

tion, has consented to speak on this subject, and is present with us, and I will ask him to lead in the discussion.

Dr. ROBERTS.—I can say very little except what has been said. My feeling is much the same as Dr. Delatour's, namely, that we are not getting perfect asepsis in our instruments or dressings, and for the last six months I have been trying to get something which would give me a feeling of security when I go to an operation. First I had the idea of using steam heat; but it was unsatisfactory, because the drying of the instruments would make me just as uncertain as if they had not been steamed, because assistants and nurses are not certain to be aseptic, if you do not watch them. I think even we ourselves are not apt to be aseptic unless we are watched by our assistants. Having rejected steam heat, I looked about during the past summer, to find some sort of an oven which would be near the thing I wanted, and finally I had made an ordinary laboratory oven. It is nothing but a copy of the oven that is used by bacteriologists in sterilizing test-tubes, an oven with double walls heated by one or two Bunsen burners. I have it standing in my private office, and have two Bunsen burners under it. I have not put the regulator upon it, because it stands right close to my desk, and I or my assistant watch it during my long office hours, and therefore have not needed the regulator put in, although I have thought of doing so.

In order to get instruments sterile and kept them sterile and not have the bother of carrying around an oven, I had made in Philadelphia a series of copper boxes of different sizes, using copper because it is a particularly good conductor of heat. I have a number of these copper boxes of different sizes with a dust-tight lid fitting exactly. Bacteriologists use sheet-iron boxes, like this one shown, which are dust-tight. This possibly is not quite as dust-tight as the bacteriologist's box. In this box I put loose instruments in the morning, then a copper tray, arranged to hold knives, is put into the top of it. I then shut the lid, and put the whole thing in the sterilizer, and let it stay as long as I think necessary.

A little while before I am ready to leave my office I turn out the light and let the instruments cool down. The whole box is then put in my case, and I do not open it until I get to the patient's house. If many instruments are to be used, I turn the lid of the box upside down, and use it for a tray to hold the antiseptic solutions at the time of operation. If only a few are needed, I take them out of the box as I need them, and I feel that I am using instruments that are almost perfectly aseptic. If I do not use them for several days, I am able to believe that no vegetable parasite has been able to gain access to them.

The dressings I treat in the same way. I have a small box in which I put pieces of cheese-cloth which has been boiled in hot water and soda, to get out the grease, and dried. This is baked, as in the instrument-box, and is carried in my bag; thus I always have in my bag instruments sterile and dressings sterile. Such things as needles I prepare in the same way, putting them in bottles and the bottles in a box, so that my case is always primed or charged with aseptic needles, wire, sutures, instruments, and dressings, and I feel that I go to operations with much more comfort than when I used any other method of sterilization, even though I washed them myself with the greatest care.

You cannot bake instruments with cemented handles. The instruments here all have metal handles except in one or two instances, where they have riveted wooden handles. The bone handles, even if riveted, appear to become brittle if heated too high, and possibly at times, on account of the repetition of baking, even when the degree of heat is not very high. I have found practically that I dare not run my thermometer higher than about 130° C., which is about 266° F. Once, my oven, being neglected, ran up so high that the instruments had reached about 150° C. The thermometer being at the top of the oven and the instruments at the bottom, made me believe, knowing the difference to be about fifteen degrees, that the instruments had been heated to that point, and you will see that some of these instruments have become oxidized.