Radiological Health Field Training Unit

By SIMON KINSMAN, Ph.D., and MORTON I. GOLDMAN, M.S.

ALTHOUGH the radioactivity associated with radioisotopes and nuclear power is potentially of great benefit to mankind, it presents certain hazards which are becoming of increasing public health significance. These hazards are formidable but not insurmountable. Feasible methods of radiation protection are available for both the individual working in close contact with radiation and the public living in the environs exposed to radioactive wastes.

One of the most important aspects of radiological safety is the detection of radiation. Since radiation cannot be detected by our ordinary senses, we must depend upon special equipment to detect and measure it in order to preclude excessive exposure of individuals or the public.

State and local public health agencies will be, and, in fact, already have been, called upon to take an active part in radiological safety programs. Recognizing the nation-wide lack of public health workers trained in radiological safety procedures, the Public Health Service has instituted a series of short courses in radiological health at the Environmental Health Center in Cincinnati, Ohio. The mobile radiological health field training unit is an outgrowth of suggestions from the trainees of these courses and the realization of means to fulfill the numerous requests for field training.

The training unit was conceived in November 1950. Design and planning began the following month, and procurement of priority materials was in progress by March 1951. The majority of the interior construction, mounting of instruments, and installation of cabinets, sinks, and electronic radiac instruments was accomplished by members of the radiological health training section of the Environmental Health Center. The unit was completed in February 1952.

Radiation detection apparatus of each of the three functional types are contained in the unit: laboratory-type assay equipment, field-survey monitoring instruments, and personnel-monitoring devices. The assay equipment includes proportional, Geiger-Mueller, and scintillation counters plus associated scalers, count-rate meters, and recorders, all of which can be used for radiological assay of water, food, and air. These laboratory-type instruments are mounted in such a manner in the unit that they can be used in place or can be easily moved to a laboratory or lecture hall for training purposes.

The portable survey instruments include Geiger-Mueller counters, ionization chambers, and electroscopes. The personnel-monitoring devices include dosimeters and film badges, as well as a densitometer for reading exposed-film densities.

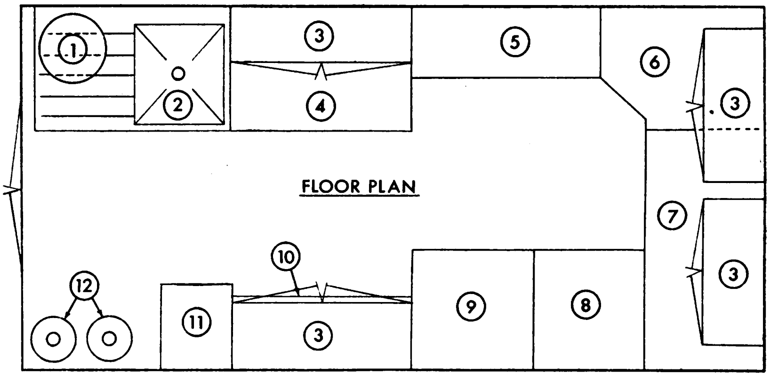
A chemical work table and exhaust hood are provided for the demonstration of safe radiochemical techniques and sample preparation using materials at low and intermediate radiation levels. Laboratory apparatus and glassware of the types used for tracer radiochemistry are included in this section of the unit.

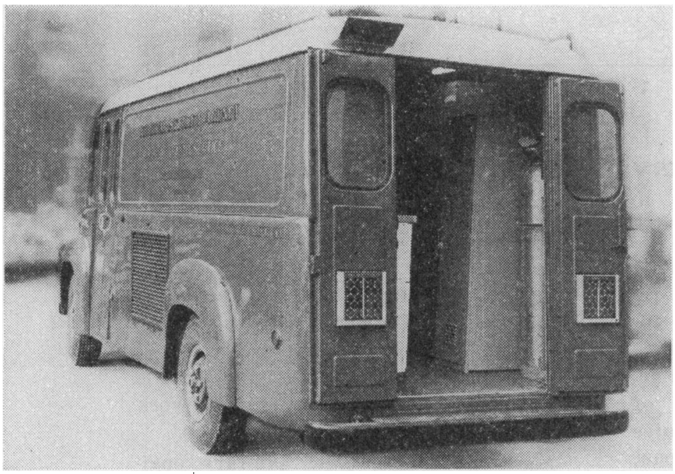
To maintain the electronic instruments at proper operating temperatures and to provide a constant temperature for developing and servicing film badges, the unit is air-conditioned. It contains its own pressure water system and

Dr. Kinsman is chief and Mr. Goldman is senior assistant sanitary engineer of the radiological health training section, Environmental Health Center, Public Health Service, Cincinnati, Ohio.

Floor plan of field unit:

① Exhaust hood, over stainless-steel drain board. ② Sink. ③ Wall cabinet. ④ Chemical work table. ⑤ Air-conditioning unit. ⑥ Repair work table. ⑦ Detector work table (motor-generator underneath). ⑧ Detector work table. ⑨ Scaler instrument rack. ⑩ Work table. ⑪ Clothing locker. ⑫ Gas cylinders.

