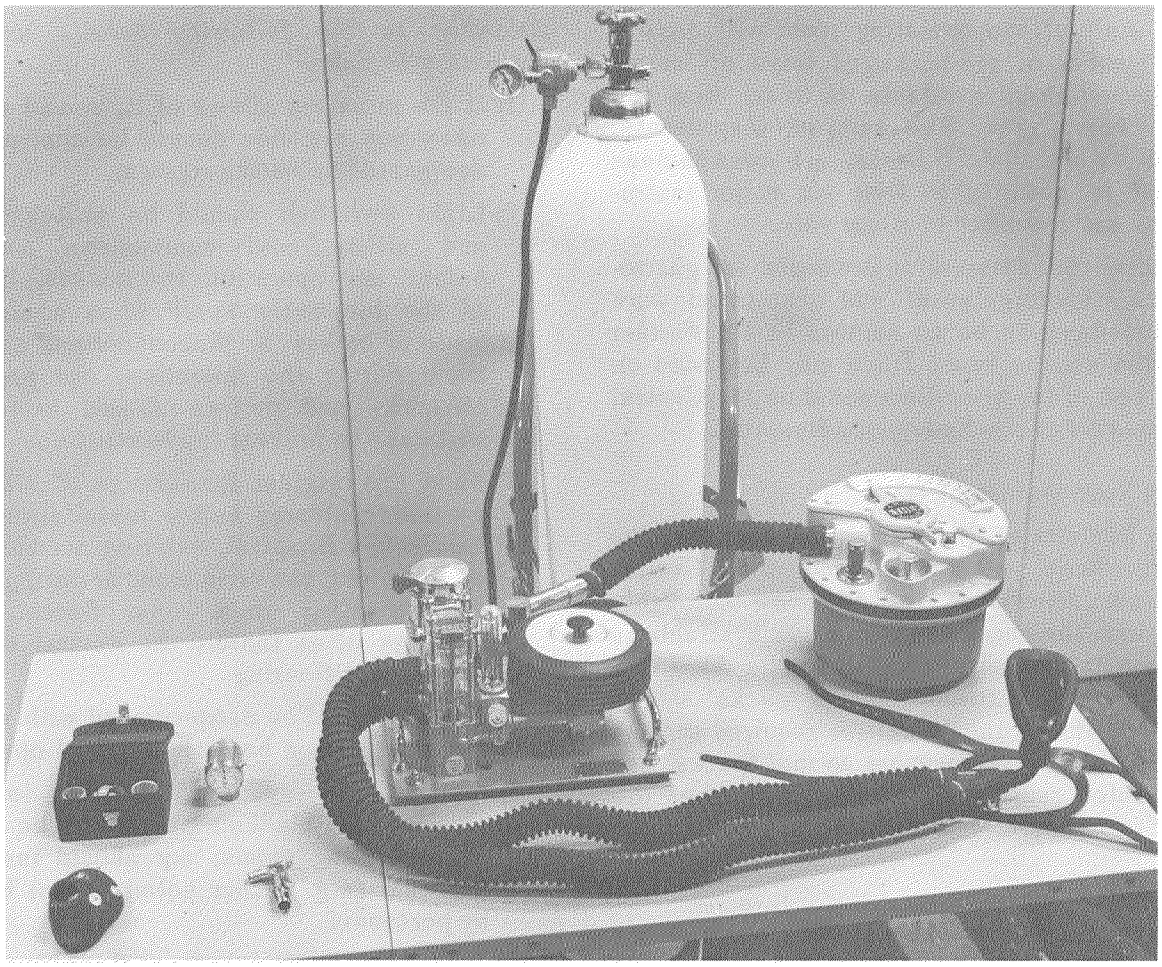

in one large area or in individual rooms as space dictates. A suggested layout for a two-table operating room is shown in plate 4, page 18 indicates the plan of the layout in the area of a standard school class-room. It will be noted that equipment for the operating rooms includes light-weight folding tables (Paul type), surgical lamps, folding Mayo and utility tables, anaesthetic apparatus, electrical suction apparatus and oxygen cylinders.

Anaesthetic Apparatus

Three lightweight Fluoxair units are supplied. As the stockpiling of medical gases for anesthesia presents serious logistic problems, these specially designed units which enable positive-pressure, general anaesthesia utilising liquid anaesthetics – halothane, ether and chloroform in combination with air and/or oxygen are provided. Open-ether or chloroform may be given if desired, and there are ample supplies of local; spinal and intravenous anaesthetics provided. Adult and pediatric anaesthetic masks and intratracheal catheters are also available. A single Wright Respirometer is included. This may be readily attached to the Fluoxair unit. It is envisaged that one anaesthetist will supervise anaesthesia given by physicians or if there are insufficient physicians, by para-medical personnel – dentists and veterinarians. The anaesthetist will act as the area chief for the resuscitation/recovery functional areas.

Operating Room Instruments

Instruments for the operating rooms will be sterilized in the Central Supply Area. The

nursing staff of the operating room will have a certain number of pre-packaged trays of instruments immediately available to them from the Central Supply area. The surgical instruments, supplied on an austere basis, are nevertheless sufficient in quantity to form six major instrument sets and a number of minor sets.

Specialized surgical instruments for gastro-intestinal, thoracic, renal and obstetrical work are included, again on an austere basis. Further information on the basic trays may be found on page 28 and in the specific manual on the Central Supply Section of the Emergency Hospital.

