News of Science

American Science at World's Fair

Howard S. Cullman, U.S. commissioner general to the Brussels World's Fair, which will take place in 1958, has announced plans for the presentation at the fair of a series of notable American scientific achievements. This country's work in four main areas—the cell, the atom, the molecule, and the crystal—will be displayed in the Palace of International Science. A group of American scientists has been appointed to direct and advise on the U.S. scientific contribution to the fair.

The coordinator of scientific exhibits in the Office of the Commissioner General is Alberto F. Thompson, head of the Office of Scientific Information at the National Science Foundation. The foundation will develop and carry out the American science program at the fair.

A Scientific Advisory Committee has been appointed which will function under the general chairmanship of Paul A. Weiss, head of the Laboratory of Developmental Biology at the Rockefeller Institute for Medical Research. Weiss is also chairman of the Sub-Committee on the Living Cell.

Ernest O. Lawrence, Nobel prize winner and director of the Radiation Laboratory at the University of California, will be chairman of the Sub-Committee on the Atom; and Henry Eyring, professor of physical chemistry and dean of the Graduate School, University of Utah, will be chairman of the Sub-Committee on the Molecule.

The chairman for the Sub-Committee on the Crystal will be Cyril S. Smith, professor of metallurgy and director of the Institute for the Study of Metals at the University of Chicago, and Frederick Seitz, professor of physics at the University of Illinois, will serve as cochairman. An additional group of American scientists has been named to the four subcommittees, and other scientists will be working on the fair project both at the National Science Foundation and elsewhere.

No final decisions have yet been made about the exhibits. However, for the atom, there is a plan to show the bombardment of the earth by cosmic rays in a large cloud chamber in which the radiation particles appear as streaks of rain. Also in the atom section will be a demonstration of Willard F. Libby's carbon-dating method.

In the crystal section there will be a transistor display. The development of single-crystal "whiskers," which are even smaller than transistors but serve many of the same purposes, will also be shown.

In the molecule section the rapidly growing knowledge of the structure of these submicroscopic bodies will be exhibited. In the living cell section, a display that will utilize atomic tracer elements will demonstrate how a single green leaf produces all the necessary components of plant life through the photosynthesis of the minerals from the earth, the gases from the atmosphere, and the energy from the sun.

Smithsonian Ecuadorian Expedition

Recently discovered archeological sites in Ecuador show that the prehistoric cultures of Ecuador had important influences on cultural development in Peru and the Amazon Valley before the arrival of the Spanish in the 16th century. These findings are the result of 4 months of field work on the Río Napo in the eastern lowlands and in the Guayas Province on the coast of Ecuador by Clifford Evans, associate curator, Division of Archeology, U.S. National Museum; Betty J. Meggers, research associate, Smithsonian Institution; and Emilio Estrada, director of Museo Arqueologico "Victor Emilio Estrada," Guayaquil, Ecuador. The work was conducted under the auspices of the Smithsonian Institution and the Casa de la Cultura Ecuatoriana, Nucleo del Guayas, with the aid of a research grant from the American Philosophical Society.

Excavations undertaken on the Río Napo revealed large villages and a well-developed ceramic art, which included elaborate vessel forms and complex decoration by incising, painting, and champleve (that is, with the design background cut back from the original surface). This pottery has close resemblances to the pottery from the island of Marajó at the mouth of the Amazon. The Marajó culture is alien and seems out of place at the mouth of the Amazon, and its origin has until now been unknown. The work of Evans and Meggers indicates that this culture originally came from the headwaters of the Amazonian tributaries in Ecuador and Colombia. This is the first time that such an extensive downriver migration in prehistoric times has been proved by archeological evidence in South America. The movement probably took place a few hundred years before the arrival of the Spanish. When Orellana made his voyage down the Napo and the Amazon in the mid-16th century, the sites along the Río Napo had already been abandoned, and he found no Indians living on that river within the area embraced by the present boundaries of Ecuador.

Archeological investigations by Evans, Meggers, and Estrada in the Guayas Province of coastal Ecuador have revealed the presence of two early cultures whose characteristics show many close similarities with the early cultures of Mexico and Peru. The oldest of these has been named the Valdivia culture. The pottery of the Valdivia culture shares with the earliest pottery-making cultures of Meso-America (Mexico and Central America) distinctive traits like broad-line and fine-line incision, excision, rocker stamping, and highly polished vessel surfaces.

A large number of female figurines made of pottery indicate the existence of a religious complex. These figurines have elaborate hairdresses, suggesting that women even at this ancient time paid a great deal of attention to their coiffures, even though they were nude. Sometimes the body was painted red in various designs. Pottery of a similar style has been found in Peru, but it does not resemble that of the early cultures of Meso-America as closely as does the Valdivia culture from coastal Ecuador. This suggests that the movement that distributed this early Formative Period culture so widely from Mexico to South America traveled from north to south. The Valdivia culture must therefore be at least as old as the similar culture in Peru, which has been dated by carbon-14 as between 1500 and 1000 B.C.

Following the Valdivia culture, Evans, Meggers, and Estrada have discovered another early culture with different features, but which also resembles closely cultures in Meso-America and Peru. This has been called the Chorrera culture and has as characteristic features thin, highly polished red and black pottery, very fine incised lines, rocker stamping, and bottles with tapered spouts and handles decorated with whistle. These traits are shared with the Formative Period cultures of Tlatilco in Mexico and Chavin and Cupisnique in Peru. As in the Valdivia culture, the Ecuadorian pottery more closely resembles the Mexican than the Peruvian expression of this wide-