

The tumor removed, every bleeding point is to be secured by torsion or the catgut ligature so as to leave a dry wound. At present in New York, catgut which after preparation, has been kept in oil of juniper or in absolute alcohol, is used almost entirely. It ties and keeps its knot better than that preserved in carbolized oil. In ligating arteries, I use now only the two larger sizes, as the smaller ones are not strong enough to stand being tied, as Robert Liston said ligatures always should be, "devilish tight." For sutures, however, and in particular for the "sunken sutures" of the Germans—those by which we close together muscle to muscle in the deeper parts, tying the knot far below the skin and obliterating the wound, they are excellent.

The lines of drainage should be next arranged, and in them placed one or more absorbable tubes. I show you those of Neuber, imported from Germany, and those of MacEwan, made by my assistant, from the femora and tibiæ of chickens. Since the one form has with me succeeded as well as the other, and since the natural tubes can be bought in the flesh for about the same price as the drilled and turned ox-bone in oil, my decalcified tubes in future will, I think, be after-dinner considerations. If the wound is to be dressed again within a week, either rubber tubes, horse-hair, or Chiene's chromic-acid catgut may be used. The two last I have not found to drain pus well, though they are excellent for the early serous discharges. For closing the wound, catgut should be preferred. Horse-hair answers for adjusting the edges of the skin, and silver wire secured by lead buttons may be needed to sustain tension. If silk be used at all, it should have been prepared by boiling for an hour in a 5% carbolic lotion, and should have been kept in one of the same strength. The line of union is to be dusted with iodoform, and then covered with several handkerchiefs of 10% iodoform gauze, or $\frac{1}{4}$ of 1% sublimate gauze, over which a roller of the latter material is to be applied. The dressing is completed by the adjustment of bags or pads filled with some one of the absorbents presently to be spoken of, by a second roller, and a splint to secure perfect rest to the part. Cheese cloth, boiled in a soda solution to remove fatty matters, and then washed in water to get rid of the alkali, answers for the preparation of the handkerchiefs, the bandages, and the pad covers. Iodoform

gauze is made with this very simply, by Billroth's plan of rubbing the crystals into the meshes of the cloth. From 10 to 20 % will be retained. Another method is to saturate the cheese cloth in iodoform 50 parts, ether 250 parts, alcohol 750 parts, and allow the fluids to evaporate. This gives a 10% gauze. Iodoform is always a desiccating dressing, hence it is important to bring the ends of the drainage tubes through the layers in contact with the wound. Neglect of this in one case where I had drained a compound fracture extending into the elbow joint, caused the end of the drain to be sealed in the antiseptic scab, the serous discharge to be retained, and the temperature to rise to 103° F. All went well again when the mistake was corrected. The great value of iodoform lies in its permanence. It constantly evolves an antiseptic influence, as penetrating and as persistent as its own odor. Being non-irritant, a moderate quantity between the lips of a cut will not prevent union by the first intention. Neuber warns us that not more than 45 grains should be applied at any one time to a raw surface. When first introduced, large wounds, as after hip excisions, were filled with it, and deaths followed. Now we have the authority of Lister, Macormac, Longman, Billroth, Sands, and many others, for considering it to be the best-known antiseptic for direct application to wounded surfaces.

The bichloride gauze is made by simply saturating the cheese cloth with bichloride of mercury, 20 parts, water 4,480 parts, glycerine 500 parts, and allowing it to dry as far as the glycerine will admit. Its active agent, besides being the most powerful antiseptic of which we have any knowledge, is always at hand, is safe, permanent, pleasant to handle, and is only irritating to the extent of producing an occasional slight dermatitis.

We come now, and finally, to the absorbents which may be used to soak up and keep harmless all fluids which our internal drainage has brought to the surface. Of these I show you hygroscopic cotton and the same containing 15% of boracic acid. They will each take up, as I have found by experiment, 16 times their own weight of water. wood-wool, 14 times; german peat, 12 times, and jute, 8 times. Dr. Weir is now testing the ordinary moss of our woods as an absorbent. After drying it in an oven to kill the insects it may contain, he finds it soft, elastic, and able to soak up about four