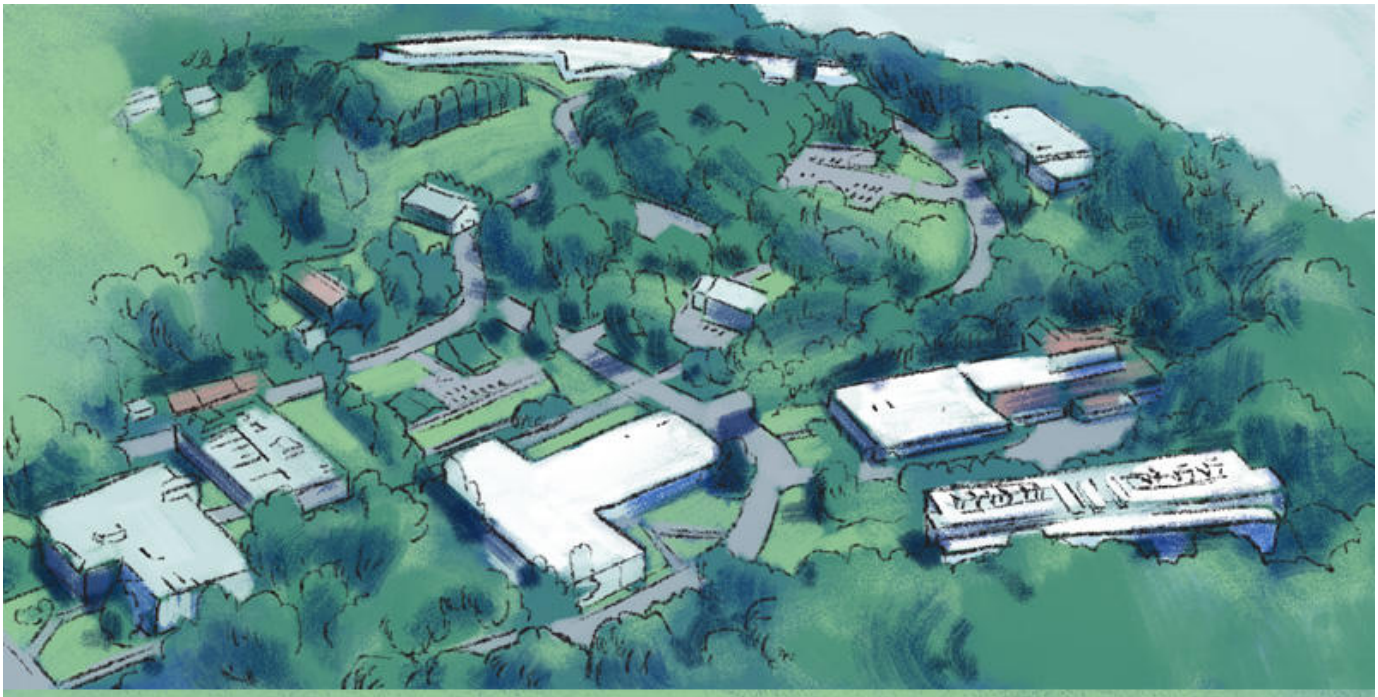
Science & Technology

What the Ocean Floor Can Tell Us About Climate Change

Deep-sea sediment provides a trove of information about our planet’s past and future. Illustrations by Jackie Roche.

