

## EFFECTIVE ADMINISTRATION OF ETHER IN THE TROPICS

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RECENT communications from and lectures by medical officers who have been overseas reveal that chloroform is being used in preference to ether in tropical countries.

Because one of us (M. P. C. S.) has had to improvise a device for administering ether in the tropical climate of Northern Argentina, where the conditions of temperature are very similar to those of the islands of the Coral Sea, we wish to call attention to this simple and useful device that makes satisfactory ether narcosis possible without special apparatus. All that is necessary is a can of ether, a piece of rubber tubing, one clamp (Mohr pinchcock clamp, Hoffman screw compressor, or simplex screw compressor used to regulate dropping during blood transfusion), and an ordinary ether mask used for semi-open method (fig. 1).

The administration of ether to produce narcosis is practicable in hot climates by using the excellent Ombredanne's apparatus, which is widely used in South America, or any kind of gas machine may be used to give ether by the closed system.

The boiling point of ether is 34.6 C. while the boiling point of chloroform is 61 C. Temperatures far above the boiling point of ether are registered in hot countries. Since ether is more volatile than chloroform, vaporization of the ether occurs before it reaches the mask, when it is administered by the open drop method; therefore, this method of anesthesia is unsatisfactory if not impossible in such circumstances. This can be overcome by using the technic to be described, which is simple, inexpensive and reliable.

## TECHNIC

Before opening the can of ether it must be cooled by immersing it in cold water. The can is then opened and a rubber tube, with clamp in place, is stretched over the neck of the can. The can of ether then is removed from the water and is ready for use.

The free end of the tube then is inserted under the mask and near the patient's nose; the clamp is opened or closed by the anesthetist's

thumb and index finger of the left hand while the right hand holds the mask on the face of the patient (fig. 2).

The mask must be covered with enough gauze to prevent the quick escape of the vaporized ether, but the gauze should not be thick enough to interfere with the entrance of a sufficient amount of air.

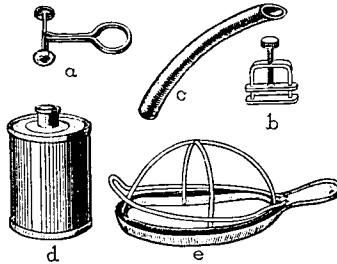


FIG. 1. Accessory equipment for administering ether to produce anesthesia in tropical countries; a, Mohr's clamp; b, Hoffman's clamp; c, rubber tubing; d, can of ether; and e, Yankauer's mask.

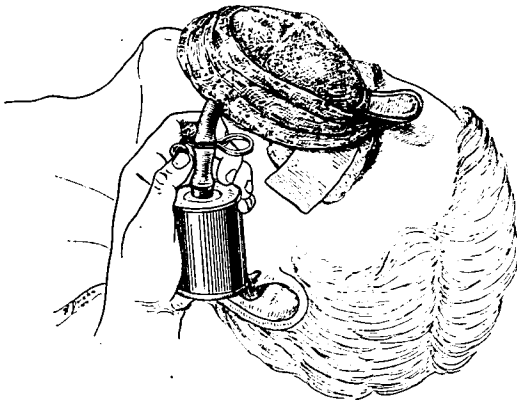


FIG. 2. Method of holding the can of ether. The free end of the rubber tube is inserted under the mask, as shown by the broken line.

The patient's eyes must be protected with moist cotton fixed in place with adhesive tape. As the ether in the can becomes warm, the vapor is forced through the tube by expansion.

When this method is used, the signs of narcosis are the same as they are when ether is administered by any other method. They must be the principal guide for the anesthetist. The dangers of complications are not increased in any way. If the can of ether is kept below the level of the mask, it is impossible, by this technic, for the patient to inhale any liquid ether.

With further experience, variations of this device will be made as circumstances dictate.

#### SUMMARY

This simple method of administering ether in tropical countries will permit one to avoid the use of chloroform, which is a much more toxic anesthetic.

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