



SPACE

IS THERE MONEY ON THE MOON?

LunaCorp wants to send the first private mission

A year ago, while a tarantula-like robot called Dante II inched its way down an Alaskan volcano, scientists at Carnegie Mellon University were amazed by the attention that ensued. Dante became a media darling, and its stumble in the volcano and helicopter rescue even added a touch of pathos. "Dante had a half-million hits on its Web page" during its two-week saga, recalls William L. "Red" Whittaker, director of CMU's Field Robotics Center.

All that exposure—and no paying customers. In today's information economy, where on-air minutes are buckets of gold, the NASA-sponsored Dante failed to cash in. The lesson wasn't lost on David P. Gump, president of LunaCorp, an Arlington (Va.) startup. Gump wants to send a pair of Dante's offspring to the moon and cover the \$150 million cost with information fees—from network exclusives to live video feeds into theme parks. It's time, Gump says, to "bring back some of the magic" of space.

If LunaCorp can raise the funds, the first private moon mission will be a glitzy event, with corporate customers paying

for each bit of data the six-wheeled robots send back. LunaCorp proposes to launch two rovers in 1998, probably on a Russian rocket. Powered by solar energy, the tele-operated vehicles would ramble 1,000 kilometers across the moon, sending back high-quality video images for two years or more. The signals would feed into a command center at a U.S. amusement park, where thrill-seekers would remotely steer the vehicles across the lunar landscape, seeing what the rovers see and feeling

a simulation of the jostling ride.

Gump isn't the only earthling with designs on the moon. The Japanese and Europeans also plan unmanned missions—in 1998 and 2002, respectively (table). Longer term, both hope to set up lunar colonies and mine for a helium isotope, He3, that could fuel a future generation of fusion reactors. But Gump wants quicker results. At age 44, he has devoted his life to outer space. The onetime publisher of space magazines now markets space-related CD-ROMs—such as his 1993 *Return to the Moon*, which has sold 24,000 copies.

NIKE MISSILES? Turning the moon into a giant Luna Park is only part of Gump's scheme. He envisions soda-pop commercials beaming down. Shoe companies will pay for lunar footprints, he predicts, and networks will bid for live feeds as the rovers approach historic sites, such as the Apollo 11 landing area.

Many NASA scientists are cheering him

MOON BUGGIES: TO GO WHERE NO THEME PARK HAS GONE BEFORE

Back to the Moon

COMPANY NAME

LUNACORP

JAPANESE NATIONAL SPACE AGENCY

EUROPEAN SPACE AGENCY

PLAN

Launch two tele-operated rovers in 1998. Explore 1,000 km of lunar terrain over at least two years, sending back commercial video to theme park, television

Launch "penetrator" in 1998. Use probes to dig beneath the lunar surface to study chemical composition of soil

Send rover to south pole of moon in 2002. Operate rover for four lunar days; survey surface, soil

on, albeit from a distance. They hope a LunaCorp success will give the space industry a boost. "It pioneers the way," says David Lavery, a NASA manager.

Gump has attracted a high-powered—if unpaid—team. It includes Chairman Thomas F. Rogers, a former Massachusetts Institute of Technology physicist who, while at the Pentagon, designed the first satellite communications system, and Mercury astronaut Scott Carpenter, an adviser. And "Red" Whittaker has already built robots to explore some nasty environments, including the Three Mile Island nuclear reactor.

Turning the dream into reality will cost \$80 million for the launch and \$43 million for four rovers. (Two would be spares, in case the first launch fails.) The linchpin, Gump says, will be hooking a theme park for a \$40 million investment in a command center. He is talking to Six Flags Corp. and Universal Studios but nothing is signed yet. Also, one convert—David Kennard, executive director of Information Design Associates, a unit of Foote, Cone & Belding—says he has made presentations to AT&T, where the project is under "active consideration."

In contrast to financing, the technical challenges should be relatively easy. A prototype has already maneuvered a 10-km obstacle course in Pittsburgh, and next summer, it will head out on a 1,000-km desert jaunt. Making the robots smart enough to ignore destructive commands could take some doing, though. Says Carnegie Mellon researcher Eric Krotkoff: "We pretend we're a user who's malicious, who keeps trying to steer them over a cliff."

NEXT STOP, MARS? Perhaps the biggest hurdle is energy. The two-week lunar "day" provides plenty of solar power. But if the theme park demands continuous shows, the robots will have to perform during the lunar night, when temperatures plummet to 170C below zero. While nuclear power is one solution, a more politically correct option is krypton gas, which produces heat as it radioactively decays. But krypton is expensive and could add \$50 million to the cost.

NASA has poured \$1.3 million into CMU's robotic research with hopes that similar rovers will eventually explore Mars. Could the Red Planet become a target for private enterprise, too? Perhaps, Gump says. It will take billions for a new generation of spaceships, and investors will be much more eager to reach for their wallets once someone has made a buck on the moon—even if it is from sneaker ads and theme parks.

By Stephen Baker in Pittsburgh