On one side of the chemical hood has been installed a work bench with drawers (fig. 2) for preparations of samples and for cutting and grinding of sections for radioautography.[2] A balance case is fixed to the wall in the corner closest to the counting room (see fig. 3). The only permanent installations in room 3 are a counter with drawers and cupboards and a small porcelain sink. All work benches and drawers are constructed from birch wood except for the table tops, which are covered with removable lino-bestos.® All working surfaces are further protected by waxed paper, which is replaced after each experiment.

## COST OF FIXED INSTALLATIONS

Aside from the cost of bricks and mortar in the original construction of the animal house, the following figures represent expenses directly involved in preparing the area for radioisotope experimentation.

(*a*) Floors: $170.00. For this amount the concrete floors of all three rooms—270 sq. ft. (25 sq. m.) were covered with a copper-kraft paper sandwich and mastipave® flooring, with cut-back asphalt being used for the cementing material.

(*b*) Air conditioning: $1,100.00. This figure includes a special consultation fee in connection with the exhaust system in addition to the purchase and installation of the exhaust fan and ducts.

(*c*) Chemical hood: $950.00. This includes design, construction and installation of the double hood.

(*d*) Operating table: $280.00. This relatively expensive steel construction has proved of indispensable value for the various phases of radioisotope work with large animals.

(*e*) Balance table and work benches: $600.00. The installation of all woodwork, besides being the best of workmanship, involved considerable other labor such as filling all cracks on or near working surfaces with putty, especially against the tile walls, in order to provide smooth surfaces all over and to prevent any dust traps between adjoining structures.

The various items listed above represent a total cost of approximately $3,000.00 for what may be considered the fixed installations required to adapt the laboratory for radioisotope work with large experimental animals.

## MONITORING AND OTHER SAFETY MEASURES

Once a week and without previous notice the radioisotope area is monitored. All personnel wear radiosensitive photographic badges which are tested and changed each week. Once a month for the first three months and once every three months thereafter, each member of the personnel is given a blood test.

During the past year the film badges worn by all who are working in the radioisotope area have been negative except in one instance. In this case, we believe, the film was exposed to radiation outside the radioisotope area when some dental x-rays were taken while the subject was wearing the film badge. All the blood tests have given normal results in the course of the first year of operation.

These various safety measures are part of a service carried out by a technically trained staff of the New England Deaconess Hospital and are shared with the other departments of the Harvard Medical Area involved in radioisotope work. Painstaking as this service is, it has benefited us a great deal. A few examples may be cited. During one experiment the weekly monitoring service reported a detailed reading at the surface of a "hot" monkey bone (radioactive phosphorus), too hot to be stored unshielded in the hood. Since then we have installed the above-mentioned lead box for a safer storage of samples which happened to be in the process of preparation. On another occasion two "hot" spots were brought to our attention, one in the hood and one on the floor, both presumably accidental drips from a syringe. These areas were decontaminated by thorough scrubbing. These examples indicate the need for a radiation survey meter in the laboratory, in addition to the above-mentioned monitoring service, in order to make immediate checks on suspected spots of contamination and also to make sure of a successful decontamination.

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2. Sognnaes, R. F.; Shaw, J. H.; Solomon, A. K., and Harvold, E.: A Method for Radioautography of Specimens Composed of Both Hard and Soft Structures, Anat. Rec. **104**:319, 1949.