

(SN: 7/22/72, p. 58) and alcoholic populations. Like manic-depressive psychosis, these diseases presently cover a wide spectrum. Genetic-linkage studies could separate them into specific subtypes that could then be studied in detail. Fieve predicts that within three to five years researchers will separate the heavily loaded genetic types of schizophrenia from the environmentally produced types. He predicts that within one year there will be convincing studies on the genetics of alcoholism. □

## An orbiting observatory named for Copernicus

"Things are going so well it scares me," remarked James E. Kupperian of NASA's Goddard Space Flight Center after a perfect launch this week of the fourth and last orbiting astronomical observatory (OAO).

Scientists, project managers and engineers at Goddard were deservedly nervous about this launch. The OAO program's history has been enough in itself to cause apprehension. The first observatory had a spacecraft systems' failure three days after launch. The second one worked, and is still working. But the third failed to go into orbit.

Copernicus, named in honor of the coming 500th anniversary of the birth of the Polish astronomer, was launched by an Atlas-Centaur rocket within seconds of the scheduled time at 6:28 a.m. EST Aug. 21. The spacecraft went into a near-circular orbit of about 740 kilometers, circling earth in 99.8 minutes.

It is one of the most complex satellites ever launched. "It's a very high-tempered spacecraft," remarked one ground controller. "We will have to develop a whole new approach to it." Copernicus has two extremely sensitive instruments aboard—a 32-inch ultraviolet telescope provided by Princeton University and an X-ray telescope cluster provided by England's University College of London.

This week was spent checking out the systems: the inertial reference unit, the pointing controls, the star trackers and spacecraft alignment. The first big test was to come late this week when the electrical systems were to be activated on the X-ray and ultraviolet units.

If everything continues to go smoothly, Copernicus should become fully operational next week. Scientists will then begin their study of the interstellar absorption of hydrogen, oxygen, carbon, silicon and other elements in interstellar gas. They also want to investigate the ultraviolet radiation emitted from young hot stars. With the X-ray cluster, they hope to pinpoint more accurately some previously observed X-ray sources. □

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## Unearthing a Phoenician city

The Phoenicians are known in history as the seafaring people who introduced purple dye and the alphabet to the Mediterranean countries between 1600 and 100 B.C. Most of what is known of them comes from ancient writings and the remains of the trading outposts they established. Until recently, little was known of how the Phoenicians existed in their native land—the eastern seacoast that is now Syria and Lebanon.

In 1970 James B. Pritchard of the University of Pennsylvania Museum in Philadelphia discovered the ancient city of Sarepta (1200 to 100 B.C.) beneath the modern fishing village of Sarafand, Lebanon. The 15- to 20-acre city is the first Phoenician city ever found in what was Phoenicia.

This summer Pritchard and his team of archaeologists uncovered a 65-by-98-foot site that is believed to have been the industrial area of Sarepta. The first material evidence of Phoenician dye-making and metal working was turned up there. About 10 bushels of crushed murex shells were found. Phoenician dye-makers discarded these snail shells after the body of the snail was extracted and used to make purple dye. The dye, known as Tyrian purple, was once a sign of royalty and affluence throughout the Mediterranean.

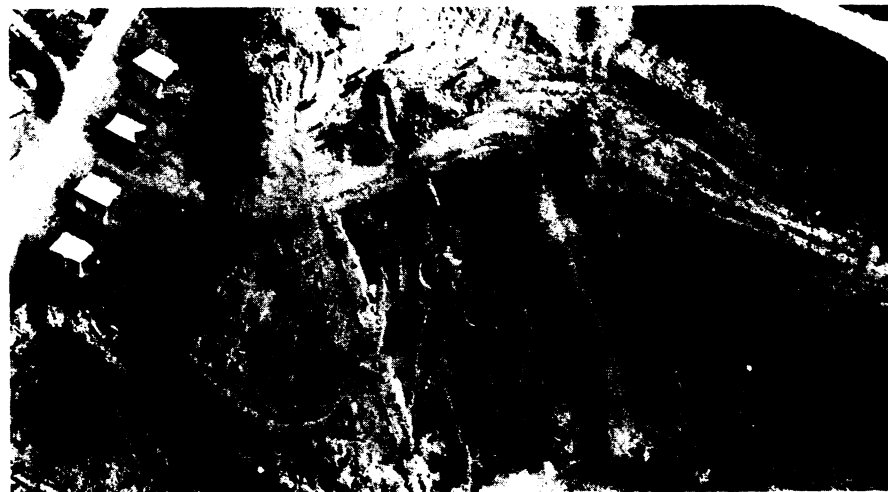
Metal working was evidenced by the discovery of a crucible coated with green slag and bits of oxidized copper and a soapstone mold for casting gold jewelry. More than 250,000 pottery fragments and 14 kilns for firing clay pottery were also found.

From the Bible and other ancient texts, much is known of Phoenician religion. But the Sarepta site has now produced the first temple to be discovered in Phoenicia. A 12-by-24-foot building containing a three-foot-square

*Unearthing the remains of Sarepta.*

altar was unearthed. On the floor of the temple about 180 fragments, believed to have been religious offerings, were found that provide clues to the rites performed there. Among the fragments were 13 different terra-cotta figurines representing Astarte, the Phoenician goddess of love and fertility. An incense stand, a ritual mask, beads, amulets and pendants were also found among the fragments.

All the artifacts are being repaired and studied at the National Museum in Beirut, Lebanon. Eventually they will be shared with the University of Pennsylvania Museum. □



Univ. of Penn.

*Circular kilns and Phoenician temple (upper l.), photographed from a balloon.*