An Inexpensive Device for Maintenance of Hypothermia

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In cases of head trauma, moderate or prolonged circulatory arrest or depression, intracranial vascular (or other) surgery performed under hypothermia, and in some less well-recognized situations, it is desirable to maintain body temperature moderately low for fairly long periods. A number of commercial apparatus are available for hypothermia; but they are all rather expensive, and their limited availability in most hospitals restricts their use. Foster E. Taylor of the Central Supply Service of this institution has developed a simple machine which can be constructed easily from generally available parts at a cost of less than fifty dollars. This machine has been employed frequently here, not only to maintain hypothermia over moderate periods but to induce it as well, using ice bags to the groin and axilla as adjuncts.

The diagram (fig. 1) and figure 2 illustrate

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the pump chest and its attachment to a water mattress. The chest is a small portable picnic refrigerator with metal walls and polystyrene insulation; it may have a capacity of 3 to 5 gallons. A submersible pump of approximately 1/50 horsepower which will deliver 100 to 125 gallons per hour at a five-foot head of pressure—somewhat more under usual operating conditions—is attached to the bottom of the chest. Any mattress may be used, but at such low flow rates the efficiency of the mattress is important.

The reservoir may be filled with water at any desired temperature, with or without ice. Alternatively, a temperature regulating coil may be used to control the fluid in the chest, but this is rather costly and complicated. The patient’s temperature may be monitored by any of the usual methods. The pump may be stopped or started, and the temperature of the circulating fluid controlled manually according to the clinical indications.

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**Figure 1.**

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Submersible Pump

1/55 hp 115/1/60 0.75amp

112 gph @ 5’head

Chiller - Aluminum and Polystyrene comp refrigerator chest ~ about 12 qts.
This has proved a very convenient and economical way of cooling and warming patients. It can be assembled easily by a hospital maintenance man, and requires no special parts or fittings. We recommend it for use in other institutions.

Modified Cannula for Tracheal Spray

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In order to facilitate quick topical anesthesia application during direct laryngoscopy, a Steiner cannula was modified by bending the curve of the instrument to a radius similar to the Macintosh laryngoscope blade and drilling an additional hole at the end as illustrated. When a forceful injection is made using a 5-ml. syringe, a fine stream is directed through the end hole down toward the carina so that approximately 1 ml. of solution reaches this area. When 5 ml. of 4 per cent lidocaine are employed, carinal anesthesia is sufficiently profound to obliterate the cough reflex upon suction catheter stimulation. Inserting the cannula so that the distal end is freely within the tracheal lumen and directed straight downward toward the carina is helpful. Sufficient solution is also ejected from the upper lateral orifices so that the supra-glottic area is bathed as well as the interior of the larynx. If non-Luer-Lok plastic syringes are not firmly attached, the cannula may become dislodged from the syringe tip during the in-