More Momentum for Mars — and Martians

"The Viking biology experiments gave us essentially no information about life on Mars," recalls Christopher P. McKay of the NASA Ames Research Center at Moffett Field, Calif. The complex mission's four spacecraft, which reached the planet in 1976, neither found Martians nor ruled out the possibility of their existence, though some researchers concluded that the failure to detect organic materials on the surface made the case a considerably weaker one.

The next U.S. Mars mission, scheduled for launch in 1992, will only orbit the planet, not land on it, and Soviet researchers have given only brief indication that any of four planned Soviet missions — the first of them due to take off next summer — would be equipped to carry on the search for life.

But a satellite-aided television conference-call last week between space-program representatives from the two superpowers left the U.S. participants with the feeling that Soviet interest in the issue has been underestimated.

Arranged by the Planetary Society, a large, pro-space group based in California, the call was conducted between a Soviet group in Moscow and an American group on the campus of the University of Colorado in Boulder, the site of a Mars-mission conference called the Case for Mars. "I was surprised by the extent to which they were interested in looking for life on Mars," says McKay. "It was their big thing. In fact, as chairman, the biggest problem I had was that they wanted to give us too much information — I had to cut them off so that we [the U.S. scientists] could talk."

Unfortunately, communications during the "teleconference," dubbed "Spacebridge" by the Planetary Society, were less than perfect, preventing as much conversation as the participants had hoped. "We wanted to ask them details," McKay says, and during an unplanned audio gap the intrigued Americans thought about follow-up questions. "We thought we were going to get linked up again, so we went through and talked over what we would like to ask them — things like 'How exactly would you measure life?' came up, and 'Why do you think there's water under the ground?'"

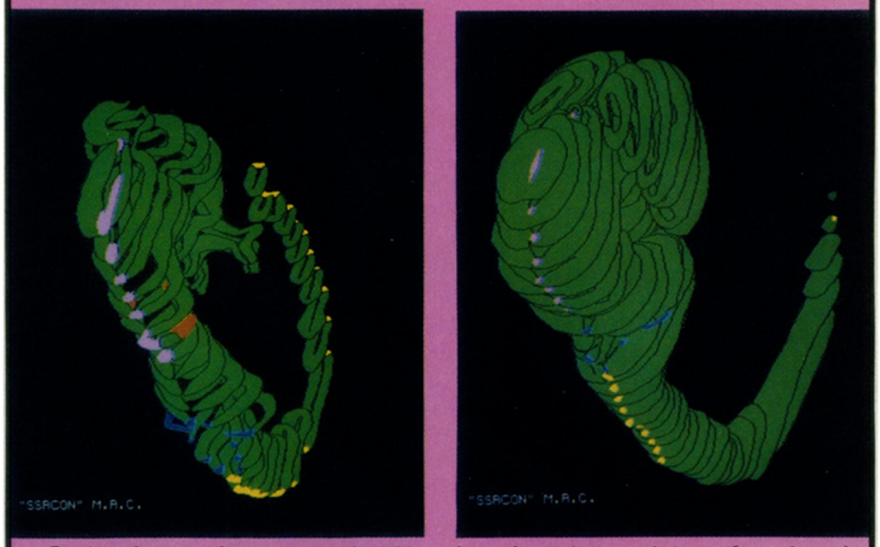
U.S. and Soviet officials alike have been considering the possibility of sending human beings to Mars, perhaps in a cooperative international program. Another question from the American side, says McKay, might have been "Do you consider your presently planned missions part of a long-term program that leads to humans?"

The limited time remaining did not provide the opportunity, but one Soviet scientist did suggest that interest in the possibility of Martians is high enough to warrant pursuing it well before humans go there to look, which could be 20 years or more. "There's no point," he said, "in waiting to send man to Mars."

Even apart from further searches for Martian life-forms, many U.S. space scientists have expressed frustration in recent years about the decline in NASA's plans for planetary exploration, including Mars missions beyond the planned 1992 "Mars Observer." According to former NASA Administrator Thomas Paine, head of the presidentially appointed National Commission on Space as well as of last week's Case for Mars meeting, "Mars should be the central focus of our long-range, manned space program.

"Today NASA's budget is about a third of the size that it was when I was running it," he told the meeting. "I don't think it has to be back at the peak of Apollo, but I think it ought to be at least half. And I think, furthermore, that that half should be related to the total economy of the United States, so that as that economy

'Precancer' gene localized in embryo, sperm



During the past five years, it has become clear to scientists that certain proto-oncogenes — those genes involved in tumor growth following activation by cancer-causing viruses — also play a regulatory role in normal embryo development. Based on evidence that proto-oncogenes can code for growth factors and control cell differentiation, research groups have searched for products of the genes in embryonic tissues. Two of those groups independently report in the July 3 CELL *that the product coded for by the proto-oncogene called* int-*1 is restricted in the embryo to specific cells in the developing brain and spinal cord.*

Using radioactive int-*1 DNA as a probe, scientists at the National Institute for Medical Research in London assayed sections of mouse embryos for expression of* int-*1, which also is found in mammary tumors in mice. David G. Wilkinson, Juliet A. Bailes and Andrew P. McMahon compiled data from embryos of different ages and used computers to reconstruct three-dimensional models of* int-*1 distribution in embryonic neural tissue (see photos). The figure on the left shows a 10 1/2-day embryo; that on the right shows a 14 1/2-day embryo. Neural tissue is indicated in green. The pink, red and blue regions mark* int-*1 expression in various regions of the embryonic brain; the yellow represents* int-*1 expression in the spinal cord.*

Gregory M. Shackleford and Harold E. Varmus at the University of California at San Francisco also report that expression of the int-*1 gene is restricted to specific regions in the developing central nervous system of embryos 11 to 15 days after conception. In addition, they say that* int-*1 is expressed in adult mouse testes only in the immediate precursors of mature sperm. Shackleford and Varmus note that this "severely restricted pattern of expression" is unusual among proto-oncogenes. Although these results suggest that* int-*1 is important in early development of the central nervous system and in spermatogenesis, both the British and U.S. research groups say the mechanism of* int-*1's influence is unknown.*