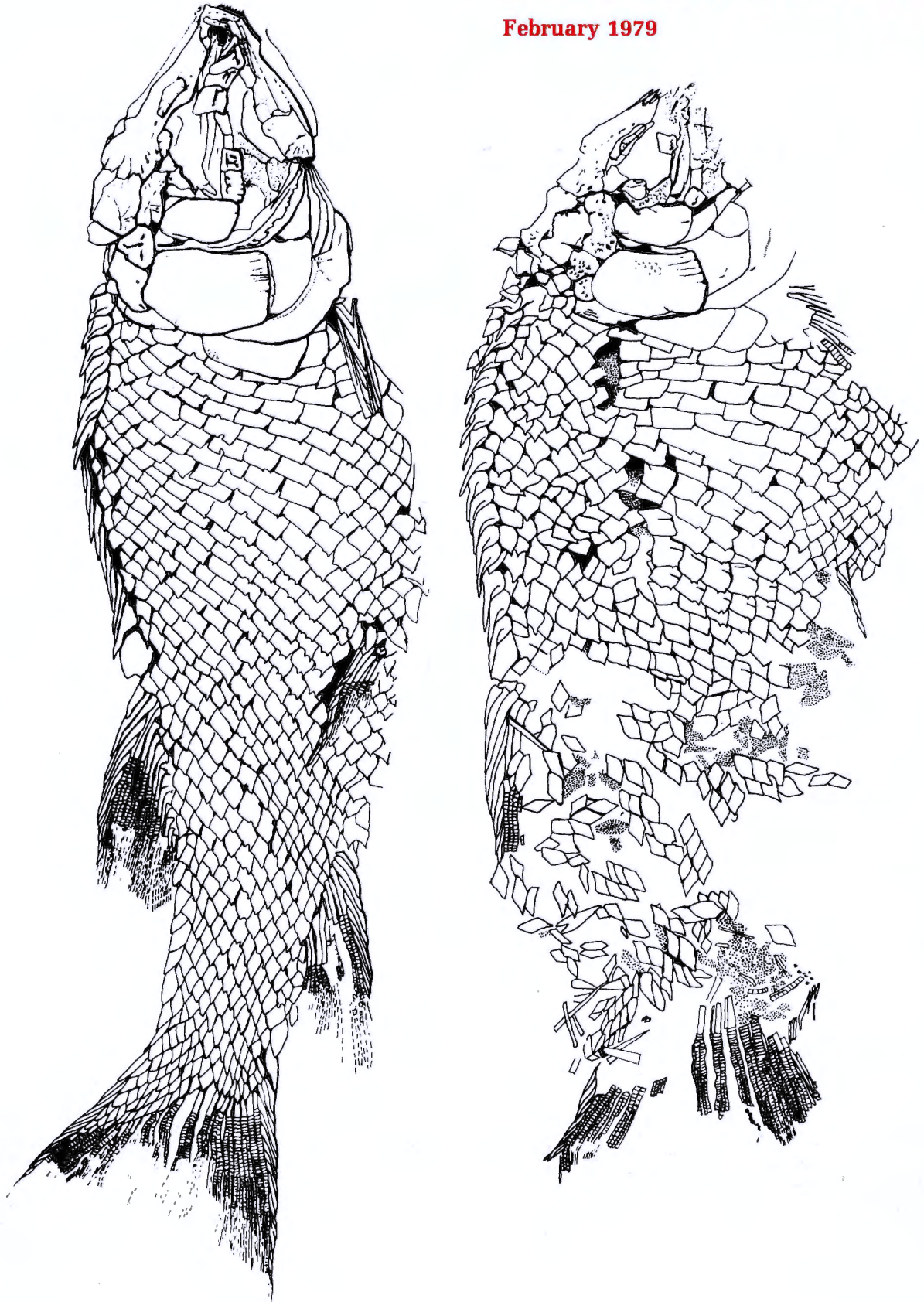


# Geotimes

February 1979





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# Geotimes®

news of the earth science

v. 24 n. 2 February 1979

## coming events

*U.S./Kentucky map project, Lexington . . . earthquake engineering, San Mateo . . . Lake symposium, Chestnut Hill, Mass. . . gold symposium, Montreal . . . microscopy, Rolla* **4**

