Earth and Environment Notes

GEOLOGY

Meander Wavelength of Rivers

The size of the bends in a river and the width of its channel are both determined by the amount and kind of sediment it carries, according to a report in the Sept. 29 SCIENCE.

A river that carries mostly sand and gravel will have a greater meander wavelength—bigger bends—than a river transporting mainly fine sediments, says S. A. Schumm of the geology department of Colorado State University, Fort Collins, Colo.

ECOLOGY

Large Lobsters Lower Population

Legal protection for large lobsters reduces the total catch, but does not increase the lobster population, University of Rhode Island scientists find.

The problem is, they say, that the large males cannot mate with smaller females, but nonetheless drive away the smaller males who could mate. The result is that the females, who can mate only during a single 48-hour period every two years, are not fertilized and thus no young are born.

The study was conducted by computer simulation at the University's Marine Experiment Station under the direction of Dr. Saul B. Saila.

PALEOGEOLOGY

Antarctica Warmer Long Ago

Discovery of lake sediments and other deposits formed in relatively warm conditions less than 300 miles from the South Pole indicates that Antarctic summers were 13 to 18 degrees warmer 120,000 years ago than they are today.

This, however, does not mean that the entire earth was that much warmer then, cautions Dr. John H. Mercer, a research associate at the Ohio State University Institute of Polar Studies.

Evidence unearthed by Institute scientists also shows that sea level was 15 to 20 feet higher at that time in the Pleistocene epoch, apparently because much of the ice in West Antarctica had melted, Dr. Mercer reported to a meeting of the International Commission on Snow and Ice last week in Bern, Switzerland. Antarctic temperatures have increased nearly four degrees since 1912, Dr. Mercer points out. If increasing carbon dioxide levels in the atmosphere are responsible, as many scientists believe, a melting West Antarctic ice sheet could be a threat to low-lying areas of the world within a century or two, he warned.

There is little danger, however, that the more massive East Antarctic ice could melt. If it did, for any reason, sea levels would rise by 200 feet, the scientist notes.

GEOLOGY

Cascades Have Shallow Roots

The Cascade Mountains of the Pacific Northwest have geologic roots only slightly deeper than the much smaller coastal ranges.

That is one of the most interesting facts to come from a five-year study of the gravitational forces in Oregon made by the oceanography department of Oregon State University.

More than 8,000 measurements of gravity in the area have been made into three detailed regional maps now available from the State Department of Geology and Mineral Resources.

The Cascades have roots roughly 25 miles deep, while the coastal mountains reach 22 miles downward into earth's crust. The shallowness of the Cascade roots is probably due to the mountains' volcanic origins, according to one of the project scientists.

Almost all the volcanic material belched out in early eruptions came from within the earth's crust, thus decreasing its total thickness, says Dr. Donald F. Heinrichs, a geophysicist.

The crust thickens from the coast eastward across Oregon. It is about 16 miles thick near the coast, 19 miles beneath the Willamette Valley and 28 miles thick under eastern Oregon. Along the continental shelf off the coast under the Pacific Ocean, the crust averages around 9 miles thick, acording to the study.

OCEANOGRAPHY

Seamounts in the South Pacific

Two unusually large seamounts have been found rising from a flat abyssal plain on the ocean bottom about 1,200 miles southwest of Hawaii by oceanographers from the Scripps Institution of Oceanography.

One, the Dixon Seamount, rises 13,800 feet above the sea floor, is 38 miles across at its flat summit, and comes within 4,800 feet of the surface.

The other, the Hohnhaus Seamount, is 12,400 feet high and 31 miles across at the top. It is 53 miles from the Dixon Seamount.

The seamounts were found by scientists on the Argo, one of the research ships operated by Scripps, which is a part of the University of California, San Diego.

HYDROLOGY

Deep Aquifers in Mississippi

Several large aquifers, deeper than any previously known, have been discovered beneath the Gulf Coast area of Mississippi by hydrologists from the U.S. Geological Survey.

Test wells near Gulfport and Pass Christian found good fresh water at depths down to 2,500 feet with sufficient artesian pressure to force the water 100 feet above the land surface, the USGS reports.

W. H. Robinson of the Survey's Jackson, Miss., office, notes that at the National Aeronautics and Space Administration's Hancock County test facility fresh water is available at a depth of 3,000 feet.

All these aquifers, he says, are capable of producing thousands of gallons of fresh water a minute. The potential water supply in the region has barely been touched, Robinson notes.