

Taking to the sea . . . 9,000 years ago

Homer tells of heroic Greeks "singing over the wine-dark sea" about 1200 B.C. Archaeologists (dating various artifacts) have said that marine travel began about 6000 B.C. Now modern technology says the rosy-fingered dawn of seafaring actually came as early as 7000 B.C., and perhaps earlier.

S. A. Durrani, H. A. Khan and M. Taj are physicists at the University of Birmingham in England and Colin Renfrew is a historian at the University of Sheffield. Together they report in the Sept. 24 NATURE that fission track analysis has been used to confirm that there was sea trade between the Aegean island Melos and mainland Greece 1,000 years earlier than previously believed.

Evidence for this 75-mile trip comes from atomic analysis of obsidian (volcanic glass) discovered in prehistoric caves at Franchthi in southeastern Greece. Radiocarbon dating of the site placed the use of the obsidian tools between 7500 B.C. and 6800 B.C. The problem was proving that this particular obsidian came to the Greek mainland in boats from a known Aegean source rather than overland from known deposits in Hungary or central Turkey.

Optical spectroscopy, X-ray fluorescence, trace-element analysis and neutron activation are among the analytical techniques used for this purpose. But they are inconclusive when obsidians from different sources resemble each other in composition. "To over-



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Early trade: Obsidian came by sea.

come these problems," the scientists explained, "it seemed useful to consider other variables which might discriminate between sources. The date of eruption in which the obsidian was formed is one such parameter, and the fission-track analysis method of age determination was a possible approach." This, and the uranium content of the obsidian, showed that the Franchthi samples were formed almost 9 million years ago. Those from Hungary and Turkey proved to have been formed much later. But the age of the obsidian from Melos, also dated by uranium-fission tracks, matched exactly that from Franchthi. The chemical consistency of the two also tallied. And this, say the researchers, is the "earliest positive evidence available in the world, of the transport of goods by sea." □

Aspirin and birth defects: Fetal cell inhibition

Although aspirin has triggered defects in rat and mice fetuses, the evidence suggesting aspirin taken by women during pregnancy can harm their offspring has been circumstantial at best. Now, however, Thomas Paine of Nashville General Hospital and J. Nagington of the Public Health Service Laboratory in Cambridge, England, have shown that aspirin can dramatically arrest the growth of human embryo cells. Their study lends more weight to the argument that aspirin has teratogenic potential in humans.

The researchers took heart, lung, kidney and skin tissue from human fetuses 12, 14 and 18 weeks old, exposed the tissue samples to a salicylate (aspirin) solution, then cultured them. Fetal kidney cells were found to be highly susceptible to aspirin-induced growth inhibition; lung cells somewhat;

heart cells less and skin cells not at all. Identical results were obtained for cells from all three embryos.

This variation in fetal tissue susceptibility to aspirin recalls results of another study of a known human teratogen, the rubella virus. The virus was also found to depress, in human fetal tissue cultures, the replication of kidney and lung cells, but not of skin cells.

Also, the amounts of aspirin which were needed to inhibit fetal cell growth in Paine's and Nagington's study were comparable to the amounts of aspirin found in the umbilical cord blood of newborn infants examined in another study. These high concentrations ranged from 10.9 to 12 milligrams.

In view of the aspirin findings and the fact that women may consume large amounts of aspirin early in pregnancy, Paine and Nagington suggest that the effect of aspirin on the human embryo be more closely investigated *in vivo*. Their work is reported in the Sept. 22 NATURE NEW BIOLOGY. □

The nation's standard setter gets a Congressional review

In 1959 and 1961, Congress examined the National Bureau of Standards and found that it had inadequate facilities, staff and money to do its job. Now in 1971 "there are problems confronting the Bureau which, if left unattended, may result in difficulties not only for the Bureau, but for the nation as a whole," says a recent study done by the Library of Congress for the House Subcommittee on Science, Research and Development.

This month, Rep. John W. Davis (D-Ga.), chairman of the subcommittee, opened hearings for a "complete overview and review" of NBS "to inquire in depth into the organization, operations, functions and effects of this extremely important agency."

The hearings may result in a significant change to the original 1903 act establishing NBS. At the least, the act could be rewritten to include all of the subsequent jobs that have been assigned to the agency. But some NBS officials hope the hearings will also stimulate a change in philosophy and more public visibility for the agency.

NBS Director Lewis M. Branscomb welcomed the oversight hearings: "The need for such hearings is amplified by the swift changes overtaking the Bureau as it attempts to respond to demands placed on it by public needs, established in new legislation, or reflected in changing national circumstances within our original statutory responsibilities."

The Library of Congress study supports the need for hearings. As other problems, it cites the lack of funds to carry out the specific jobs given to NBS, and failure of Congress to act on NBS legislation.

But the basic question, the study says, is "to what goal should NBS be oriented?"

The original responsibilities, established by act in 1903 and amended in 1953, include custody, maintenance and development of the national standards of measurement; determination of physical constants and properties of materials; and cooperation with other Government and private groups in the setting up of standard practices.

But since 1953, Congress has added to these original jobs the testing of fabrics for flammability, establishing fair packaging and labeling standards and studying the metric system, to mention a few. NBS also has the job of developing Federal standards for automatic data handling and for building codes and pollution measurements.

The Bureau has an appropriated budget of only \$46 million a year and a staff of less than 4,000. It receives