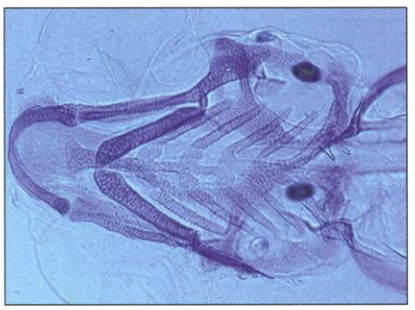
Fishing for Genes

Zebrafish are prized in science for their rapid growth rates and the transparent bodies of their young, which make them ideal for studies of genetics and morphology. This month, developmental biologists began the biggest ever zebrafish screening program, focused on mutants, at the Max Planck Institute for Developmental Biology in Tübingen, Germany.

To find interesting genes that affect bone and organ development, the researchers will induce random alterations in zebrafish DNA by exposing the fish to mutagenic chemicals. They plan to breed and scan 17 million fish over the next year. Fifty scientists and technicians—including several from Harvard, University College London, and the University of Heidelberg—will examine tiny fish embryos under microscopes for aberrations. "We can even monitor their blood pressure and heartbeat" with miniature instruments, says Peter Stadler, chief of Artemis, the company funding the $7 million project. Artemis is financed in part by Exilexis Pharmaceuticals of South San Francisco.

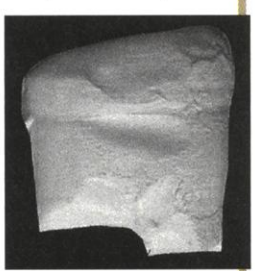


Close-up of zebrafish cartilage.

Getting the project started was a major logistical challenge, says Stadler. Artemis is adding a fish facility at Tübingen to hold some of the 9000 12-liter tanks required for the project, all of them pathogen-free and fully controlled for temperature and acidity.

Man, the Toothpick User

Early man may not have had Stim-u-dents to clean his teeth, but evidence is accruing that the use of toothpicks is as old as *Homo* himself. A molar from Tanzania's Olduvai Gorge, somewhere between 2.1 million and 1.7 million years old, bears unmistakable evidence of having been repeatedly probed by its owner, probably with a sharp piece of wood or bone, researchers say. "We're pushing the toothpick back in time," says anthropologist Peter Ungar of the University of Arkansas, Fayetteville, who led a team that presented the dental discovery this month at a meeting of the American Association of Physical Anthropologists in San Antonio, Texas.



Front view of molar shows groove from tooth picking.

The tooth in question is a lower right jaw molar, labeled OH 60, found 18 years ago in Olduvai's oldest layer. It was originally identified as that of an australopithecine, but Ungar and his colleagues say its smaller size marks it as being from a later relative—*Homo habilis* or early *Homo erectus*. The molar has a small horizontal notch, called an interproximal groove, on the surface where it met an adjacent tooth. Microscopic examination revealed fine parallel striations in the groove. Because "no kind of mastication would produce" the marks, they had to be carved by tooth picking, says paleoanthropologist David Frayer of the University of Kansas, Lawrence. Scientists believe the scratches were made by silica in the grit adhering to the toothpick. Modern toothpicks don't leave the marks, probably because they are cleaner, scientists surmise.

Similar grooves and striations have been found in other hominids, including Neandertals. But they are missing in the more primitive *Australopithecus* and in higher primates such as chimpanzees. Thus, says Ungar, toothpick use, like language and war, may be another "behavior unique to our genus."

Fighting Allergies, Designing With Nature

Hay fever season is an appropriate time for this year's Japan Prize: Kimishige Ishizaka, 74, the man who discovered immunoglobulin E—an infection-fighting protein implicated in allergic responses—on 28 April won 50 million yen ($485,000) for his work on "host defense." Ishizaka, president emeritus of the La Jolla Institute for Allergy and Immunology in California, developed a method of detecting minute quantities of proteins in solutions that is now a standard tool in studying cytokines, signaling proteins released by cells.

Ishizaka

McHarg

This year's other prize, for city planning, went to Scottish-born landscape architect Ian McHarg, 79, a professor emeritus at the University of Pennsylvania, Philadelphia, and author of a pathbreaking 1969 book, *Design With Nature*, who was honored for incorporating ecological concerns in community and regional planning.

Born Again Museum

The defunct Hall of Exploration of Baltimore's Columbus Center is slated for reincarnation—in a creationism museum near Cincinnati.

The hall, part of an ambitious research and education complex, closed in December 1997, a victim of poor attendance (*Science*, 2 January 1998, p. 35). But many of its exhibits, including an 8-meter model of a cell, will be featured by Answers in Genesis, a fundamentalist ministry based in Florence, Kentucky, in an $11 million museum. Called Genesis Park, it will give a "walk-through history of the world according to the Bible."

In addition to exhibits on the surprisingly rapid movement of tectonic plates and questionable "assumptions" in radiometric dating, Genesis Park will display 70 life-sized dinosaur models. "We frankly want to capitalize on people's fascination with dinosaurs," says the group's founder, Ken Ham. Dino fossils show evidence of cancer and other diseases, Ham explains, so they cannot predate Adam and Eve's fall about 7000 years ago, before which there was no sickness or death. He also says the dragons and the "behemoth" in the Old Testament may have been dinosaurs.

The group considers its prize catch to be the 16 truckloads of exhibits from the Columbus Center, including the giant cell and a 17-meter rockfish, purchased at public auction.

Answers in Genesis lost its first zoning battle due to opposition from scientists and secular humanists. But last month it won approval to build an 8800-square-meter complex. If enough funds are raised, the country's largest creation science museum will open within 2 years.

CREDITS: (TOP) ARTEMIS; (MIDDLE) PETER UNGAR; (BOTTOM) THE SCIENCE AND TECHNOLOGY FOUNDATION OF JAPAN