

# High Schoolers:

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Good use of photography makes the most of a good project—even if you have to make your own camera.

Elizabeth Davis, junior at Commerce (Texas) High School, daughter of musicians, did just that. Her project impressed the regional judges enough to send her to the 1975 International Science and Engineering Fair, where we laid further honors and a little cash on her for her photography, to say nothing of her science. She extracted Eocene pollens from an open-pit quarry, and her beautiful side-by-side color photomicrographs compared them with pollens she collected from living plants. No difference in pollens.

## ARCHAEOLOGY

### An earlier American civilization

Inca, Aztec, Maya—the ancient peoples of Central and South America have received considerable attention because of the high degree of civilization they attained. The more ancient Valdivians, however, have usually been dismissed lightly as simple hunter-gatherers. But this situation may change, and the story of civilization in the Americas may have to be pushed back several centuries to make room for the Valdivians. Donald W. Lathrap of the University of Illinois at Urbana-Champaign and his colleagues have excavated several Valdivian sites in Ecuador and found that the Valdivians lived in planned, well constructed towns at least 5,000 years ago. These towns may have been overlooked in the past because they were not built of stone and no buildings survived. But the plans and layouts of these towns can sometimes be detected.

Excavations at Real Alto (about 80 miles west of Guayaquil, Ecuador's largest city) revealed a village of sturdily constructed, multifamily homes arranged around a rectangular plaza with two central platforms facing each other across a small open space. This form of city plan was followed 2,700 years later by the Maya of the Yucatan, by many of the later civilizations of Peru, and was found 4,500 years later by French explorers when they visited the Natchez villages in the lower Mississippi Valley. The Valdivian town had at least 60 oval-shaped houses averaging 25 feet wide and 35 feet long. With several families in each house, the population may have been more than 1,000.

The site revealed evidence of human sacrifice and cannibalism, domesticated dogs and ritual drinking of corn beer from mugs. The successful farming activities of the Valdivia are shown by many features, among them the grinding stones, corn kernel impressions used to decorate pottery and the fact that the people's teeth were worn down from eating cornmeal mixed with grit from the grinding stones. This indicates that the beginnings of truly efficient agriculture in the Americas are centuries earlier than previously considered and in sites yet to be found. Lathrap, in announcements made by the University of Illinois and the National Science Foundation (which helped fund the research), suggests that the Valdivian settlements may have been a significant step in the cultural development of the Western Hemisphere.

### Walking to Tasmania

About 100 miles off the southeastern coast of Australia, across the Bass Strait, lies the island of Tasmania. For centuries it has been inhabited, but researchers have been unable to explain conclusively how the first Tasmanian Aboriginals reached their island home. Now, Sandra Bowdler of the Australian National University in Canberra suggests that the first inhabitants of Tasmania may have walked there.

Bowdler's evidence comes from excavations in a cave on Hunter Island, about three miles off the coast of Tasmania. Bones, shells, stone tools and hearths found in the cave have been radiocarbon dated, revealing human occupation of the cave between 18,000 and 23,000 years ago. This coincides with the last glacial period when sea levels would have been low enough for a land bridge to have existed between Australia and Tasmania. Bowdler explains: "Most of Tasmania would have been covered then by glaciers and Bass Strait almost certainly would have been a vast plain linking the island with mainland Australia. A lot of Bass Plain would not have been habitable, but it could have been a good hunting ground for Aboriginals camping in high areas such as Hunter Island. Of course, Hunter Island would at that stage have been a hill. But the important thing is that good evidence of human occupation is available in the period when a land bridge to Australia probably existed."