

probably not have her troubles to seek. If we are going to employ antiseptics at all at the time of, or immediately before, operation, we must use them much weaker than that. Some operators will use perchloride as strong as 1 in 3,000, but most prefer about 1 in 10,000. Others use bichloride of mercury about 1 in 5,000, and others again employ peroxide of hydrogen in weak solution as part of the preliminary cleansing of the conjunctiva; such strengths are not germicidal but inhibitory of germ activity. A certain number of surgeons, after they have made very delicate bacteriological tests of the conjunctiva and have thus satisfied themselves that it is sterile enough for the purpose, use no antiseptics at all, and are content with sterile saline or sterile water. Indeed, a nurse will find that the difficulty of being even reasonably sure of an aseptic field is so great that there is a considerable variety of technique. Wherever one finds that there are many methods in use to obtain a given end it is pretty certain that no one method is entirely satisfactory.

Very closely allied to this subject is that of the *care of eye instruments*. These are very small and delicate. A cataract knife requires to have such a fine point that in order to be sure it is all right one may have to use a magnifying glass, or to test it upon a piece of stretched kid. If it does not penetrate the kid with even less pressure than that caused by its own weight, it is useless. The point of such a knife may be fine enough, but may be turned ever so little to the side, so little that you can hardly detect the defect with the naked eye. In this case also the knife is useless. The manufacture of these eye knives is such a fine art that even the Germans, who can make most things, come largely to this country for their eye knives. Then again, the delicate scissors which we use must cut right up to the point, or they also are useless. It is clear that such instruments require special handling. It will not do to give instruments like that to the cook to sterilize. It is only sometimes that the nurse will be asked to handle them. Certainly no wise ophthalmic surgeon would trust his instruments to a nurse who did not appreciate their delicacy.

A difficulty comes in as regards the *sterilization* of these instruments. Some, such as scissors and forceps, are usually boiled in the sterilizer in the ordinary way, but surgeons differ in their views as to what should be done with the cutting instruments such as knives and needles, which have delicate points and edges. I believe it to be the case that if the knife has the proper tempering it is not spoiled

by actual boiling, though, of course, it would be ruined if plunged into the sterilizer along with a lot of other instruments and allowed to rub against them. Sterilization by means of dry heat is much employed in Paris, but it is an expensive method, since it demands a great many instruments. An instrument cannot be re-sterilized at a moment's notice by this means, and therefore duplicates and triplicates must be provided. A great many ophthalmic surgeons prefer to do without heat sterilization at all for knives and needles, especially as these are very highly polished and smooth, and do not give the ready foothold to germs that is given, for example, by a pair of toothed forceps. The knives, in this case, are prepared by immersing them in one or more chemical fluids. One of the best methods for sterilizing eye knives is first to place the knife in ether in order to remove grease, then in pure liquid carbolic acid to destroy germs, and finally in absolute alcohol to remove the carbolic acid. Just before use it is dipped for a second in the sterilizer.

Again, the *cleaning* of these instruments is by no means easy. They stain and rust very readily, and no such germ container as rust or roughness should be allowed to enter the eye. It is almost impossible to prevent a certain amount of rust about the joints of some instruments, but every effort ought to be made to prevent it. No particle of rust is to be allowed on the blade of a knife, or needle, or forceps which enters the eyeball.

It is evident from what I have said that special education is required of a nurse who is to attend successfully to eye instruments.

There is another great peculiarity about ophthalmic surgery, and that is that most of the operations upon the eyeball—in fact, most of what may be called the major operations—are performed under *local anaesthetics*; and generally by the simple instillation of cocaine solution.

This matter of local anaesthesia leads me up to another point—namely, the influence which the nurse can have over the patient who is to have an operation under local anaesthesia, and, consequently, the influence for good which the tactful nurse has upon the success of the operation. Those of you who are inexperienced in eye work will hardly be able to understand the importance of having a nurse who knows what is going to be done, and what risks there are from the side of the patient and his behaviour. It nearly always happens that the surgeon has to rely in great measure on the power of the patient to do as he is told when on the table: to look upwards or downwards, or to keep steady at a particular moment. If the patient

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