Two of the 5 eggs receiving antibiotic-treated inocula were examined on the fourth postinoculation day. No lesions were observed. On the seventh day, the remaining 3 were examined. Two had barely perceptible lesions at the inoculation site, and the pole of the third had the rough appearance of sandpaper with definite but small cystlike proliferations at the inoculation sites. One of the 2 embryos inoculated with nontreated suspension had an edematous CAM, particularly at the pole, and small but definite raised lesions at each inoculation site. The last embryo, which received more inoculum than any of the preceding, had several hard, whitish "pearls," which were raised above the surface of the CAM about 1/8 in. Aerobic agar cultures remained sterile. Subsequent passages have shown that the agent grows well on the CAM of 10-day-old chick embryos, routinely producing dense white to greenish pearls varying in size but usually between 1/16 and 3/16 in. in diameter. Occasionally, many much smaller secondary lesions are present on the CAM. In a few embryos there has been evidence suggesting that destruction of blood vessels has occurred, thus permitting hemorrhage. When the individual lesions are close enough to coalesce, a yellowish substance resembling necrosed tissue has been observed between the CAM and the inner shell membrane.

To demonstrate the filtrability of the agent provoking these lesions, a Boerner filtrate of a ground suspension of first-passage membrane and a Boerner and a Berkefeld "V" filtrate of a second-passage membrane were prepared and inoculated on the CAM of 10-day-old embryos. Neither Boerner filtrate produced lesions, but the Berkefeld filtrate caused lesions which could not be distinguished from nonfiltered material. Aerobic agar cultures of the filtrates and of all eggs inoculated with them or with nonfiltered material remained sterile. Since the Boerner filter utilizes a Seitz-type asbestos pad, these results were not unexpected.

Because of the character of the lesions produced and because of the filtrability of the agent causing them, it seems probable that a virus has been cultured. More detailed information on this and other aspects of the problem are to be considered in a future report.

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Manuscript received August 11, 1952.

A Metabolism Unit Designed for Radioisotope Balance Studies with Dogs[1]

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The dog is widely used in nutritional and physiological experimentation. Problems raised by the use of radioactive materials in such studies have necessitated the redesign of cages for quantitative collection of excreta. For the most part, the cages now employed are based on that introduced by Gies (*1*) or Bliss (*2*) and consist of square or rectangular units with mesh wire bottoms upon which the animal stands over a metal urine funnel. The feces are retained by the wire floor, and the urine passes through the mesh and is directed by the funnel to a collecting vessel beneath. Details of the basic requirements that must be met by a satisfactory unit for isotope studies and the shortcomings of the conventional type of animal cage have been previously discussed (*3*). The need for minimizing contamination of the surrounding area and the animal itself, as well as the importance of quantitative separate collection of excreta, with a minimum of smearing on the restraining surfaces, has been emphasized (*4*).

Taking these requirements into consideration, a metabolism cage has been designed for balance studies with dogs that fulfills the above conditions and effects the satisfactory quantitative separate collection of urine and feces eliminated by either sex. This has

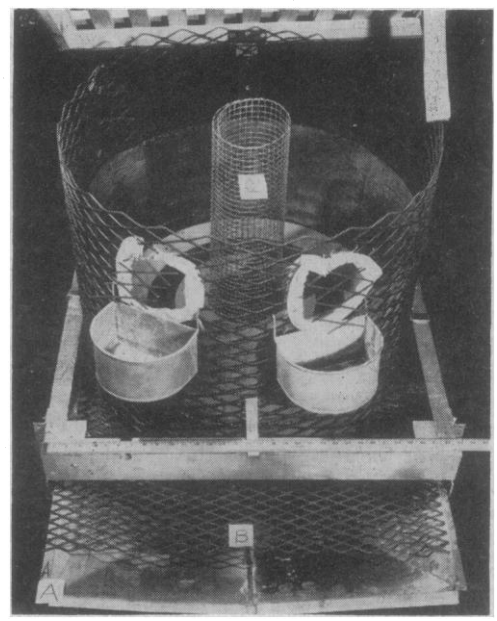

FIG. 1. Metabolism unit designed for quantitative separate collection of excreta from dogs of either sex (note circular false floor separator in position).

