SPECIAL DELIVERY FROM SPACE

With the space shuttles sidelined since the fatal disintegration of the shuttle Columbia last February, getting cargo to the International Space Station—in orbit 250 miles above Earth—has been a challenge for NASA. In the interim it’s relying on the Progress, an unmanned Russian freight-hauler. And eventually it can use the Automated Transfer Vehicle (ATV), which the European Space Agency is building. But both the Progress and the ATV are disposable vehicles that burn up during re-entry. So they’re no good in getting cargo back to Earth. Why is that a problem? Well, certain things need to be brought back to Earth in one piece, like machine parts needing refurbishment and completed scientific experiments. One idea being developed by European and Russian researchers is the Inflatable Re-entry and Descent Technology (IRDT) container. The IRDT can be packed aboard unmanned craft, like the Progress or the ATV, and sent to the space station. Once aboard the station, it can be filled with about 350 pounds of cargo. For the return trip, the IRDT would be reattached to the unmanned vehicle, but would be jettisoned just before it’s most dangerous. A cone-shaped wrap inflates around the container while it’s still 66 miles above the ground, and that starts its deceleration. At the 17-mile mark, a second cone inflates, slowing it down even further. The IRDT can land at sea or on the ground. It’s still traveling at 24 mph at that point, but it’s fitted with shock absorbers and a flexible nosecone to ease the impact of landing. The containers are reusable, although the inflatable cones need replacing after each trip.

Matthias Hill, a spokesman for Astrium, the German manufacturer, says the cost of using the IRDT is about $5,900 per pound. That’s almost half the cost of using a shuttle. The IRDT has been tested twice. The first test was a success, Hill says, while the second was a “semi-success,” because it landed somewhat off target. A third test is planned for early 2004. If that’s successful, the space station may soon have a new home-delivery service.
REPLACING HUMANS

While "Mars or Bust" [October, p. 9] makes a good case for space exploration, I disagree with the statements that humans are indispensable for such things as space geology. There is nothing a human being can do in space that cannot be better done with a robot. Human brains for space exploration are required for specifying the experiments to be performed and then to control and modify them as decided from Earth.

There is no argument that the cost savings for space exploration by robot rather than human is about 90 percent; that is, automated space programs are about one-tenth the cost of those that use humans aboard the spacecraft. As for Mars [photo], the author forgets the long-term deleterious effects that cosmic rays have on human brains when not protected by the Earth's atmosphere, as a venture to Mars would entail.

These comments also apply, more or less, to "How to Fix the NASA Disaster" [October, pp. 10–12] with regard to the rationale for the entire Space Shuttle program. My view is that the space exploration programs could and should be expanded significantly by ceasing to use astronauts. I believe the romanticism about people in space has subsided to the point where we can be sensible about exploratory projects.

SHELDON C. PLOTKIN

Los Angeles