

water preserves it for a month or more without noticeable contamination from the growth of mould fungi. Salicylates are used for the same purpose.

Of more interest to surgeons at the present time are the various methods of producing analgesia by the injection subcutaneously of cocaine or eucaine solutions alone or in combination with other substances. Among these methods are the following:

1. The cutaneous or subcutaneous injections of strong watery solutions of cocaine or eucaine, from one to four per cent. In this method the amount of solution injected is necessarily small. In cases in which it is supposed that the whole or the greater part of the cocaine will be absorbed into the circulation, the limit of safety is ordinarily fixed at one grain or less; practically, however, in many instances this quantity may be slightly exceeded without much risk. If the individual is a strong adult, if the region to be operated upon is not very vascular, if the incision is to be rather free and is followed by some bleeding, a quantity of solution equal to one and one-half grains of cocaine may be used without much risk of producing intoxication. The writer has used this quantity of cocaine certainly several hundred times without having seen symptoms of poisoning. In vascular regions, notably the face, scalp, nasal fossæ and mouth, such a quantity of cocaine would be dangerous in the extreme. The writer has seen five minims of a four per cent. solution, injected into the neighborhood of the exit of the supra-orbital nerve from the orbit, produce very sudden and marked symptoms of intoxication. It is usually considered that a full stomach and a recumbent position tend to diminish the likelihood of the occurrence of intoxication. It is customary in this method to introduce a small quantity of the solution through a fine hypodermic needle into the skin, and after that into the deeper tissues, if they are to be incised, and to wait two, three or four minutes before cutting; testing the sensibility of the parts with the point of a knife or needle, until they seem to be insensitive. This method bears the strong recommendation of simplicity and of economy of time. If during the operation the patient complains of pain, a little of the solution may be dropped into the wound or further injections may be made. It is perhaps the method the most used by American surgeons to-day.

In a series of sixty-eight minor operations done recently in the Roosevelt Hospital, out-patient department, under my direction, by Dr. Sinclair Tousey, two and four per cent. solutions of cocaine were used. Six minims was the average