## readers write

*Proxire vs science . . . more on geochronology . . . what 'earth science'? . . . economic considerations . . . hazards arising . . . the meaning of basalt . . . errors . . .* **14**

## changing the guard

*The new executive director of the American Geological Institute is A.G. Unklesbay, lately vice-president of the University of Missouri system, and professor of geology* **19**

## East Coast basins yield fossils

*At Yale University, semionotid fish of the Triassic and Early Jurassic are being compared with those of fish in modern lakes. The principal aim is a study of evolution* **20**

## GSA, GAC, MAC . . .

*The Geological Society of America, the Geological Association of Canada, the Mineralogical Association of Canada, and many associated societies met in Toronto, Ont.* **21**

## ophiolite complex traversed

*Nikita A. Bogdanov, Benjamin A. Morgan & Norman J Page  
A group of geologists recently visited a remote part of the Eurasian land mass, the Polar Urals, not traversed by foreigners since the early 20th century (as an IGCP trip)* **22**

## Leg 62 probes paleoenvironments

*This cruise of the Glomar Challenger was designed to investigate Upper Mesozoic and Cenozoic sediments in the central North Pacific. Coring was continuous at all sites* **24**

## coal geology

*Samuel A. Friedman  
Off Nova Scotia, the Glomar Grand Banks drilled into the Harbour Coal bed. This coal is mined under the sea, in the Lingan Colliery, at a rate of 7,300 metric tons a day* **26**

## news notes

*Eruptions, fireballs, earthquakes . . . The U.S. Geological Survey folds its Journal of research . . . Surprise: soothsayers and their like fail to predict earthquakes* **28**

## new publications

*Geodynamics . . . tin . . . continental rifts . . . seismic reflection profiles . . . dinosaurs for children . . . oil & gas directory . . . tunneling in the Los Angeles area . . . heat . . .* **36**