By
David J. Craig
|
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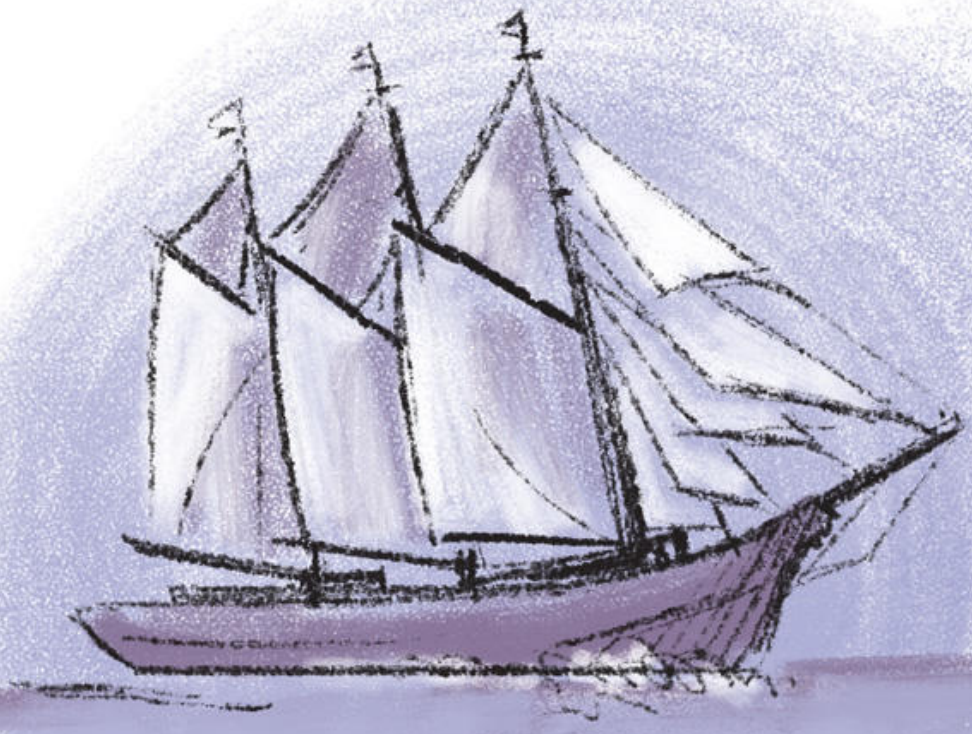
In the rural hamlet of Palisades, New York, sixteen miles north of Morningside Heights, scientists at Columbia's Lamont-Doherty Earth Observatory (LDEO) study the planet from the outer reaches of its atmosphere to the depths of its oceans.

Their research is lauded for its insights into our planet's geological evolution, tectonic activity, and climate systems.



Columbia began collecting deep-sea cores in 1947 at the insistence of LDEO founding director Maurice Ewing.

He believed that the cores would provide clues to our geological history.



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Over the next four decades, the University had two research ships at sea,

The sea floor is a rich resource for scientists, says Maureen Raymo '89GSAS.



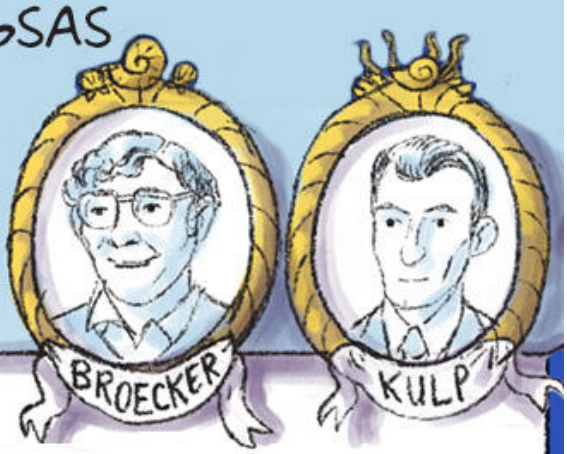
Everything that lives and dies in the ocean, as well as all of the dust and debris that ever gets blown onto the water, will eventually drift down to the bottom.

