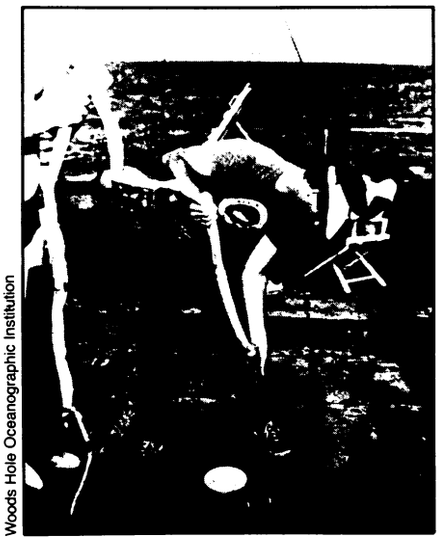
Giant of the Galapagos Rift

Two years ago, researchers found a rich and unusual harvest of sea life clustered near the 9,000-foot-deep hot-water vents of the actively spreading Galapagos Rift (SN: 3/19/77, p. 182). This year, the research submarine *Alvin* again dove to the rift, located 500 miles west of Ecuador, and pulled out another plum: an 8-and-a-half-foot-long sea worm. The worm, pictured with a crew member from Woods Hole Oceanographic Institution, is the largest creature yet recovered from the area; it is a giant version of the 12-inch specimens collected earlier (SN: 4/30/77, p. 279).



Woods Hole Oceanographic Institution

The worm is pink with a reddish tip and lives attached to the ocean bottom in a tough, protective tube that is slightly longer than its body. It has no eyes, no mouth and no gut; expedition biologist Frederick Grassle of Woods Hole says it probably absorbs nutrients directly from the ocean. It is also the third known example of animals that are thought by some biologists to comprise a new phylum. The grouping, called Vestimentifera, is related to segmented worms, the phylum Annelida. But these worms are enough unlike the annelids for biologists such as Smithsonian Institution's Meredith L. Jones, who will be examining the giant worm, to assert that Vestimentifera is a separate phylum. □

Planetary update: Results still coming

The current output of new planetary data from such sources as the Voyager 1 and Pioneer Venus spacecraft is still so intense that keeping track has come to require taking advantage of every scientific meeting, hallway conversation and inter-colleague contact that arises. Many researchers have not even seen all their data yet, and fascinating results appear at a steady clip. Some examples:

- Jupiter's moon Io, whose active volcanoes (photographed by Voyager) are among the major discoveries by any planetary probe to date, may also have lightning. According to the University of Iowa's Donald Gurnett, the probability of lightning in Jupiter's own atmosphere, inferred from bright spots in photos (SN: 3/17/79, p. 165), has now been established "without any doubt" by plasma-wave data indicating low-frequency radio "whistlers" such as are associated with lightning on earth. But, points out Frederick Scarf of TRW, Inc., about a dozen of the whistlers were recorded while Voyager 1 was in or near the Io end of the electrically conductive "flux tube" that connects Io with Jupiter. It is thus conceivable that some of the lightning originates near Io, which might not be inconsistent with the object's volcanically eruptive environment.
- The activity of Io's volcanism is also being measured, and although early estimates are uncertain, says Laurence Soderblom of the U.S. Geological Survey, a comparison with the production rates of meteorite impact craters in the inner solar system suggests that Io may be capable of "erasing" one-kilometer craters in as little as a few million years. If so, the exotic satellite may be resurfacing itself at a millimeter or more per year.
- A second large, concentric-ringed basin (and possibly more) has been identified on the Jovian moon Callisto. One, about 500 km across, was photographed with steep enough side-lighting to show that the rings are indeed raised features (which was difficult to confirm in the near-vertically lit initial case, in which the rings, says Søderblóm, might have been essentially "painted on the surface").
- Streaks criss-crossing yet another Jovian satellite, Europa, have been mapped to the extent that some appear to extend more than half-way around the object. Their nature is still unknown, but one such streak, Soberblom says, may be about 3,500 km long if it is continuous.
- Radar studies of Venus by the Pioneer Venus orbiter, meanwhile, are revealing surface details in which, says one scientist, "the most obvious features that we see right now ... are probably of internal origin." One area formerly thought to be a big northern basin may actually be a huge uplift, 3 to 5 km high and three times the extent of earth's Colorado plateau. A feature known as Beta from earth-based radar mapping and suspected by some of containing a volcano wider than New Mexico may indeed contain a "volcanic center," a scientist reports, but it appears to be part of a vastly larger complex, again some 5 km high, incorporating a region known as Delta. □

Report cautions on sleeping pill use

Despite the availability of prescription sleeping pills that are apparently safer from abuse than all barbiturates, the "ideal hypnotic" has not been found, and physicians should "rarely, if ever" prescribe sleeping pills to new patients for more than two to four weeks, a committee of the National Academy of Sciences' Institute of Medicine reported last week.

The use of barbiturates as the prescribed remedy for insomnia has fallen off in favor of benzodiazepines, such as flurazepam (Dalmane) and chlordiazepoxide (Librium). In 1971, for instance, 47 percent of sleeping pill prescriptions were for barbiturates; in 1977 — when approximately 8.5 million Americans used a prescription sleeping pill—17 percent were for barbiturates and 53 percent for the benzodiazepine flurazepam. In view of this trend, President Carter, in August 1977, asked for a review of the comparative safety and usefulness of the two classes of drugs, and the report was prepared for the White House Drug Policy Office and the National Institute on Drug Abuse.

Based on a review of drug studies and physician interviews and questionnaires, the committee, headed by William C. Anlyan of Duke University Medical Center, concluded, that, although benzodiazepines are safer than barbiturates in overdose, they have other insufficiently recognized hazards, particularly in the elderly and in patients with kidney problems. The committee found that the two types of drugs are "probably equally effective in short-term use" and that more restrictions on barbiturates are currently unwarranted. Until more is known about long-term regular use, however, physicians should prescribe sleeping pills only for short-term use by new patients and should monitor "already reliant" patients for toxic side effects and risk factors.

The committee also concluded that:

- The usual dose of the popular drug flurazepam should be 15 milligrams, rather than the often-used 30 mg, because the lower dose has the same effect on sleep as does the higher dose without its adverse effects.
- Physicians should prescribe sleeping pills only after a "thorough medical and psychosocial appraisal" of the patient and should provide the patient complete information on the drug.
- Programs on insomnia and hypnotic drugs should be made part of medical education.
- Information on the dosage and reactions to drugs is incomplete and should be required in drug advertisements.
- Independent research and not drug company-initiated clinical research is needed on insomnia and hypnotic drug efficacy. □