it may, or may not, divide the internal coats of the artery. In either

case the wound is completely closed and no sup-puration occurs. In the repair the artery enlarges externally at the seat of the operation by nutritive action, while the coagula organize internally and close its calibre. Secondary hemorrhage after the ligation of arteries has, therefore, become an incident of the past. The conditions no longer exist which make it possible. Ligation of the common carotid is a familiar operation at Bellevue, and was often performed with great skill by Dr. Wood, who published an elaborate monograph on that subject. I aided him in the examination and collection of cases, and in the preparation of the text, and was impressed with the destructive effects of the ulcerative process which attends the separation of the ligature. Some time since I had occasion to ligate this artery, and applied the catgut ligature, cutting both ends close to the knot, and closing the wound perfectly. Union promptly followed, and nothing further was seen of the ligature. The patient died at the end of two months of cancer of the mouth and pharynx, and the autopsy revealed an enlargement of the artery at the seat of the ligature to twice its normal size, by a ring of new tissue completely encircling it. On incising the artery at this point, the remains of the ligature were found in this ring, and the coagula had organized and closed its cavity permanently. It was evident that the ligature had greatly strengthened the artery instead of destroying it, as in the old operation.

It follows that, if the major operations are now performed with so much success, the minor operations are correspondingly successful. If we take as an example the treatment of cold abscesses, the improvement is very noticeable. Formerly a cold abscess unconnected with bone, as in the thigh or on the back, were preferably allowed to open themselves. If the surgeon ventured to operate, he usually made a "valvular incision," and allowed part of the contents to flow out, and then closed the wound. This operation was repeated many times. When aspiration was introduced, it was regarded as a great advance. The fear of the surgeon was that air would enter the abscess cavity, and set up active suppuration. I recall a case of large abscess of the back, in a young woman, which, after consultation and much deliberation, Dr. Van Buren ventured to puncture directly. The interest taken in this bold operation was very great, and the progress of the case was watched with much anxiety by the operator. Profuse suppuration followed, and the patient nearly lost her life. Now these abscesses are promptly cured and without suppuration, by opening them freely, and with the curette, scraping out all the old granulations and diseased tissues; then thoroughly cleansing the cavity with bichloride solutions, and finally pressing the walls gently together with disinfected sponges and bandages, or other antiseptic