Operating Room Instrument Trays

The Director of Pharmaceutical Services, the Operating Room supervisor and the Central Supply Room supervisor should become thoroughly familiar with the surgical instruments available in the Emergency Hospital (see Appendix A). Lists of instruments for various trays or 'packs' should be drawn up indicating quantities required and the appropriate supply box number so that 'packs' may be assembled rapidly for sterilization when the hospital is in operational use.

Scrub-rooms

A wash hand basin with running water in the operating room is an advantage, but may not be found in the particular rooms selected for the operating area in a school building. Washrooms close to the operating rooms may be used as scrub-rooms.

If these facilities are not available, basins for scrubbing should be set up adjacent to the operating rooms (see plate 4).

Explosion Hazards in the Operating Rooms

The majority of the anaesthetics provided for the Emergency Hospital do not constitute flammable or explosion hazards. In a mass casualty situation, however, where the environment may be devoid of those physical features of the modern hospital operating room which are designed to reduce the hazards of explosion from volatile disinfectants, or anaesthetics such as ether, the use of these may have to be considered a calculated risk.

Attention to the following details will help mitigate this risk:–

1) If the situation allows of it, use of ether by open-drop methods should be confined to a designated operating room(s)
2) Light switches should be switched "on" and utility cord connections completed before any operation commences. Because of the inevitable spark when a circuit is made or broken, *no* disconnections should be made during the operation, and preferably switches and outlets should be covered with tape to prevent inadvertent use
3) When the original furnishings of a building are being cleared before installation of the Emergency Hospital, existing accumulations of floor wax and soap must be stripped from the operating room area floors. These coatings often inhibit the natural conductance of the flooring
4) Floors should be damp-mopped with water in the short period between surgical operations
5) Woollen and synthetic fabrics, including clothing and blankets should not be used in the operating rooms, nor should insulating footwear (e.g. rubber soled shoes) be worn by personnel
6) Ventilation, particularly at floor level where ether vapour may collect should be maintained, if possible, at 8–12 air changes per hour
7) If possible the relative humidity in the operating room should be kept high (optimum 50° – 60°F)
8) The Central Supply Room, where open-flame propane gas heating may be used, should have no direct access to, or ventilation link with, the Operating Room Area
9) Smoking must be prohibited in all hazardous locations, including the access corridor to the Operating Room Area.

The Role of the Anaesthetist in the 200 Bed Emergency Hospital

Under conditions of emergency, it is unlikely that a number of highly skilled anaesthetists will be available in each hospital. The most experi-

enced anaesthetist will be aided by physicians or para-medical personnel who will administer anaesthetics under his supervision. The anaesthetist will also be involved in resuscitation duties and the provision of pre-operative and post-operative care. The anaesthetist's role must be largely supervisory.

Responsibilities of the Anaesthetist

The anaesthetist has three main duties:–

1) To supervise medical officers or para-medical personnel who will be administering anaesthetics
2) To make a rapid check of the anaesthetic equipment and supplies available
3) To integrate the anaesthetic service into the resuscitation and operating room service team as swiftly as possible

He will exercise supervision in the three areas:–

1. In the Resuscitation Area the anaesthetist must know what fluids have been administered, the drugs that have been given and what resuscitative measures have been undertaken.
2. In the Operating Room it is his duty to observe conditions that will affect the patients post-operative care, to ensure that the patient has a clear airway, that bronchial and gastric secretions are removed and oxygen given as required. He must select the anaesthetic agent used, supervise the administration of blood or other intravenous fluids, give supportive measures as necessary and make recommendations on post-operative care.
3) He must ascertain that the patients reflexes have returned and drug depression is minimal before the patient is sent to the Recovery Room.

Anaesthesia and the Surgical Management of Mass Casualties

The surgical procedures in the initial phases of nuclear disaster must necessarily be of short duration to cope with a large number of casualties. Rapid induction of anaesthesia will be necessary and also it is essential that patients make a rapid recovery from the effects of anaesthesia. Severely wounded patients have dulling of the sensorium and rapid, gentle surgery may require only the minimum use of anaesthetic agents and narcotics, in fact extensive usage of these may be detrimental to the patient.

The anaesthetist must consult with the chief of surgery and the resuscitation physician regarding priorities of patients for operation. The method of surgical procedure adopted must ensure of maximum saving of life, and maximum use of Operating Room area and of medical and nursing personnel in a situation where there is likely to be scarcity of the latter.

Anaesthetic Equipment

Supplies are available for the administration of intratracheal, intravenous and spinal and local anaesthetics. The principal anaesthetic agents will be halothane, ether and chloroform, thiopental sodium, succinylcholine and gallamine, lidocaine, procaine and tetracaine. A specially designed portable halothane-air – oxygen/ether vaporizer is available (see page 19).

Packaging of Anaesthetic Equipment and Supplies

There is no pre-packaging of equipment and supplies in one box for the specific use of the anaesthetists. It is important that those responsible for anaesthesia in the Emergency Hospital understand that some of the equipment is pre-packaged with all those other items destined for placement in the Operating Rooms, Resuscitation Area and Recovery Area, Central Supply Room and Pharmacy.

The bulk of the anaesthetic equipment however will be pre-packaged with Operating Room Equipment and Anaesthetic agents drugs and parenteral fluids with Pharmacy Supplies.

Recovery Post-operative Area

The nursing supervisor of this area must be skilled in intensive care.

Location

It may consist of one large area (ward) of twenty beds or two adjoining rooms of 10 beds each, (see plate 6, page 22). It is important to allow ample working space for staff around the