to finish working with the spacecraft in May, and their instrument package contains numerous temperature-control devices. "One final grand and glorious use of the $60 million biology instrument," says Broome, "may be to use it as a heater."

The killing cold is not here yet, however, and lander 2 this week began a month-long attempt to gather real, solid rocks instead of just more fine material for its inorganic-chemistry experiment.

Two major spectaculars are in store for orbiter 1. This month, the probe's path will be changed to carry it on nearly a dozen close flybys of Phobos, the larger Martian moon. The closest pass, scheduled for Feb. 23, should take the craft to within 70 kilometers of Phobos's surface, yielding photos of objects as small as a few meters across. Then, pending resolution of a computer problem, the orbiter will be shifted again, this time to fly within 300 kilometers of Mars itself. □

Element 126: 'No evidence'

Great excitement was caused by the announcement last June that a group of physicists had found evidence for the existence of element 126 and some other ultraheavy elements in samples of monazite, an ancient mineral from Africa. Skepticism and controversy were generated when various experimenters could find no such evidence in other pieces of monazite (SN: 12/4/76, p. 357).

One of the leaders in the first experiment, Robert V. Gentry of Oak Ridge National Laboratory, has now done the experiment in another way, one that avoids the controversial ambiguity of the first method. In the Jan. 31 PHYSICAL REVIEW LETTERS he, C. J. Sparks Jr., and three other Oak Ridge experimenters report that the new method shows no evidence for element 126 or any other superheavies.

The first experiment had irradiated the monazite with protons. The protons were expected to energize atoms in the monazite, and these atoms would then give off characteristic gamma rays. But critics pointed out that protons might have energized several things at once, and the result would be confusion between gamma rays characteristic of element 126 and those from processes involving known elements. In their latest experiment, the Oak Ridge group used synchrotron radiation from the Stanford Linear Accelerator Center's SPEAR storage ring. Synchrotron radiation is monochromatic and tunable to a particular energy level, so the confusion inherent in the proton experiment doesn't arise. "Our results show," they say, "that none of the superheavy elements are present in the giant-halo inclusions studied." □

Scientists answer the creationists

Since Copernican cosmology, no other scientific theory has caused such controversy and public debate as the theory of evolution. From the Huxley-Wilberforce debates of 1860 to the Scopes "monkey" trials of 1925, evolutionary principles repeatedly have clashed with fundamentalist belief which holds the book of Genesis as the literal account of creation.

In recent years the creation-evolution debate has been rekindled, primarily because of the organized efforts of groups like the Creation Research Society, the Institute for Creation Research and other fundamentalist groups. A new biology textbook based on "creationist" teaching has been gaining acceptance in some school districts, and many state legislatures and school boards now are considering whether the creation theory should be given equal time in the classrooms with modern evolutionary theory.

To support their claims, the creationists have published several books and technical monographs criticizing evolution on scientific grounds and pointing out the differences of opinion among evolutionists on specific details. As an alternative to the evolutionary view, the creationists posit that the Bible must be the source of information about the origins of earth.

Although some scientists think the resurgence of the evolution-creation debate ludicrous, the growing political strength of the creationists has alarmed others. The American Humanist Association (AHA) has now issued a statement signed by 179 prominent scientists, educators and religious leaders affirming evolution as a principle of a science. The 650-word statement, which is being sent to major school districts in the United States, is published in the January/February HUMANIST, along with 18 pages of supporting articles (the lead one by the noted biogeologist Preston Cloud). On the sponsoring committee were Bette Chambers, president of the AHA, Isaac Asimov, Hudson Hoagland, Chauncey Leake, Linus Pauling and George Gaylord Simpson. The scientists call on school boards, teachers and textbook publishers to oppose the "equal time" laws pending in several state legislatures and to reject the concept that evolution is a tenet of a religion of a "secular humanism."

"There are no alternative theories to the principle of evolution, with its 'tree of life' pattern, that any competent biologist of today takes seriously," the statement reads. "Evolution is the only presently known scientific and nonreligious explanation for the existence and diversity of living organisms. It is therefore the only view that should be expounded in public-school courses on science, which are distinct from those on religion."

The statement, Chambers says, is intended to make clear to the public that there is no dispute within science about the validity of evolution. Some question whether such statements have any positive effect, but, she says, not to issue it would be "intellectual cowardice." □

The year of the earthquake

If 1977 goes down as the year of the terrible winter, 1976 must be remembered as the year of the earthquake. According to estimates from the U.S. Geological Survey, as many as 695,000 people died last year in earthquakes and quake-related disasters. The only world quake death toll exceeding this was recorded in 1556 when 830,000 people died in China.

Almost all of the fatalities last year were again located in China, where official estimates are placed at 655,000, although some observers regard the figure with some skepticism. All the same, two earthquakes in other areas of Asia, both registering over 7.0 on the Richter scale, could also have caused more deaths, but none have been reported.

In case the numbers become too inconceivably large, it should be remembered that in 1975 only 1,350 deaths were reported from earthquakes, and in 1974, there were only 5,000.

Oddly enough, 1976 was a little below average in number of "major" earthquakes, those 7.0 or greater on the Richter scale. An average of 19 major earthquakes occur each year, but in 1976 only 18 major earthquakes were recorded.

Waverly Person, the geophysicist at the Survey's National Earthquake Information Service who compiled these figures, explained that the large number of deaths was due to the occurrence of the stronger quakes in areas of high population or less resistant building construction.

In the United States, the strongest quake registered only 5.0, and no deaths or injuries were reported at all.

While earthquakes were wreaking havoc around the world, volcanoes lay relatively quiet. Only 10 new eruptions were located last year, compared with 24 in 1975. Evacuations prior to eruptions played a major role in saving lives. Although La Soufriere in Guadeloupe and Cotopaxi volcano in Ecuador never erupted, similar evacuations did save lives in the major eruptions at Taal in the Philippines and Api Siau in Indonesia. Now geophysicists are gearing up for a major eruption of Mauna Loa, the world's largest volcano, located on the island of Hawaii. Scientists at the Geological Survey predict the bursts to begin by the summer of 1978. □