



Food from Trees

➤ PRACTICALLY all of our staple food crops are either annuals, biennials or perennials with a very brief life cycle. All of our grains start and finish their lives in the same growing season, with the exception of small-grain crops sown in the fall, which are thus semi-biennials. Potatoes, both white and sweet, are potentially perennials, but for cropping purposes we treat them as annuals. Carrots, parsnips and similar root vegetables are biennials, but good for food only during their first season.

All this means that the greater part of our food-producing areas are kept in a state of constant instability. To be planted every year, the soil has to be plowed and otherwise disturbed every year. The degree to which erosion is wasting our plowlands has everyone alarmed.

A large part of the cultivated land in the world was originally forested, and

much of it should be growing trees now, but for the necessity of providing larger quantities of food per acre than trees will produce. Food-bearing trees produce mainly fruits and nuts, which are commonly used as food accessories rather than as main courses. Three outstanding exceptions are the olive, which is a dietary mainstay in Mediterranean lands; the date, which is the bread of the desert; and the coconut, which makes life possible in many tropic lands which would otherwise be unpopulated.

What we really need, for our erosion-menaced temperate-zone lands, are some highly productive tree crops of this kind. What they might be is hard now to imagine, so thoroughly tied to the one-year cropping method have we become. The sparser populations of forested

lands where life is still lived at a pre-agricultural level do depend to some extent on tree foods—acorns, pinon nuts and the like, often shelled and ground into meal for boiling or baking.

There is a serious drawback to dependence on tree crops for one's principal food supply. Many trees produce only one good crop in two or more years; primitive peoples depending on them alternate between feast and famine. However, if we could find a tree that would supply us with the equivalent of bread or potatoes, we might now be able to overcome this irregularity by intensive application of fertilizer around the roots, or spraying with growth-control chemicals. The main problem still is to find the right tree.

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ZOOLOGY

Rats Are Poor Emigrants

If forcibly introduced into another rat community, they either tried to return to their old haunts or died off. Strangers fared worse than "natives" in death rate.

➤ RATS, despite their seeming boldness, do not make very successful emigrants. They are stay-at-home conservatives, and if they are forcibly introduced into an already established rat community they do not fare too well. Experiments in rodent sociology leading to these conclusions were reported in the *Journal of Wildlife Management* (April) by Dr. John B. Calhoun of the Johns Hopkins University, Baltimore.

A considerable number of rats, marked for subsequent identification, were released in the yards of city blocks where they were "aliens." Previous studies had already established the fact that a city block is a natural "country" for its rat inhabitants, with streets and clear alleys as recognized frontiers. These "alien" rats began to migrate at once, and subsequent trappings and pick-ups of dead animals traced their movements.

When the "aliens" came from an adjoining block, fully half of the forcibly removed rats found their way home again. Even when they came from farther away, many of them would leave the strange new neighborhood. On the other hand, the "native" rats stuck to their home territory, despite disturbances in the population balance caused by the arrival of the strangers.

Death rates among native and alien

rats went up when the rat population was thus artificially increased. But here again the strangers had the worst of it, for their death rate was three times that of the natives.

When the rat population of a city block is reduced by poisoning or trapping, it comes back to its original level at a fairly even rate, other studies reveal. If the kill is between 50% and 90%, the comeback rate is about four percent a month. If the kill is much lighter or much heavier, the comeback rate is slower.

The study was made by Drs. John T. Emlen, Jr., Allen W. Stokes and Charles P. Winsor, of the Johns Hopkins School of Hygiene and Public Health. They made careful counts of the visible rat populations in 34 densely-built city blocks, with the cooperation of the residents. Then they decimated the populations with ANTU, and continued their close survey as the rats bred up towards the original levels.

In general, they found, the rat population of a given block will remain indefinitely at a given level, and that after partial destruction will in time re-establish itself at that level.

A detailed report of the three-man team's results is published in *Ecology* (April).

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