

anæsthesia numerous intestinal ulcers in process of healing; in another patient, a perforation of the cæcum was apparently caused, with death in twenty hours from fulminating peritonitis.

In spite of these grave objections, the authors, upon the basis of animal experimentation, and with the introduction of certain modifications of technique, conclude that the method has a very definite place in surgical practice.

They advise, first of all, the preliminary use of ethyl bromide, just as in New York Leggett advises beginning with ether by inhalation and continuing by the rectal route. The authors proved apparently that this early anæsthesia relaxes the ileo-cæcal valve, thus allowing an even distribution of the ether vapor from the start through the whole intestinal tract, and an accurate following of the ordinary signs of anæsthesia. They also advise a mixture of oxygen with ether vapor, and claim that they obtain in this way a very smooth anæsthesia with a more normal maintenance of cardiac and pulmonary function. As to their apparatus, this conforms in the main to the principles laid down by Cunningham and by Leggett, with an intervening bottle of water for the ether to pass through, and a safety exit for intestinal gases or fluids. In addition it provides a separate inlet, by a Y glass tube, for oxygen. With this method, their animals showed very little intestinal congestion and no ulceration. They also find that the various disadvantages above mentioned are largely circumvented; there is practically no meteorism, no diarrhoea, no tenesmus, no intestinal rupture, and no danger of cardio-respiratory failure above that of inhalation. This last was due to a primary resistance of the ileo-cæcal valve, with subsequent sudden yielding and sudden overwhelming of the small bowel with a large amount of ether collected in the large bowel. The preliminary administration of bromide of ethyl overcomes the valve at the beginning, and the anæsthesia then becomes regularly progressive and therefore capable of being intelligently followed as in the inhalation method.

In conclusion, the method when carried out with intelligence, and with the use of ethyl bromide and oxygen, is not more dangerous than the inhalation method; its disadvantages, due to the older technique, are largely overcome. It is inapplicable in the presence of intestinal derangements, acute or chronic abdominal diseases, and perineal or genital operations. It offers no advantage over other methods in operations on the extremities, but does offer indisputable advantage in operations on the head, neck, and thorax. Finally it is a method to be used only as an exception.