



Plankton

**P**LANKTON, the swarming minute plant and animal life of the sea that is the basic food of all fishes and even of gigantic whales, is recommended for trial as an emergency ration in Britain. The recommendation is made by Prof. A. C. Hardy of University College, Hull. (*Nature*, June 7).

Plankton consists of minute, free-floating organisms, some of them microscopic, some visible to the naked eye, but none big enough to be counted a mouthful by anything larger than a shrimp or a sardine. In the ocean's great food cycle, larger forms in the plankton eat the tiniest, then are themselves eaten, until the ultimate eaters are the fish that come to our tables. The whalebone whales short-circuit this eat-and-be-eaten cycle by engulfing enormous quantities of sea water in their great mouths and straining out the water through the fringy sieves of whalebone. They thus live directly on plankton; and Prof. Hardy points out that they seem to do right well on this natural, uncooked soup, for they grow from infancy to their enormous adulthood in only two years.

Before the war, Prof. Hardy states, scientists at the German marine biological station on Heligoland were looking into the dietetic possibilities of plankton. They found that the masses of tiny animals in the plankton had a nutritive value equal to the best meat and the plants to be equal to rye flour. Protein and fat contents were especially high.

To get the plankton out of the sea and on to the dining table is a task not too easily solved, for while there are billions of these creatures under every square mile of sea surface, they are after all rather scattered. Towing enlarged versions of the ordinary scientific collector's plankton nets behind boats does not look economically feasible, when boat hire, fuel expenditure, crew's wages and general overhead have to be reckoned against market value.

However, Prof. Hardy suggests, it might be possible to anchor long funnel-shaped nets in certain channels along the coast, where plankton-laden tidal currents run strongly. A whole "fleet" of these nets could be tended by a couple of men in a small power boat, who would merely lift the closed ends of the nets, untie collecting vessels from them, tie in empty collectors and drop them into the sea again.

He calculates that twenty men, tending a hundred such nets, could bring in daily 26¼ tons (dry weight) of high-class food. The factories for processing it could be located on convenient points along the shore.

"Such a war-time emergency," he suggests in conclusion, "might well give rise to a regular peace-time industry."

*Science News Letter, July 12, 1941*

## ANTHROPOLOGY

## Marginal Indians of South Don't Miss Civilization

**T**HE HUSTLING, bustling New World with its defense worries has a few thousand people who live a simple Stone Age existence and are quite content not to be civilized.

These marginal Indians of South America, remaining on about the same economic level for 4,000 years at least, and perhaps 20,000, now aid science to understand the New World's past, explains Dr. John M. Cooper of the Catholic University of America.

Pointing out that about two-fifths of South America—an eastern sector—is occupied or has been until quite recently by these fringe people, Dr. Cooper said: "They are not in starvation belts. They hunt, fish, and gather roots and plants. They get along all right, and civilization does not interest them."

Even when the Incan Empire rose and fell in western South America, drawing millions of Indians into its highly organized government, marginal Indians remained untouched. They have never tried to plant seed and do farmer's work. They don't have to.

Studying these marginal people, anthropologists discover significant clues, such as seven or eight games that are played in the Chaco region of South America. These games are blanked out over a large area northward and appear again in amusements of North American hunting tribes. From such clues, Dr. Cooper said, the marginal people give perspective to North America's past as well as to that of the Southern continent, for apparently areas between that were suited to agriculture adopted it and progressed into civilization, leaving the islands of backwardness. These marginal people thus form an important part of America's saga of progress—and of standing still.

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Immunity to *flea bite* has been attained in 200 persons by use of a new antigen, according to studies at the University of California Medical School.

*Limestone* is quarried in every State except Delaware and New Hampshire, according to Bureau of Mines report.

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