[1] Published with the approval of the director of the University of Tennessee Agricultural Experiment Station.

been accomplished by the unique arrangement of a circular false floor that comfortably supports the animal above the wire mesh during the experimental period, and keeps him oriented in such a way that all feces, regardless of the animal's position in the unit, pass through the circular openings and are collected below on the removable mesh floor. The false floor separator, as described, can also be used satisfactorily in the ordinary commercial dog cage where balance studies are desired.

The metabolism unit illustrated in Fig. 1 is inexpensive and of simple design, with removable parts that may be easily cleaned or conveniently discarded if and when contaminated with radioactivity. The restraining walls are constructed from a 24″ width of corrugated metal[2] mesh rolled to form a round cage 29″ in diameter; the edges are held in position by four 1¼″ bolts. Two openings are made in the front of the cage to allow the dog free access to feed and water from commercial dog feed cups suspended outside the walls. These openings are made by cutting the side and bottom of an area 6″ × 6″ and pulling the attached wire outward over the containers, which prevents the animal from attempting escape. The openings are protected by sewing a strip of heavy canvas around the raw edges of the metal. Four L-shaped metal straps attached to the outside walls fit over a sturdy fitted frame made from 2″ × 4″ boards supporting the cage at a convenient height above the floor.

The novel feature of this unit is the false circular floor separator on which the animal stands during the experimental period (Fig. 2). It is constructed from two or more concentric 3″ widths of ½″ plywood, sawed and fitted in a circular pattern 3″ apart to form a removable circular floor 24″ in diameter. The plywood is secured to three ¼″ iron rods that protrude outward to hook on the inside of the cage. One of these supporting rods may be retracted to permit ready removal of the floor from the cage. A 7″ opening in the center of the floor permits the insertion of a 6″ roll of ½″ mesh hardware cloth (Fig. 1 *C*) that rests on the removable corrugated metal floor below (Fig. 1 *B*) and extends the entire height of the cage. This arrangement serves to restrain the animal without discomfort in such a position that the feces always pass between the plywood boards onto the metal screen below. The urine, most of which is voided by the male directly onto the hardware cloth cylinder in the center of the cage, passes through the mesh floor onto a 32″ × 32″ galvanized metal funnel (Fig. 1 *A*), which diverts it into a carboy below. To minimize splattering and the spread of radioactivity, especially with females, a removable metal liner 17″ high is inserted inside the cage and fitted under the feeder against the sides of the wire mesh walls. The cage cover is constructed from conveniently spaced 1″ × 2″ wooden strips and is attached to the top of the cage

[2] No. 9-11 gauge flattened mesh is available in 4′ × 8′ sheets from Wheeling Corrugating Company, Wheeling, W. Va.

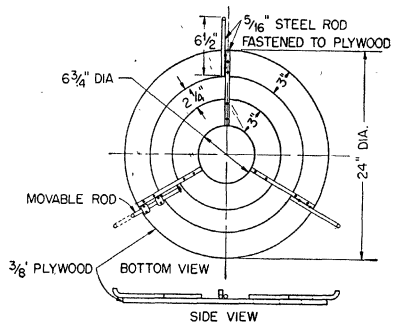

FIG. 2. Schematic diagram of the circular false floor separator for use in dog metabolism cages.

at the back with an 8″ metal T-hinge; it is secured at the front by a heavy wire hook.

To facilitate cleaning and decontamination, the metal liner, false floor separator, and urine funnel are sprayed with a strippable paint[3] previous to use.

This metabolism unit has wide application in studies involving not only radioisotopes, but whenever it is desirable to make quantitative separate urine and fecal collections with 7–12 kg dogs of either sex. The simplicity and economy of construction and the restraint accomplished without undue restriction of the animal's movements during the experimental period make the unit especially useful for metabolism studies with radioisotopes.

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Manuscript received August 20, 1952.

[3] A strippable paint called "Cocoon" is available from Hollingshead Corp., Camden, N. J.

Fall in Minimum Night Temperature at or near Full Moon: Part II

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The atmospheric temperature fluctuations on the earth's surface have been carefully recorded for many years by numerous observers, whose investigations have elucidated most of the causes of these fluctuations. Such explanations have been founded on well-established meteorological and other phenomena, caused chiefly by the heat and light of the sun; but little attention seems to have been paid to its gravitational action, and also that of the moon, on the earth's atmosphere. The effects of the gravitational pull of both these bodies on the shape of the earth and on its tides in the waters of the seas are, of course, well established, though the exact amount of the pull, ascribed to either the sun or moon in causing any given tide, appears not to have been calcu-