

watch both pulse and respiration carefully. Quickening of respiration alone was accounted for reflexly, and a less amount of ether should be given, as otherwise the increased rate of breathing would lead to an overdose. Quickening of both pulse and respiration meant an overdose; quickening of the pulse alone meant hæmorrhage. The results were obtained by tabulating the notes of one hundred cases.

Dr. KENNETH CAMERON since last Christmas had kept records of forty cases in which he had administered ether by Clover's inhaler. The cases were all gynaecological, and his results were almost identical with those of Dr. Campbell. He had noticed that the respirations were always increased by what might be called intra-abdominal reflexes, such as handling the peritoneum, as in tearing adhesions, tying off the ovary and its appendages, washing out the abdomen and pulling on the round ligament. He had had no experience of reflexes arising from manipulations about the rectum. An excess of ether was another cause of increasing the rapidity of the respirations as well as the pulse. The pulse showed the same initial rise with the gradual fall as the administration proceeded. The chief cause for increased rapidity of the pulse was hæmorrhage.

The lesson to be learned from the investigation was that when the respirations were increased, without any of the recognized reflex causes being present to account for it, the anæsthetist should suspect an excess of the ether, and remove the inhaler.

Dr. GEORGE A. BROWN had given ether for Dr. Alloway for about three years, during which time he kept records, similar to those of Dr. Campbell, of his cases. He had used Allis' inhaler for the first year and a half, after that he employed Clover's inhaler. His results closely resembled Dr. Campbell's. As to the relative merits of the two inhalers, he thought Clover's had the advantage, inasmuch as you could more accurately ascertain the quantity of ether being administered. Working with Allis', one was apt to give too much of the drug at the start, and as a consequence did not get the sharp fall in the pulse that ought to follow the initial rise, and in fact the anæsthetist often discovered that he had his patient deeply anæsthetized when a lighter degree would suffice. Still, he believed as one became accustomed to the use of Allis' apparatus he would be able to judge of the proper amount to give at the commencement, and the results of both inhalers would then be practically alike. He agreed with Dr. Campbell as to the effect of intra-abdominal reflexes upon the respirations, and had had one opportunity of noticing the truth of Dr. Cameron's observation as to the effect of pulling on the round ligament.

Dr. GURD, as an anæsthetist of some fourteen years' standing and of very considerable

experience, had used Clover's inhaler, but not exactly in the manner of the previous speakers. As to the existence of certain regions which, when irritated, reflexly stimulated the respiratory centres, he thought there could be no doubt; and he believed that every anæsthetist must perforce soon become aware of the location of these places of extra excitability. It was his custom never to use the bag of Clover's inhaler, except when the operator was manipulating in these regions, and he used it then for the purpose of quieting the increased movements of the limbs, which were apt to be thus set up. Apart from this he never felt justified in using the bag of the inhaler, as he believed that pure ether was much less injurious to the patient's system than a mixture of ether and respired air, with all its impurities, which the application of the bag implied. So far as the convenience of the anæsthetist and of the operator was concerned, there could be no doubt that there was an advantage, as by its means the patient was much sooner rendered unconscious; but he thought that this was accomplished at the expense of the patient's vitality.

Dr. WILLIAM GARDNER stated that the only points in Dr. Campbell's paper which he was in a position to confirm were those which related to the reflexes set up while working on the peritoneum. He was especially impressed with the fact brought out concerning the danger of giving too much ether during these moments of unusual respiratory excitation. The patient then breathes more quickly, and hence is apt to take more of the drug, which might easily constitute an excess if the anæsthetist be not on his guard. He further expressed his satisfaction at the evidence of the popularity of Clover's inhaler in Montreal, as he considered himself as chiefly responsible for its introduction here.

Dr. ALLOWAY remarked that in the days of the old-fashioned cone and sponge, it was a matter of considerable anxiety to the surgeon as to what was going to take place before the patient was fully anæsthetized, and that throughout the whole operation his attention was more or less distracted from his work by the possibilities of danger arising from the anæsthetic. Now all this was changed. He knew that the quantity of the drug administered was accurately measured, and he felt the same safety in its use as does the physician in prescribing within the limits of the pharmacopœial dose. The only occasion now on which he has to inquire into the department of the anæsthetist was the blocking of the respiratory passages by mucus, and here the best plan is to stop the administration and allow the patient to vomit, which may be assisted by irritation of the fauces.

Dr. EVANS referred to an article he had recently read, in which much the same views