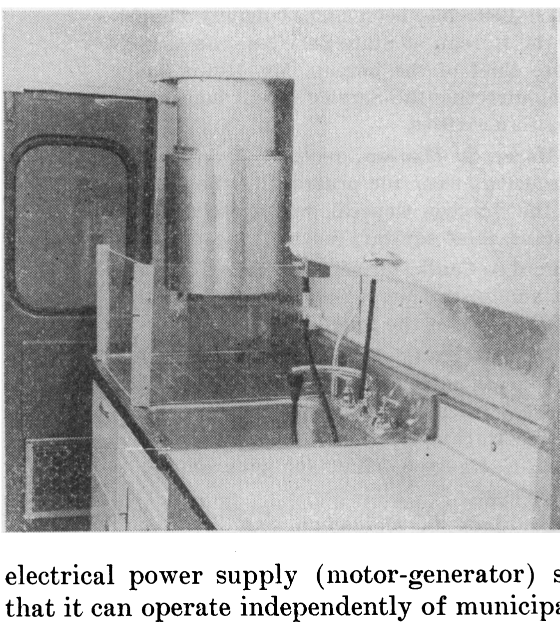


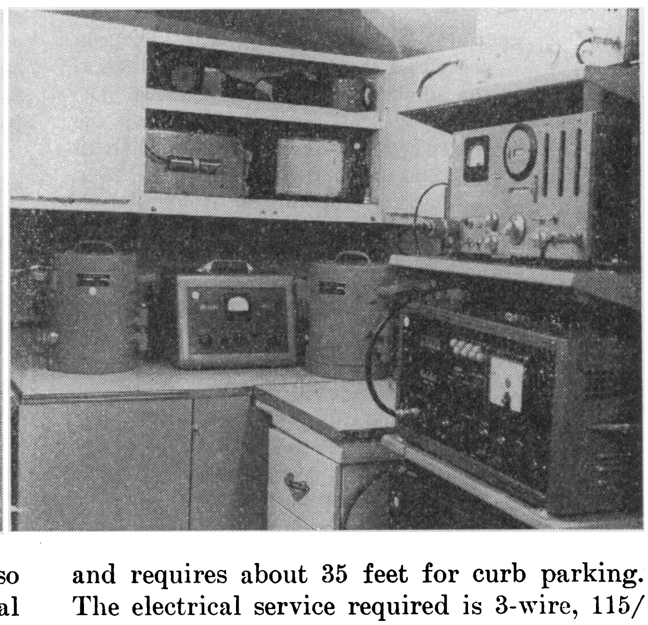


Left: **Exterior of field training unit. Note filters in doors, which help to keep dust to a minimum.**

Lower left: **Chemistry section of the unit. The exhaust hood and chemical work table are shown.**

Lower right: **Radiation - detection equipment. Proportional counters and associated scalers are on the shelves at right.**



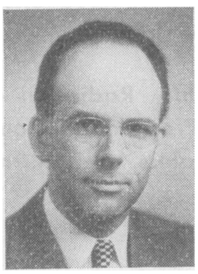


electrical power supply (motor-generator) so that it can operate independently of municipal services. With slight modifications the unit can be used as a mobile field radiological laboratory.

The mobile unit is approximately 20 feet long and requires about 35 feet for curb parking. The electrical service required is 3-wire, 115/230-volt, single phase a. c. with a demand of approximately 5,000 watts. The water system of the unit can be connected to an external supply through a garden hose, although the internal supply will provide about 10 gallons under pressure and is used when no other supply is available.

The field training unit was first exhibited in Galveston, Tex., in conjunction with the annual meeting of the Texas Public Health Association in February 1952. At the conclusion of this meeting, the training unit was exhibited in Houston, San Antonio, Forth Worth, and Dallas. In March 1952, the unit was used in conjunction with a training course sponsored jointly by the Alabama State Health Department and the University of Alabama and conducted by the radiological health training section, at Tuscaloosa, Ala. From June 26 through 28, the unit was exhibited at the University of Michigan at Ann Arbor in connection with the Fifth Annual Summer Institute on Industrial and Legal Problems of Atomic Energy. In addition, the unit is used for field exercises which are a part of the radiological health courses offered at the Environmental Health Center.

Public Health Service Staff Assignments



Dr. Price

Changes in staff assignments in the Public Health Service recently announced include the following:

Dr. David E. Price, associate director of the National Institutes of Health for the past 2 years, has been named Assistant Surgeon General. He will assist the Surgeon General and the Deputy Surgeon General in the administration of the Service. Dr. Price received his medical training at the University of California School of Medicine at San Francisco, and his doctorate in public health from Johns Hopkins University. A commissioned officer since 1941, his early assignments were in venereal disease control. In 1946 he came to the newly created Research Grants Division and became chief in 1948.

Dr. C. J. Van Slyke has been named associate chief of the National Institutes of Health, succeeding Dr. Price. The first director of the National Heart Institute (since 1948), Dr. Van Slyke's principal responsibilities will be the coordination of the Institutes' programs of research and training grants, disease control and community services, professional training, and relationships with national foundations and health organizations.

Dr. James Watt, for the past several years in charge of the National Microbiological Institute's field laboratory at Louisiana State University Medical School, has been designated the new director of the National Heart Institute. Dr. Watt is known both here and abroad for his work in the enteric and rickettsial diseases.

Mark D. Hollis, chief sanitary engineering officer of the Public Health Service since 1948, has been named deputy chief of the Bureau of State Services. As associate chief of the bureau, Mr. Hollis has been directing the Service's environmental health activities.

Harry G. Hanson, recently serving as executive officer for program in the office of the Surgeon General, will serve as assistant chief sanitary engineering officer.

Paul A. Caulk, formerly executive officer for administration, is now executive officer in the Office of the Surgeon General.

Dr. Joseph O. Dean, formerly associate bureau chief for staff and management services in the Bureau of State Services, has been transferred to the newly created post of associate chief for program development.

Dr. Jack C. Haldeman has been assigned as assistant chief of the Bureau of State Services for regional office and external operations. Formerly he was chief of the Division of State Grants.