

successfully "worked around" until March 15, when a major leak developed in the system 1 roll axis. The orbiter was switched back to system 2, but its yaw-axis leak suddenly grew until it had drained the system dry, necessitating a return to the leaky system 1.

Typical gas-use rates, plus the leak, would use up the last of the gas in 7 to 10 days. Thus controllers were planning early this week to deactivate the leaky roll jet, letting the orbiter drift in that axis until it is decided to reactivate the full system for a last, brief scientific fling. Then orbiter 1 will have to handle the whole load, including relaying messages for lander 2, which can no longer signal earth directly on its own. Orbiter 2's last scientific accomplishments are likely to be a north polar water-vapor survey and/or the completion of northern mid-latitude photomapping. □

Super-centenarians demoted

Persons living to 125, even 150 years of age purportedly live in three areas of the world—the Andes Mountains of Ecuador, the Caucasus Mountains of the Soviet Union and the province of Hunza in Kashmir. The only records that really seemed to document such claims to longevity, however, were to be found in the Andes. And now the reliability of even those records is being called into question by a study reported at a recent National Institutes of Health workshop.

Several years ago, Alexander Leaf, a gerontologist from Harvard University, began to suspect that great claims to longevity in the Andes weren't all they were cracked up to be. For instance, in the village of Vilcabamba, Ecuador, Leaf met a man said to be 122. When he returned there in 1974, he was told that the man was 134. Richard B. Mazess, a radiologist at the University of Wisconsin at Madison, and Sylvia H. Forman, an anthropologist at the University of Massachusetts, have now taken a close look at baptismal, marriage and death records for older residents of Vilcabamba. They conclude that no one in Vilcabamba is older than age 96, because baptismal records for elderly in the village are often confused with those of their forefathers having identical names. The way the investigators showed that the records are confused was by asking the elderly for the names of their godparents. The godparents were obviously not the same as those of the forefathers, thus revealing whose baptismal records belonged to whom.

Nor does Vilcabamba have an excess of old people because villagers are doing something to live to a lusty age, the investigators' findings suggest. Rather, the village has many old people because most of its young people are migrating away. □

Wet worlds and dry

A little water can go a long way. The existence of life on earth, as well as the face of the planet itself, is largely due to vast quantities of the stuff, but far smaller quantities of water can have major impacts. The same spacecraft that failed to find canals or vegetation on Mars have revealed what some scientists believe to be widespread signs of past erosion by water, for example, and there is even a hypothesis that water may exist as permafrost beneath the polar regions of the moon.

The "outgassing" of water from the interior of an evolving planet can help provide an atmosphere, produce oceans, build new rocks and wear away old ones. Yet water's myriad world-shaping roles are far from fully understood, and some of what remains to be learned may be of major significance in the growing science of the comparison of worlds.

As little as one percent of water in a young planet's mantle can lower the temperatures needed for melting by as much as 600°C, says Jeffrey L. Warner of the NASA Johnson Space Center in Houston. The same amount of heat, whether from gravitational effects, radionuclides or other sources, can then produce more melting, and the result is "a lengthening in time of the highly active and volcanic tectonic stages." One consequence, as he told the recent Lunar and Planetary Science Conference in Houston, is that a wet planet's molten outer portion may be substantially thicker throughout its evolution.

Wagner suggests that this reasoning may be particularly relevant to Venus, about whose interior virtually nothing is directly known. Recent radar studies of Venus have revealed what may be a huge volcano (SN: 5/14/77, p. 313), larger than the state of New Mexico and possibly taller than any volcano on earth. To support such an object, Warner calculates, the planet's lithosphere must be at least 140 kilometers thick, far thicker, he says, than earth's.

His inference, which at first might seem unconnected, is that Venus is, and has ever been, a truly dry world. "If Venus is dry," he says, "then it would develop more rapidly and have a thicker [post-molten] lithosphere at any given time than would an equivalent wet planet such as the earth. Whereas the earth is still in its active tectonics stage, Venus appears to be in its volcanic stage."

Warner's Venus reasoning proved somewhat controversial at the conference, but it is part of the modeling of a little-understood planet. Somewhat farther along is another controversy, which one scientist has labeled "The Martian Water War." Some scientists disagree with what seems to be the majority view that liquid water in the past contributed to

various features on the surface of Mars. One such dissenter is James A. Cutts of the Planetary Science Institute in Pasadena, who feels that the idea of flowing water, given today's dry Mars, should be treated as the Viking biologists have treated the possibility of Martian life: as a hypothesis of last resort.

Cutts, a member of Viking's orbiter imaging team, has calculated that various channels, "islands" and other features might be attributable to lava, wind or other factors rather than to water. At the Houston meeting, he reported that a number of large channels leading to Chryse basin (the Viking 1 landing site), attributed by some researchers to ancient catastrophic flooding, may instead be the results of millions of years of unrelenting erosion by coarse, wind-driven sand. In fact, he says, the channels do not end at Chryse at all, but extend perhaps 1,000 km farther north to the plains of Acidalia. From that single outlet, he adds, the cutting sand has been spread by circumpolar winds to form what is now the vast sea of dune fields that girdles the Martian north pole.

Indeed, it has been calculated that "salting particles" — grains sent hopping across the ground by wind — may have 10 times the momentum and 100 times the kinetic energy on Mars that they do on earth. And even some of the more "water-tolerant" Viking researchers such as Harold Masursky of the U.S. Geological Survey have said it is difficult to tell whether some of the smaller Martian channels are due to water or lava. Yet it has also been calculated that meteorite impacts could generate "temporary lakes" from the presumed permafrost reservoir, and Carroll Ann Hodges of the uscs told the meeting that Mars shows signs of "widespread sub-glacial volcanism that failed to reach the surface" through "hundreds to thousands of meters" of ice.

The Water War waxes. □

Hepatitis: New viral type?

The number of cases of post-transfusion hepatitis (PTH) has declined due to reliable blood tests for hepatitis A and B and decreased use of paid-donor blood. Even so, as many as 150,000 cases still occur each year. Now, work by two teams of researchers, headed by Harvey J. Alter of the National Institutes of Health and Edward Tabor of the Food and Drug Administration, confirms suspicions that "non-A, non-B" PTH may be caused by a virus or virus-like agent. In the March 4 LANCET, they report producing non-A, non-B hepatitis in chimpanzees by injecting blood from either non-A, non-B PTH cases or hepatitis A- and B-negative donors whose blood has caused PTH. This evidence gives researchers an animal model to help identify the agent or agents and to develop a screening test. □