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PLANT RESEARCH AND HUMAN WELFARE[1]

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INTRODUCTION

WHEN this country was founded, nineteen people out of every twenty had to spend all their time producing food for themselves and the twentieth person. That was true all over the world. A hundred years ago eight people out of every ten still had to work with the soil, producing food for themselves and the other two people. To-day this proportion is exactly reversed. About two people out of every ten produce the food for the whole ten, or, putting it in another way, one person on the land supports himself, three people in town and contributes to the support of one person overseas.

What is the significance of this fact? Just this: When nineteen people out of twenty have to spend their energy producing food, that leaves only one person to produce everything else. Obviously there won't be much else; certainly there won't be any large-scale industries such as we know to-day. But when only two people out of ten have to produce food, the other eight are released to do a multitude of things. Large-scale factory production becomes possible. All kinds of social services become possible.

In brief, the degree of development of any society depends on the sufficiency of its agricultural resources and the efficiency of its farmers. Only where farmers are efficient and can release other men from the absolute necessity for devoting their time to primary production can the industries, sciences and arts that characterize modern civilization be developed. Our civilization in the United States to-day rests solidly on the achievements of farmers. These achievements

[1] Address before the Kansas Academy of Science, Wichita, Kansas, March 29, 1940.

rate of rotation of meter B, keeping the composition of the mixture constant at all times. The apparatus is not designed to work against a large back pressure. Excess moisture can be removed from the gas mixture by passing it through a bottle immersed in cold running water.

Table 1 shows the composition of mixtures of nitrogen and atmospheric air produced with various gear ratios (H:H′) at a rate of flow of 2–8 liters per minute. An advantage of this apparatus is its ability to produce gas mixtures of constant composition, despite fluctuations in the rate of flow.

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SIMPLE FLOOR-NET FOR CATCHING THE ESCAPED LABORATORY RODENT

To save considerable time lost through the employment of many inefficient devices to capture animals that have escaped from their cages, I have constructed a simple net which may be used for the common laboratory rodents, rat, mouse and guinea pig, and in a larger size for rabbits.

Rats and mice, as well as guinea pigs to a lesser extent, are negatively phototropic. For example, I have seen escaped rats and mice kill themselves because of this tendency. By spying solid, black objects such as table legs or iron stoves and by considering these to be darkened holes in their momentarily confused landscape, they have crashed headlong into them. Therefore, the object into which the rodent should run ought to be black and preferably of soft material such as cloth.

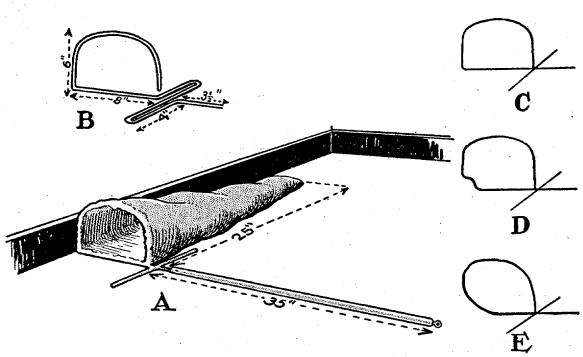

FIG. 1

Except on rare occasions laboratory rodents run along the walls, gauging their distance from the wall with their vibrissae. Therefore the device for catching them should fit snugly to the wall.

With a consideration of these special demands made upon such a device by rodent behavior, I have constructed a net as represented in Fig. 1 A.

A frame of 5/32″ galvanized iron wire is bent as shown in Fig. 1 B to form net opening shape (8″ wide × 6″ high), supporting arms (4″ long) and handle insert (3½″ long). To render the frame solid it is soldered or brazed together where the net-opening shape, supporting arms and handle insert come together.

The net-opening shape will vary in size with the animals for which it is employed, but for rats, mice and guinea pigs the dimensions given here will be satisfactory. The contour will vary with the profile of the laboratory wall where it joins the floor. Hence the net-opening shape may be of forms such as those shown in Fig. 1 C, 1 D and 1 E. The handle is 35″ long and the net bag 25″ long, as represented in Fig. 1 A.

A black cloth bag is sewed to the net-opening frame.

To use the floor-net, it is merely laid on the floor with the end of the net-opening at right angles to the wall and fitting the wall profile. The net-opening is maintained in a solidly upright position by the supporting arms. The animal is driven into the bag and the net-opening is closed by turning it under or over the net bag. If the animal is being driven from the direction opposite to that toward which the net-opening is oriented, merely turn the net inside out and proceed as before.

If wild rats are being housed in Wistar Institute 2-compartment-type cages, a smaller net of similar design but lacking the supporting arms may be held over the intercompartment door in one compartment and the rats readily driven through the door into the net when specimens are wanted for experimental purposes.

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BOOKS RECEIVED

FRANK, PHILIPP. *Between Physics and Philosophy.* Pp. 238. Harvard University Press. $2.75.

GREENLEAF, ALLEN R. *Chemistry for Photographers.* Pp. xi + 177. American Photographic Publishing Co., Boston. $2.00.

HARDY, G. H. *A Mathematician's Apology.* Pp. vii + 93. Cambridge University Press, Macmillan. $1.00.

JESSEN, KNUD and RAGNAR SPÄRCK, Editors. *Danish Scientific Investigations in Iran. Part II.* Pp. 238. Illustrated. Einar Munksgaard, Copenhagen. Cr. 18.–

LANDSBERG, HELMUT. *Physical Climatology.* Pp. xii + 283. 79 figures. Pennsylvania State College. $3.50.

LEY, WILLY. *The Lungfish and the Unicorn: an Excursion into Romantic Zoology.* Pp. 305. Illustrated. Modern Age Books. $2.75.

LLEWELLYN, F. B. *Electron-Inertia Effects.* Pp. viii + 104. 13 figures. Cambridge University Press, Macmillan. $1.75.

LOGAN, H. BRITTON and JEAN-MARIE PUTNAM. *Science in the Garden.* Pp. xiv + 255. Duell, Sloan and Pearce, New York. $2.50.

WOODRUFF, L. L., Editor. *Development of the Sciences. Second Series.* Pp. 336. Yale University Press. $3.00.