

Kid's KOrner

Mexican quarry workers find prehistoric treasure trove

LONG BEACH, Calif. — To begin with, the fossils are beautiful. Scientists who have seen some of the fossilized fish, crustaceans, snails, and other specimens from a quarry at Tepexi de Rodriguez, 130 miles east of Mexico City, call them "exquisite" and "elegant." They are startling in their completeness, vivid in their details.

But that is just the beginning. For the Tepexi fossils are yielding huge amounts of information about water-dwelling animals of a little-known time, about 115 million years ago. In two years, the quarry has produced more than a thousand specimens. About 425 are fish, including representatives of 45 species, most of them new to science.

A Lizard, Too

And it has produced one land animal, a little lizard related to contemporary skinks, complete to the last detail, including its toenails.

"It is a world-class specimen," says Dr. George Callison, a biologist at California State University at Long Beach.

Callison, an expert on prehistoric lizards, is leading the scientific study of the Tepexi fossils, along with a Virginia-born colleague, Shelton P. Applegate of the Geological Institute of the National University of Mexico. Their work is supported by the National Geographic Society.

To Callison, the most important thing about the quarry is that it provides the opportunity to study a total community of prehistoric creatures. He can examine their relationships to each other and to previously known sites, older and younger.

The fossils began to turn up in the early 1960s, when the family of Miguel Aranguthy, frustrated by

their inability to grow crops in the rocky soil and semiarid climate of Tepexi, decided to dig out some of the area's colorful stone and sell it to builders.

The rocks pried out by Aranguthy and his five sons seemed to be laminated, and came out in layered slabs with red and yellow patterns. The family thought they could be used to decorate houses, and sold them to truckers passing on a nearby road.

It was not until the early 1980s that the fossils first came to the attention of the scientists. A technical assistant at the Geological Institute, Pompeyo Lopez Neri, took some fossils by bus from Tepexi to Mexico City, where he showed them to Applegate.

"Let's go to Tepexi tomorrow," Applegate said immediately.

Family Cooperates

Applegate won the cooperation of the Aranguthy family, and the support of a Mexican government agency that helps Indians. The agency is now building a museum for the fossils. Most of them will be cared for at the Geological Institute.

Though Tepexi today is far from any ocean, it apparently was located near the edge of what is now the Pacific during the time the fossils began forming. The actual fossil site was a lagoon separated from the ocean by a reef.

"A lagoon environment is much quieter than the ocean itself, less subject to currents or wave action," Callison explains. "But because it is isolated from the main part of the ocean, it can occasionally become inhospitable to life. That's what happened here."

Callison is not sure precisely what happened, but periodically something would kill everything

that lived in the lagoon.

It might be an enormous bloom in microorganisms that would exhaust available oxygen, or an increase in the salinity of lime content of the water. Whatever it was, the skeletons would sink to the bottom and eventually be covered by a layer of limestone.

Then ocean water would burst in over the reef barrier, bringing in new life, and the process would

start all over again. Callison does not know how often the life-and-death cycle took place; it may have been seasonal, annual, or every few years. But the evidence for the cycle is in the fossil record.

The predominance of fish is important because they are nearly evenly divided between two groups: Holosteans, with thick, rhomboid-shaped scales and lacking a true backbone, and

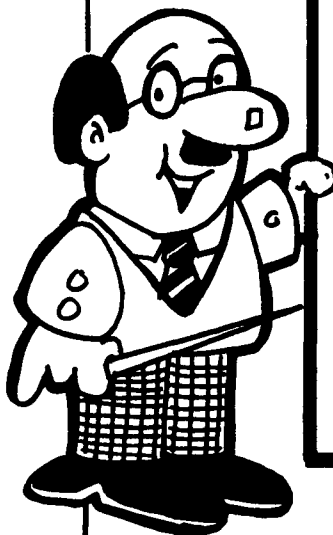
Teleosts, with circular thin scales and a well-formed backbone.

An Unusual Site

Few similar marine sites from the Cretaceous period, the time of the Tepexi deposits, have produced fish fossils. The best-known site is at Solnhofen in southern Bavaria, which has produced fossils for 500 years, dated at about 140 million years ago. A site in Lebanon has fossils about 75 million years old.

(Turn to Page B12)

MATH GENIUSES, CAN YOU PUT IN THE PROPER MATH SIGNS (+, -, x, ÷) SO THAT THE ANSWER WILL COME UP ZERO.



