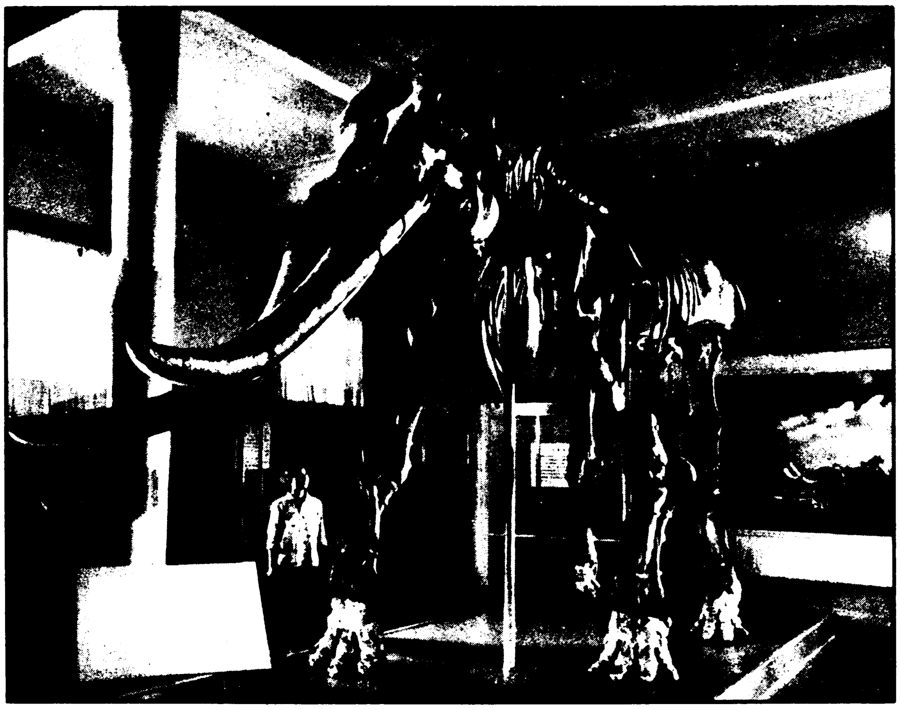
Chinese reveal the perfect stegodon



The People's Republic of China is taking full advantage of the Western world's hunger for knowledge of the Orient. The Chinese archaeological exhibition (SN: 12/28/74, p. 395) drew more than 700,000 spectators at the National Gallery of Art in Washington. This was the largest crowd in the last 25 years to see any special exhibit there—including the Mona Lisa. And the Chinese apparently intend to keep up this interest by keeping the information (or some of it) flowing. China Features, a Peking news service, recently released a story on "the most perfect known stegodon skeleton found anywhere thus far."

The stegodon is an extinct elephant that lived about two million years ago. Stegodon fossil remains have been discovered in regions north of the equator in northeast Africa and Asia. The first such find came in the 1850's, but it and other finds have been limited to cranial bones, teeth or fragments of limb bones.

The Chinese find, made in 1973 along the Yellow River in the Kansu province, consists of an entire skeleton. Members of a commune discovered the "dragon's bones" while collecting sand. Scientists from the Institute of Vertebrate Paleontology and Paleonanthropology of the Chinese Academy of Sciences investigated. Their excavation uncovered a four meter tall, eight meter long skeleton complete in every part and connected in all its limbs. The Yellow River stegodon appears to have died by sinking into a quagmire while drinking from a river or lake. Reinforced with iron, it now stands in the Peking Museum of Natural History. □

Search for laser signals from elsewhere

As radio messages from extraterrestrial civilizations go, 1,420 megahertz is a natural. It is the natural resonant frequency of hydrogen, most abundant element in the universe, and outward-looking researchers feel that it would thus be a natural choice on which to send messages, since each party—sender and receiver—might reasonably expect it to occur to the other. Several listening attempts in recent years have concentrated on 1,420 MHz (a wavelength of roughly 21 centimeters).

Yet the same factor that makes it a good choice, the prevalence of hydrogen, also makes it a poor one. It's noisy. Hydrogen-laden stars everywhere are burbling out their own natural 1,420-MHz static (among other varieties), and interstellar hydrogen, the very stuff of space, absorbs and emits radiation at the same frequency.

Herbert Wischnia, a consulting engineer and president of Sonitrol/Worcester Corp., Worcester, Mass., is trying a different approach. Instead of listening for radio beeps, he is looking for flashes of ultraviolet laser light. "Ultraviolet laser beacons," he says, "offer the potential of high power combined with high efficiency," making them "an efficient and logical electromagnetic radiation source, which could be used by an extraterrestrial community to announce their presence to us."

In addition, there is far less static. "Stars with a temperature near that of our sun," Wischnia says, "radiate very little energy in the vacuum ultraviolet, so that the telescope receivers are not 'blinded' by natural stellar radiation."

There is one considerable obstacle: Ultraviolet radiation is absorbed by earth's atmosphere, so that very little of it reaches the surface. Wischnia's solution is to conduct his search from orbit, using the Princeton University ultraviolet telescope aboard Copernicus, the Orbiting Astronomical Observatory satellite.

His targets are three stars, each about 11 light-years from earth. Two of them—Epsilon Eridani and Tau Ceti—were also the objects of the first official search for radio signals from extraterrestrial civilizations, Project Ozma in 1960. The third star is Epsilon Indi.

Last Novermber, the telescope was trained on Epsilon Eridani during 14 of the satellite's orbits around the earth, while the spectrometer attached to the telescope scanned the ultraviolet spectrum. The data are now being carefully analyzed for pulses, or peaks, spaced at what could be intelligently controlled intervals. The other two stars will be scanned this summer and fall.

The probabilities of success are small, or at least the uncertainties are so great as to make the probabilities unguessable, but then so is the sample. "While it is possible to speculate on the success of detecting extraterrestrial laser signals on the very first attempt," Wischnia says, "it is more realistic to plan for a systematic laser and radio search for the next 100 years." □

Taking a look at X-ray sources

An observatory believed to be the first ever dedicated solely to studies of X-ray sources has just joined the complex of facilities at Kitt Peak, Ariz., despite the fact that stellar X-rays cannot be seen from the ground. Operated by a consortium consisting of the Massachusetts Institute of Technology, Dartmouth College and the University of Michigan, the McGraw-Hill Observatory will receive data from facilities that *can* see stellar X-rays—earth-orbiting satellites—and use it to guide a search for associated, optically-visible effects at the same locations.

The observatory, which took its first look at the sky on May 2, was rushed to completion in order to be ready for the latest of the satellites that will feed it: SAS-3, the third Small Astronomy Satellite, launched May 7. It was the first SAS which began the systematic study of the X-ray sky in 1970, promptly raising the number of known X-ray sources from 36 to about 200, including the discovery of X-ray pulsars as well as X-ray emissions from Seyfert galaxies and quasars. It re-