

cotton it would hold very little ether. It was in this respect much better than the sponge, which, when it became saturated, allowed the ether to overflow.

Dr. KENNETH CAMERON considered the aluminium cone a decided improvement on the old red flannel one, but he had to protest against Dr. Bell's strictures on Clover's inhaler. The great objection raised was that the patient was re-breathing his own poisonous exhalations, but he felt that the ether vapor disinfected this vitiated air. Having had experience with both forms, he considered that the Clover inhaler gave the greater satisfaction, when properly used, for with it the patient could be more rapidly anæsthetized, the amount given could be regulated, and the after-effects in his experience were not severe, while with the cone the patient breathed air, either saturated with ether or containing no ether at all. It was his practice always to stay with the patient until there was some sign of returning consciousness, such as opening the eyes, or putting out the tongue when told to do so, and this period varied from five to twenty minutes, never longer. He therefore felt that when the anæsthetist once fully understood the use of Clover's, he would not willingly give it up in favor of any other form of inhaler.

Dr. GURD hardly thought it possible that anyone who had used Clover's inhaler many times could give it up. With it the amount of ether could so easily be regulated. Dr. Bell's objections could be done away with and the advantages of Clover's inhaler yet retained by simply not using the bag. He maintained that almost any individual could be anæsthetized, and any operation carried through from beginning to end without using the bag. In the course of nearly all major operations there were stages when very little ether was needed; if deeper anæsthesia was required quickly, the bag was useful though not essential.

Dr. ALLOWAY protested against the statement that Clover's inhaler was dangerous. Ether, like many other drugs, was dangerous if used by stupid or unskilled persons, quite independent of the instrument employed in its administration. He had had much experience with both the Clover inhaler and the cone; from the former he had never seen any danger resulting, although such had often been the case with other instruments. His experience corroborated the assertions of Dr. Gurd, and he was certainly in favor of using the inhaler without the bag. At the same time, when confident of the ability of the anæsthetist, even with the use of the bag he had no anxiety. Some patients seemed to be brought under the influence quicker when the bag was used. Allis' inhaler was one of the cleanest instruments used. It had a roller laced on metal bars, and which could be replaced, leaving only metal to

cleanse. As regarded the necessity of making the Clover's inhaler more cleansable, this was simply a matter of technique; and there now was one coming out which could be taken to pieces and the parts sterilized.

Dr. SHEPHERD would like to hear something more definite about the cases referred to by Dr. Bell, where the Clover inhaler proved so dangerous. He had certainly seen many instances where the patient seemed in danger from the use of the cone, but never any when Clover's inhaler was used by a skilled anæsthetizer.

Dr. BELL said he had anticipated some discussion on his paper, and the result had more than realized his anticipations. First in reply to Dr. Gordon Campbell's arguments, which he regarded as pure sophistry, Dr. Campbell said a new Clover's inhaler was coming out, which could be sterilized as completely as any rubber goods could possibly be. That was just the point; ordinary rubber goods could not be properly sterilized. They could not be rendered aseptic by heat without destruction, and he knew of no chemical substance by which this could be accomplished. To begin with, there were one or two fallacies with regard to the Clover inhaler. If you did not use the bag, you certainly had an instrument on the same principle as the cone. In the cone, the liquid ether was poured over a large surface, and vaporized more rapidly; in the other case, it remained in a metallic reservoir, and through that reservoir the air was inspired. With regard to the indicator, it indicated nothing more than that a certain amount of air was drawn through a larger or smaller orifice into the ether chamber—the whole of the semi-circular orifice, or the half of it, or the quarter of it. It did not take into account the air received from other sources. If the space was one-half open, the patient had to inspire more vigorously to get the necessary air. In using the instrument without the bag the principle was absolutely the same as with the cone, with the exception that the ether remained in liquid form, over which the air passed, whereas in the cone it was absorbed by cotton and a large amount was wasted. With regard to Dr. Campbell's mathematical problem, without going into the physiology of respiration, the fact remained that whether there was 1-5th or 1-50th of pure air in each inspiration, it was these inspirations that sustained life; and if we could only get half the amount of air necessary to sustain life we were badly off. This was a principle recognized in the construction of all public buildings, that there must be a certain amount of air space for each individual. So in the operating room, a certain amount of air was required to sustain the patient for a certain interval, and if he was allowed that amount in twice, thrice or four times that interval, it was