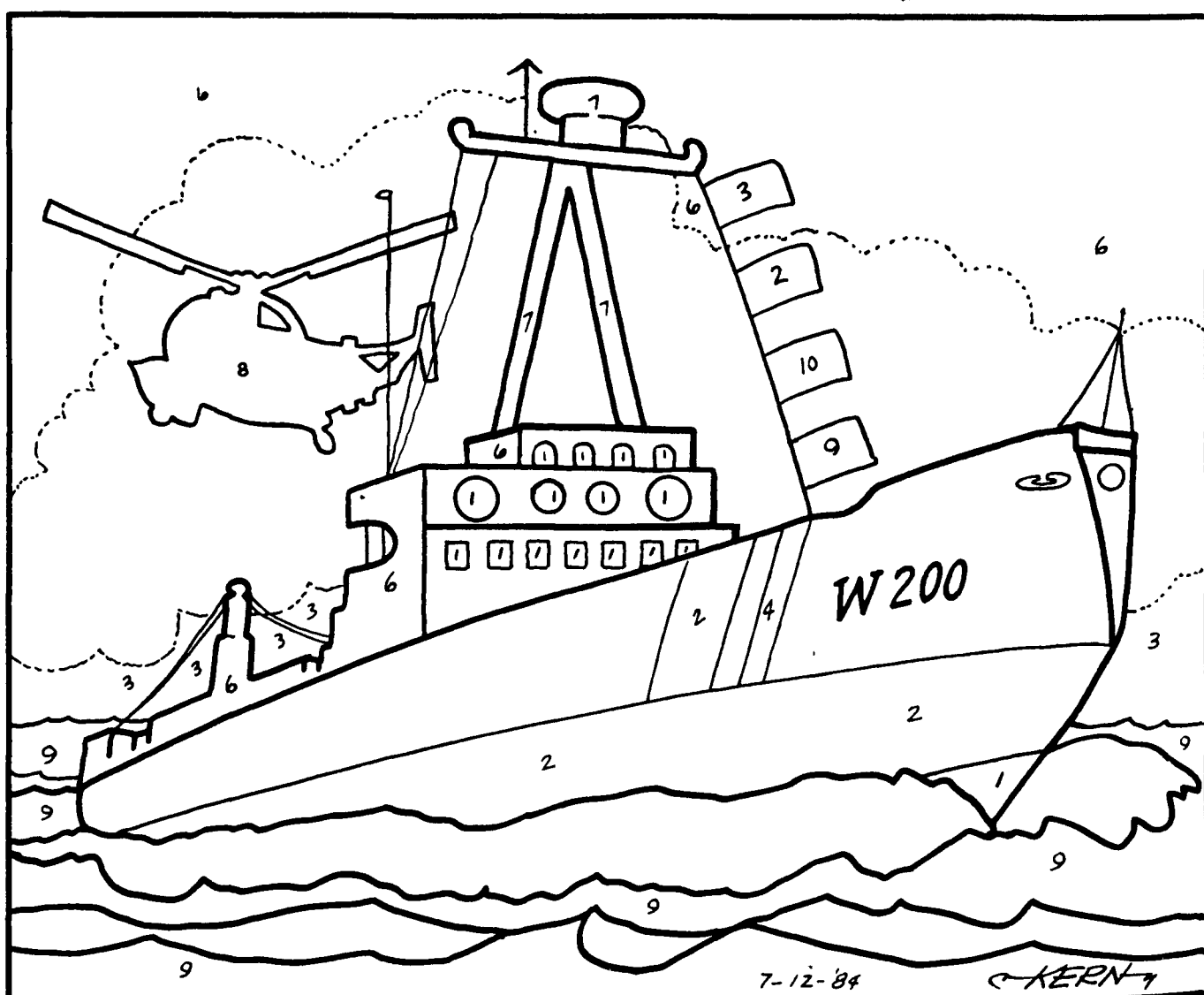
6 ? 4 ? 3 = 7
3 ? 3 ? 4 = 5
8 ? 4 ? 3 = 5
10 ? 2 ? 4 = 2
20 ? 2 ? 5 = 5
0

See answers on page B16.

COLOR THIS!

- | | |
|-----------|---------------|
| 1. BLACK | 6. PEACH |
| 2. RED | 7. GREY |
| 3. YELLOW | 8. LT. BROWN |
| 4. BLUE | 9. LT. BLUE |
| 5. BROWN | 10. LT. GREEN |

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