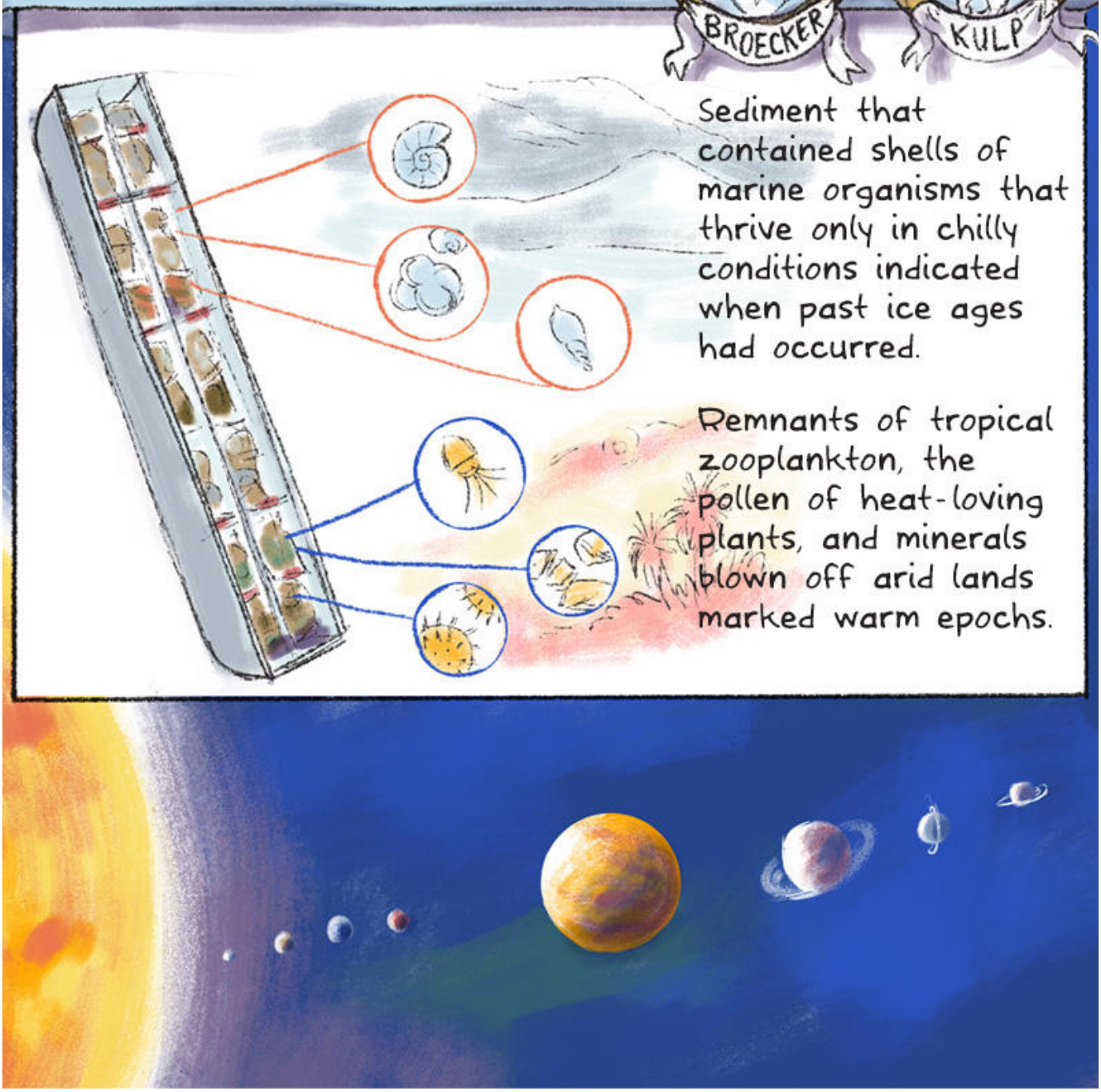
It accumulates, layer by layer, with the oldest sediment on the bottom and the youngest on the top.

It's like a tape recorder of what happened on Earth through time.

Here's a small sampling of what drifts down to the sea floor.

In the 1950s, radiocarbon-dating techniques pioneered by Columbia geologists Wally Broecker '53CC, '58GSAS and J. Laurence Kulp enabled scientists to get more detailed information from the cores.





Thousands of analyses by researchers at Columbia and other institutions were



Columbia scientists have continued to traverse the globe in search of muddy treasure.

And they've proved to be intrepid explorers.



Once, a Columbia ship was attacked by pirates off the



Analysis of ocean sediment has led scientists to predict, for instance, that large areas of North America, Central Asia, Africa, and the Middle East could become much less hospitable in the coming decades because of water shortages.

Meanwhile, interest among the larger scientific community in LDEO's deep-sea cores continues to grow.



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