



Plankton, Nekton, Benthos

"IF IT SWIMS, crawls, or clings, we have it," boasts a fish market sign quoted by *The New Yorker*, which brightly adds its acceptance of the challenge: "All right, send us a beaver, two caterpillars and a sloth."

Yet in spite of the naivete that exposed it to this wisecrack, the fish market sign is a fairly good job of marine ecological classification. It should add just one word, to read, "If it drifts, swims, crawls or clings. . . ." For then it would include the three great groups into which water-dwelling organisms are divided by biologists: plankton, nekton, and benthos.

If it drifts, it is plankton. We often see this word, but may not have a very good idea what it means. Plankton includes all the floating, unanchored forms of animal and plant life, large or small, that either have no directive swimming powers at all, or at most possess swimming powers so feeble that the real determining forces in their movement are the water currents themselves.

Plankton is predominantly microscopic, including both one-celled plants and animals. It also includes tiny creatures of the water-flea class. There are, however, some large plankton animals, like jellyfish and the pearly nautilus.

Nekton is made up of animals that know where they want to go and have the means for getting there. Most nekton organisms are fish and fish-shaped mammals like whales and seals, but the classification also takes in some of the larger invertebrates like the squid.

Benthos is like the plankton in that it includes plants as well as animals. But it is unlike both plankton and nekton in that it does not move about; it is fixed

to the bottom. Seaweed, eel-grass, oysters, clams, rock barnacles, sponges, sea-squirts, limpets, corals, crinoids, and burrowing things like marine worms and teredos, all classify as benthos. They are things that "cling," in the fish market sign's classification.

But how about things that "crawl"? There is a whole host of bottom-dwelling forms that can move about with more or less freedom when they choose, but that usually don't choose. They include such familiar things as flounders, skates, rays, lobsters, crabs, octopuses, starfish, abalones and snails. Are they lazy nekton? Are they occasionally active benthos?

Whatever they are, at least this can be said of them: that rigid lines of definition are hard to fasten on living things, and that attempts to do so must inevitably end in fussy and rather futile logic-chopping.

Science News Letter, March 4, 1939

GEOLOGY

Ancient Dunes No Index To Ice Age Desert State

DUNES formed of drifting sand many thousands of years ago, at the close of the latest Ice Age, are fairly common in the upper Mississippi Valley and elsewhere in the glaciated parts of this country, as well as in comparable locations in northern Europe. They are usually so well covered with vegetation that no one but a scientist would suspect them of being sand hills.

This widespread evidence of drifting sand left in the wake of the retreating ice sheets has been taken by some European geologists as evidence for a period of desert-like climate immediately following the close of the last glacial period.

With this opinion, however, Dr. William S. Cooper, professor of botany at the University of Minnesota, does not wholly agree. Admitting that these post-glacial dunes may have been formed under desert climatic conditions, he points out that this is not the only way they could have been formed.

Dr. Cooper has made a special study of the "fossil dunes" in his own state, and has found evidence that they were formed during a relatively brief geological interlude, when a rapid sinking in the general water level following the melting back of the last ice lobes exposed bottom and shore sands to wind action. Even under humid climatic conditions, dunes thus formed will remain naked sand so long as the wind can get at them and keep them on the move, as

IS SOMEONE YOU KNOW ABOUT TO HAVE

A BIRTHDAY?

Send him a year's subscription to Science News Letter. He'll *like* that.

A year's subscription to Science News Letter is \$5, but you can cut **THIRTY PER CENT OFF THAT PRICE**, by sending us your own renewal at the same time.

The chances are good that you will be one of the **EIGHT OUT OF TEN** regular Science News Letter subscribers who *renews* his subscription, so you might as well save the \$3, and send us your renewal with the gift subscription.

Price for one yearly subscription: \$5. For two yearly subscriptions: \$7.

**To Science News Letter
2101 Constitution Avenue
Washington, D. C.**

Please renew my own subscription for one year and enter a one-year subscription for

PLEASE PRINT NAME

Street Address

City and State

Send bill for \$7 to

YOUR SIGNATURE

Street Address

City and State

Science News Letter is sent without extra postage charge to any country in the World.