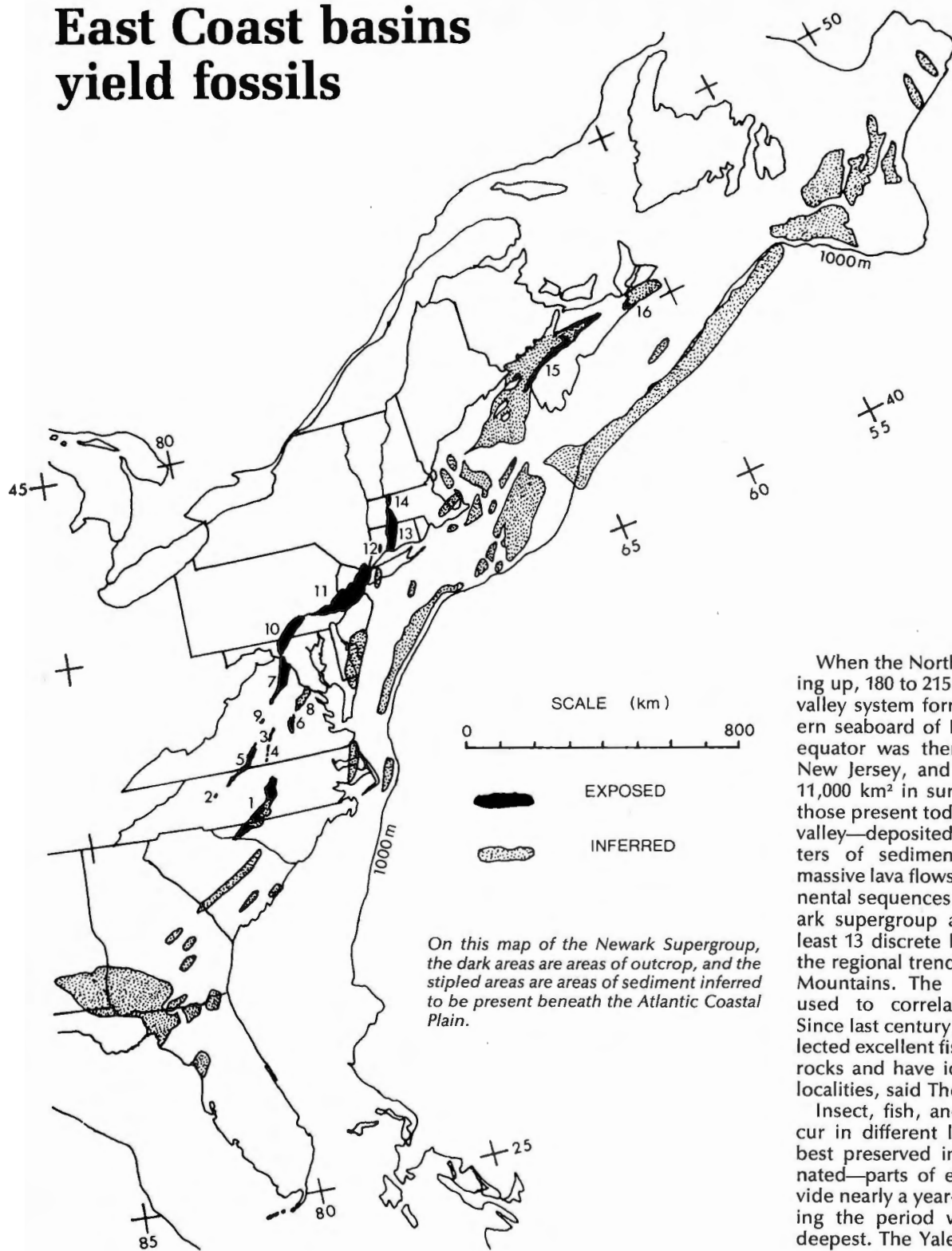
## the geologic column

*Robert L. Bates  
Benzene regs are status quoed. . . Acronymphomania persists. . . Logan Day is launched; all aboard! . . . Mineral rights of the Arctic ice cap are sold. . . Novel: Continental drift* **46**



These identical fish of the *Semionotus micropterus* group are from widely separated Early Jurassic lake beds. The one on the left is from the Shuttle Meadow Formation of the Hartford Basin, North Guilford, Conn. The one on the right is from the 'Midland fish bed' of the Culpeper Basin, Midland, Va. They were found in varved calcareous siltstone from the middle of a sedimentary cycle, deposited during maximum lake transgression. 17 Triassic-Jurassic lake basins, formed in a faulted rift-valley system produced as the North Atlantic seaway opened, have been identified along the eastern seaboard. The widest part of the tail of the left-hand fish is 4.5 cm. (Drawing by Paul E. Olsen, Bingham Labs, Yale)

# East Coast basins yield fossils



On this map of the Newark Supergroup, the dark areas are areas of outcrop, and the stippled areas are areas of sediment inferred to be present beneath the Atlantic Coastal Plain.

When the North Atlantic was opening up, 180 to 215 million years ago, a valley system formed along the eastern seaboard of North America. The equator was then not far south of New Jersey, and large lakes (up to 11,000 km<sup>2</sup> in surface area)—such as those present today in the African rift valley—deposited thousands of meters of sediments, interrupted by massive lava flows. Today, thick continental sequences known as the Newark supergroup are preserved in at least 13 discrete basins, aligned with the regional trend of the Appalachian Mountains. The volcanic layers are used to correlate the exposures. Since last century, scientists have collected excellent fish fossils from these rocks and have identified at least 30 localities, said Thomson.

Insect, fish, and reptile fossils occur in different layers. The fish are best preserved in the varved—laminated—parts of each cycle that provide nearly a year-by-year record during the period when the lake was deepest. The Yale scientists interpret the layering as evidence for a history of major cycles of waxing and waning of the lake waters.

During the summer of 1976, Olsen discovered fossil insect faunas previously unknown in North America, including beetles, waterbugs, crane flies, march flies, cockroaches, bar lice, and relatives of lace wings, as well as others from many extinct orders. Only in the Soviet Union, said Thomson, is such a diverse and well-preserved Triassic insect fauna known. (See cover.)

**K** eith S. Thomson, Paul E. Olsen, and Amy McCune, of Yale University, are studying semionotid fish in the basin rocks of the Eastern seaboard of North America to compare fish of the Triassic to Early Jurassic with fish in modern lakes. Thomson, director of the Peabody Museum of Natural History at Yale, thinks that the basins provide both the time and geo-

graphic controls needed to study the evolution of the fish. Semionotid fish are thought to be related to the common garpike, a long-snouted fish with heavy rhomboidal scales. Last summer, Thomson, Olsen, and McCune removed more than 60,000 kg of rock containing over 1,200 fish and reptiles from a locality in Bergen County, New Jersey.