lime or other impurities, which may be in the water, on the instruments, etc., sometimes requiring them to be dried before storing. The latter type is the newer one, and obviously provides better sterilization by the higher temperatures obtainable, does not deposit impurities of the water on the instruments, and the articles are dry when removed from the sterilizer. Obviously sterilizers for dressings and fabrics must be of the latter type.

There is considerable tendency now to the use of so-called *built-in sterilizers* in the operating suites and other places where several sterilizers are installed at one point. Only pressure type sterilizers, which are loaded and unloaded from one end, are adaptable to this arrangement. With this method simply a thin partition is built flush with the sterilizer fronts, with only the doors, gages and operation valves visible in the rooms, the bodies projecting into an unfinished space behind the partition. This space must of course be accessible for repairs.

Proportioning Equipment

It is extremely difficult to lay down fixed rules as to the number and size of sterilizers to be installed in a hospital because requirements vary so widely and the technique followed by different hospital managements likewise varies widely.

However an attempt will be made to give some idea of the equipment considered sufficient under ordinary conditions. The number of major and minor operating rooms are fixed by considerations beyond the scope of this chapter.

One 16 in. x 24 in. dressing sterilizer will care for two major operating rooms and possibly for three, but for more than two such rooms it is better to provide a 16 in. x 36 in. size or better still to install two 16 in. x 24 in. sterilizers. The use of two sterilizers makes provision for breakdown service and in addition one of them may be used as a pressure utensil sterilizer, in some cases doing away with the necessity of installing a separate sterilizer for utensils.

One 20 in. x 20 in. x 24 in. open type, utensil sterilizer will care for two major operating rooms, unless the work is very heavy in which case one such sterilizer should be provided for each room.

One 9 in. x 10 in. x 20 in. open type, instrument sterilizer should be provided for each major operating room, although one 10 in. x 12 in. x 22 in. may serve two such rooms. The 12 in. x 16 in. x 24 in. instrument sterilizer finds its use where it is convenient to sterilize from three or more major operating rooms at one place.

One 14 in. x 22 in. (the smallest size advisable to use) pressure type, instrument sterilizer will easily serve two major operating rooms.

A small hospital might install one 20 in. x 28 in. pressure type dressing sterilizer which would serve both for dressings and utensils, but of course no breakdown service would thereby be provided.

From the references to both open and closed sterilizers it will of course be understood that both types for the same purpose are not to be installed. It is simply a choice of one type or the other for a given purpose.

Water sterilizers usually consist of twin reservoirs of the same capacity mounted on one frame. One reservoir is for water kept hot by steam coil

in the reservoir and the other somewhat cooled by circulating cold water through a coil in the reservoir. Both reservoirs of course have provisions for sterilizing their contents.

Water stills, when so ordered, are part of the water sterilizing unit and consist of still and reservoir, generally mounted between the two water reservoirs.

Water sterilizers are available in sizes from 6 to 100 gal. capacity of each reservoir and stills in capacities of 1–3 and 6 gal. reservoir capacity. The total capacity of the two water reservoirs on the water sterilizer should range between 5 and 10 gal. per major operation per day, as it is preferable to start with full tanks in the morning and have sufficient supply for the entire day.

The 3 gal. still would suffice for hospitals up to 100 beds and the 6 gal. size for larger hospitals, in connection with the water sterilizers.

Stills of same capacity are obtainable independent of the water sterilizers. There will frequently be need for a 6 gal. separate still in the pharmacy and frequently one in the maternity department.

The dressing, instrument, utensil and water sterilizers listed above are primarily for the major operating rooms. Sterilized dressings are stored in sealed containers, easily handled, and it makes little difference whether the operating activities are scattered or concentrated. Obviously the instrument, utensil and water sterilizers must be in or adjacent to the operating rooms as instruments, utensils and water should not be carried very far. If operating rooms are scattered the sterilizer equipment, with exception of the dressing sterilizer, must be duplicated for each location.

The sterilizers should preferably be located in a room fitted up for the purpose, opening directly into the operating rooms. It is well to remember, however, that uncontrolled sources of heat, however small, in an operating room are to be avoided whenever possible. In hot countries this is very important, for oscillating fans are usually not allowable in such rooms.

Maternity department delivery rooms are operating rooms so far as this discussion is concerned and are to have the same equipment. Even when they are so located that they may be served from same sterilizers as other operating rooms, which is usually not the case, there is a tendency to provide separate equipment for this room to avoid any possibility of infection from outside sources. This applies to the dressing sterilizer as well as other sterilizers.

In each minor operating room where eye, ear, nose and throat operations are performed and in treatment rooms where minor operations of various kinds are performed, and in the dental clinic, if one is provided a small electric sterilizer, say 5 in. x 6 in. x 16 in. for instruments should be provided.

In the surgery and maternity departments, and at convenient locations to rooms and wards, blanket and solution warmers should generally be provided. They are available in sizes approximately 18 in. x 24 in. x 72 in. and 18 in. x 30 in. x 72 in. and are simply heated, metal cabinets, suitably divided into compartments, in which bedpans, blankets and solutions may be kept suitably warmed, ready for use.

For the wards and rooms they should be placed in or near the utility