ANY SIMILARITY?—Japanese Jomon pottery (left) and Valdivia (right).

ARCHAEOLOGY

Asia-S. America Link Seen

➤ POTTERY may have been brought across the Pacific nearly 5,000 years ago by travelers of strong ocean currents.

Three anthropologists believe that pottery found in Ecuador was carried across the ocean from the Far East, rather than by land route, because similar pottery has not been found elsewhere on the Pacific coast of Central and North America.

The location of Ecuador with respect to two major ocean currents supports this theory. One current is the Equatorial Counter Current, flowing from the Caroline Islands eastward just north of the Equator. The other is the Japan, or Black Current, flowing from Japan toward the Canadian coast, where it divides into the Alaska and California currents. The latter current flows southward along the coast of Mexico and Central America.

During the first four months of the year, another current begins at Panama and flows south toward the Ecuadorian coast where it merges with the westward-flowing Humboldt Current. A drifting vessel on these currents would thus have reached that part of the Ecuadorian coast where the pottery of the Valdivia culture was found, providing ocean currents have not shifted much during the past 5,000 years.

Also supporting a direct connection with the Far East are the similarities in decoration and shape of eastern Asia and Ecuadorian pottery, suggesting first hand contact. In Japan, resemblances are closest to the Middle Jomon period dating from the same age as the Ecuadorian pottery, or between 2000 and 3000 B.C. The Ecuadorian pottery was dated by the carbon-14 dating method.

Some of the similarities between early Valdivia pottery and that of the Japanese Jomon period (middle and late) are: folded over rims with finger-pressed edge; braid impressions; castellated rims; incised lines with nicks and incisions in zigzag.

The Ecuadorian Valdivia culture is attributed to one group of an early shellfish-gathering people living along the Pacific coast from California to Chile. Shellfish hooks and stone tools were found at the Valdivia living sites. The technical and artistic level of the pottery of this culture is too high to represent a local invention of pottery making, the anthropologists state.

The research is reported in Science, 135: 371, 1962, by Dr. Emilio Estrada of Museo Victor Emilio Estrada, Guayaquil, Ecuador, and Drs. Betty J. Meggers and Clifford Evans of the Smithsonian Institution.

• Science News Letter, 81:101 February 17, 1962

SPACE

Tiros Photos Used Daily

➤ CLOUD PHOTOGRAPHS taken by the Tiros IV satellite now circling the earth are being used by weathermen all over the world in their daily forecasts.

The satellite, launched Feb. 8 at 7:43 a.m. from Cape Canaveral, has two cameras, one of which is identical to the wide angle cameras used in the Tiros I, II and III satellites. This lens covers a square of about 750 miles on each side from an altitude of 475 miles when the camera is pointed straight down.

The other camera lens is different from any previously used in Tiros satellites. Its purpose is to reduce distortion and provide somewhat better resolution in picture image while preserving relatively large coverage, which meteorologists have found very useful.

From an altitude of 475 miles, this lens will cover a square of about 450 miles on each side when the camera is pointing straight down.

On many occasions, cloud photographs taken by the first three Tiros satellites revealed information that led to significant improvement in current weather analyses. To the weatherman, the greatest value of the satellites is their ability to observe weather systems over the four-fifths of the earth's surface where there is little or no conventional meteorological information.

The cameras are controlled from data acquisitions stations at Point Mugu, Calif., and Wallops Island, Va. When the satellite passes within range of either station, it is directed to photograph at specific times on succeeding orbits.

The choice is limited by the orbit and attitude of the satellite, the power available and the areas of daylight. In making the decision, the data obtained from previous orbits, the regions of potential storm development and areas of interest indicated by conventional weather charts are considered.

The decision is made by the programming section of the U. S. Weather Bureau's meteorological satellites activities organization. When made, National Aeronautics and Space Administration's Goddard Space Flight Center, Greenbelt, Md., programs the appropriate commands for relay to the satellite.

As the satellite circles the earth out of range of the read-out stations, its cameras obey the commands and the information is stored on magnetic tape for later transmittal to earth as electronic signals. The signals are recorded on tape at the read-out station, and the tape signals are converted to pictures on a television screen and recorded by a camera.

Weather Bureau, Air Force and Navy meteorologists then analyze the photographs at the data acquisition stations. The weathermen then prepare maps showing the location, type, amount and distribution of clouds.

The completed cloud analyses are often ready for transmission to the Weather Bureau's National Meteorological Center in Suitland, Md., within two and a half hours from the time the photographs were taken.

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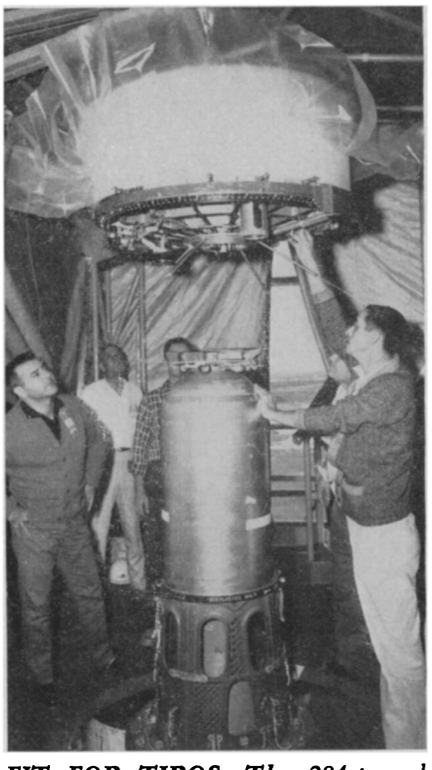

FIT FOR TIROS—The 284-pound Tiros IV is being fitted on top of the Thor-Delta booster.