

substituted a boracic-acid for a carbolic-acid dressing before the sore was perfectly superficial. After this had been applied for six days, it became clear that the discharge which had soaked through the boracic lint had putrefied, and as decomposition spread into the interior of the wound it soon gave rise to extensive suppuration, with swelling, and breaking down of the newly-formed tissue in the heel flap. The stump is not yet healed.

Of three excisions which occurred during my visit, one was of the knee in a boy thirteen years of age, for osseous ankylosis, the result of old disease, in which, as in the two following cases, the fact of the skin being unbroken gave full opportunity for carrying out the antiseptic treatment. Mr. Lister removed only just sufficient of the bones to enable him to straighten the limb, for which purpose the outer hamstring had to be divided during the operation. A posterior Gooch's splint extending from the gluteal fold to the heel was thickly padded with cotton wool covered with boracic lint above and below the knee, and, to protect this from being soiled by the discharge soaking through the dressing, a piece of thin macintosh cloth was placed over it behind the knee, and for some distance beyond, both upwards and downwards. The whole was bandaged to the limb, and the day after the operation fixed in position by plaster-of-Paris. No permanent padding was placed behind the knee, but at each changing of the dressing, the space which existed at this part between the limb and the macintosh cloth was stuffed with gauze, which answered the double purpose of extending the dressing at the posterior aspect of the leg and giving support to the joint. Healing took place without a drop of pus in three weeks. I give below the dates at which the dressings were changed. Operation January 22nd; dressings changed January 23rd, 24th, 26th, 28th, February 2nd, 9th, and 15th, when it was found that no discharge whatever had taken place since the preceding changing of the dressing.

The other two excisions were of elbow-joints, in boys of eleven and fourteen years respectively, for ankylosis, the result of injury. In these there was some suppuration from tension, but putrefaction did not occur, and healing was complete at the end of eight weeks in the former, and nine in the latter case. In the foregoing operations, as in all Mr. Lister's cases, the bleeding vessels were secured by the prepared catgut ligature.

In the treatment of abscess, unless the curdy condition of the pus renders it impossible, Mr. Lister now makes an incision only sufficiently large to admit a drainage-tube of suitable size, and this is found quite adequate to the purpose, for when the granulations which form the so-called pyogenic membrane are relieved from one cause which excites them to suppurate—namely, tension,—without the substitution of another in the shape of putrefaction, they cease to form pus, but the discharge assumes a serous character on the second day, and gradually diminishes in amount to the end of the case. The course of an abscess connected with disease of bone is com-

monly tedious; but the discharge, if rest be maintained, is serous after the first opening, and soon becomes trifling in amount, and if no putrefaction occurs, the general health remains unaffected and an ultimate cure may be conveniently expected. Thus C. L.—, a man somewhat advanced in age, has just left the Infirmary who had been an inmate for two years, suffering from a lumbar abscess connected with caries of the spine. It was opened and dressed antiseptically, and, following the usual course in such cases, the discharge gradually diminished in amount, and ultimately the sinus closed. After this the patient was kept in bed for six weeks, and then allowed to assume the erect position for a short period every day, but with the result of the reformation of the abscess after some time had elapsed. This, which was treated like the first, had been, when I saw the patient, for many weeks healed, and he was allowed to get up for a quarter of an hour every day, wearing a metallic support for the spine, and since then he has remained apparently well. I may mention, also, the case of E. J.—, a young woman about twenty-three years of age, who was admitted in August 1872, suffering from acute suppuration of the hip-joint. An abscess, which extended some distance down the thigh, was treated antiseptically, and a long splint applied to the limb. During the time that she was under my observation, the abscess had been for some weeks healed, but the splint was still applied, and she complained only of slight and very occasional pains in the joint. She has since left the hospital cured.

In the simple acute or chronic abscess the progress is generally very rapid. A good example of such a case is that of J. B.—, a lady's maid, in whose neck Mr. Lister opened an abscess of the size of a large orange, of two years' standing, and possibly originating in a gland. The incision was made with a tenotome, and admitted a drainage-tube one-eighth of an inch in diameter. The discharge was serous on the second day, and on the eleventh healing was complete, though some old inflammatory thickening of the part remained. It is unnecessary to say that no visible scar resulted from the puncture.

The introduction of an additional safe-guard has lately been induced by the failure in two cases to prevent putrefaction, though the utmost care was used in the dressing. One was that of an abscess by the side of the knee-joint, which had previously been treated in the same wards, and had then healed after remaining eleven months free from decomposition, but putrefied two days after the second opening; the other was an excision of the mamma, in which a similar result occurred. The probable explanation of these facts is, that the small amount of carbolic acid given off from the gauze at the temperature of the air is insufficient to destroy immediately the organisms adherent to the larger particles of dust which may fall upon it; and any of these particles applied directly to such of the blood or pus at the mouth of the wound as may afterwards regurgitate into it, would very probably be the cause of putrefaction arising in the interior. To guard against this danger it has been the custom to pre-

pare the dressings the day before they were used, and to keep them folded with the layer that is to be applied to the wound inwards, by which it was anticipated that the mischief on its surface would be corrected. But even if this be done it is clearly possible for dust to fall upon the gauze at the moment of application, and by its presence greatly to endanger the result. A simple and perfectly trustworthy plan of overcoming the difficulty is to moisten the innermost layer of the dressing with the spray or lotion, or to apply a loose piece of gauze soaked in the lotion beneath the general covering, the latter plan having the advantage of fixing the protective in position, and applying itself accurately to the part.

I have only now to add a few remarks on the subject of the spray-producer. Besides that worked by hand, and the large and somewhat cumbersome machine which was exhibited by Mr. Lister at the British Medical Association at Plymouth in 1871, and which is used for all the larger operations in the infirmary, a spray-producer has been lately made, in which, while it acts on the same principle as the two others, the bellows is worked by the foot instead of by the hand. It consists of a fiat bottle, adapted to fit the pocket, which, with the bellows, rests on the ground, while the air and water are conducted in separate but contiguous india-rubber tubes, six feet in length, to the small nozzle which is held in the hand, by means of which the direction of the spray may be shifted with the greatest readiness. A small movable metal cap is provided for the protection of the points at which the spray is generated; and if a piece of muslin be tied over the tube leading to the bellows, so that all the air entering may be roughly filtered, the whole will be found extremely convenient, especially in private practice, as it enables the surgeon to change most ordinary dressings single-handed.

PHYSIOLOGY.

ON THE SECRETION OF BILE.

At a late meeting of the Gesellschaft der Aerzte (28th March 1873) a paper was read by Stricker, containing an account of some experiments he had made in conjunction with Dr. Röhrig on the circumstances influencing the secretion of bile. The defects of the former methods of obtaining the secretion were pointed out, and a new method suggested by which a cannula was introduced to the ductus communis choledochus; from this depended a flexible caoutchouc tube which ended in a mouthpiece that was kept constantly at the same time level in a vise, thus avoiding apparent variation due to different heights of the orifice of exit. These experiments showed that all circumstances causing hyperemia of the bloodvessels of the liver increased the secretion of bile, whilst, on the contrary, all circumstances producing anemia caused diminution. Thus the secretion was arrested in fasting animals, whilst it augmented after food. Water introduced into the stomach or intestines caused a slight but transient increase. The introduction of purgative medicines, as croton oil, colocynth, jalap, calomel, Epsom salts, etc., materially increased the secretion of bile.