

cotton, such as are used in bacteriologic experiments for the bottles; small quantities to be poured out in smaller vessels for each operation. Just before operation the solution should be cooled by laying the bottle containing it on ice. The common form of hypodermatic syringe with the finest of needles is all that is usually needed. Dr. Charles Denison, of Denver, Col., has given us an aseptic syringe of larger capacity, with piston packing of asbestos, which is particularly applicable for aseptic injection. The syringe is kept in good order by being frequently soaked in a 5 per cent. carbolic solution and the needle sterilized after each operation.

The discovery of these truths, so valuable for the question of local anæsthesia, is due simply to a slight change of method; the application of the solution within, and not under the skin. The anæsthesia is caused by the replacement of the normal fluids of the tissues by a fluid of less specific gravity (the water) which causes anemia, compression and cooling, producing thereby a temporary

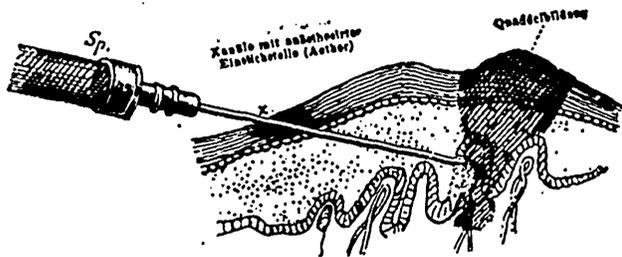


FIG. 1.—Diagram of a section of the skin, showing formation of the first wheal.

paralysis of the nerve filaments. The pain of the infiltration of indifferent solutions is abolished by the minute doses of narcotic drugs (morph., cocaine, carb. ac.).

It is perhaps well to here go into the technique of the production of local anæsthesia by this method. The field of operation is made aseptic in the usual manner. Having the required formula, the solution aseptic and cold, we fill the sterilized hypodermic syringe; pinching the skin slightly between the thumb and forefinger of the left hand, the needle is then passed obliquely under the epidermis to the papillæ, intra-cutaneously, until the lumen is fully inserted. A few drops are then injected, thereby producing a white elevated wheal, the infiltration extending throughout the whole thickness of the skin. (See Fig. 1.) There is immediate and complete anæsthesia throughout the extent of the infiltration, which lasts from ten to twenty minutes according to the density of the tissue so edematized. The needle is then reinserted at the periphery of the wheal and the area infiltrated to the required extent and depth. No tissue offers any deviation from the dictum. Every structure is made anæsthetic that can be artificially edematized; this holds